

# VEROBOARD®

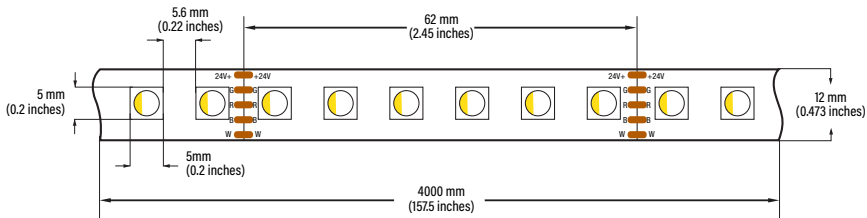
**LED Type:** VBDCFS-5050-RGB+3.2K-96-24-NS  
**Colour:** RGB+3200K (Warm White)



## DESCRIPTION

Flexible 12 mm wide linear LED strip. Available in 4 meter (157.5 inches) rolls that can be cut every 6 LEDs (62 mm or 2.45 in). The LED Strip lights are manufactured with high-quality materials and designed for professional lighting. Every strip light begins with a heavy-duty dual-core copper printed circuit board (PC Board), which is then soldered with an array of chips and color options. They can be cut to any size (marked interval points) and rejoined by soldering.

## DIMENSIONS



## SPECIFICATIONS

|                               |   |
|-------------------------------|---|
| <b>Model:</b>                 | VBDCFS-5050-RGB+3.2K-96-24-NS                             |
| <b>Color Temperature:</b>     | RGB+3200K (RGB+Warm White)                                |
| <b>LED Type:</b>              | 5050 SMD  |
| <b>LED Qty:</b>               | 96 LEDs per meter   |
| <b>Input Voltage (VF):</b>    | 24V DC  |
| <b>Power:</b>                 | 18W per meter (5.5W/ft)                                   |
| <b>Brightness:</b>            | 2000-2400 MCD for RGB & 500Lm/m (152Lm/ft) for Warm White |
| <b>Lifespan:</b>              | >50,000 hours   |
| <b>PCB:</b>                   | 4oz PCB, Double-side, white colour 12mm width             |
| <b>IP Rating:</b>             | IP20 (Indoor use only)                                    |
| <b>Rendering Index (Ra):</b>  | CRI>95  |
| <b>Beam Angle:</b>            | 120°  |
| <b>Dimmable:</b>              | Yes   |
| <b>Cut Size:</b>              | Every 6 LED chips (2.5")                                  |
| <b>Operating Temperature:</b> | -15°C to +40°C  |
| <b>Dimensions:</b>            | 4,000mm x 12mm x 2mm (373.2" x 0.47" x 0.07")             |
| <b>Certificates:</b>          | UL / RoHs   |
| <b>Roll Length:</b>           | 4 meter roll (13.1ft)                                     |

**Job Name:** \_\_\_\_\_

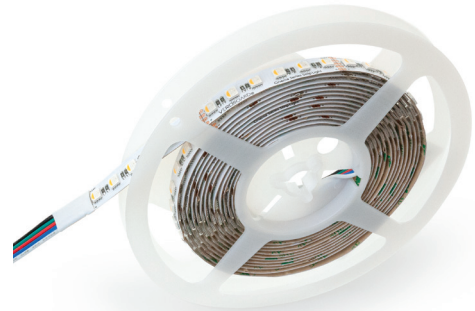
**Distributor:** \_\_\_\_\_

**Type:** \_\_\_\_\_

|           | Wattage | Brightness |
|-----------|---------|------------|
| Per Foot  | 5.5W/ft | 152Lm/ft   |
| Per Meter | 18W/m   | 500Lm/m    |



666561420178



### ORDERING GUIDE

Example part number: **VBDCFS - 5050 - RGB+3.2K - 96 - 24 - NS**

| MODEL  | SERIES | COLOUR   | LEDS/METER | VOLTAGE | LENGTH |
|--------|--------|----------|------------|---------|--------|
| VBDCFS | 5050   | RGB+3.2K | 96         | 24V     | XXXX   |

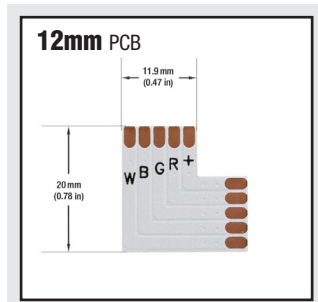
Custom Length  
Full Roll  
(4 Meter)



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## CONNECTORS (Sold Separately)

Note: Connectors fit in some aluminum channels only.



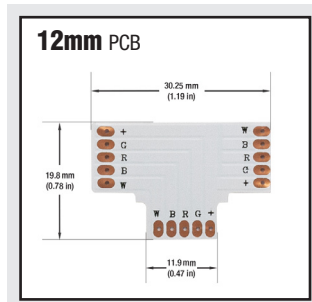
**MODEL: VBD-FPC12-L5A**

**Material:** PCB

**Strip Light Width:** 12mm

**Package Content:** L Shape PCB Connectors (Pack of 3)

666561406943



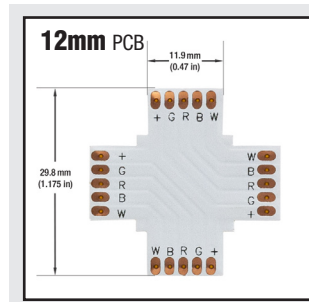
**MODEL: VBD-FPC12-T5A**

**Material:** PCB

**Strip Light Width:** 12mm

**Package Content:** T Shape PCB Connectors (Pack of 3)

666561406936



**MODEL: VBD-FPC12-C5A**

**Material:** PCB

**Strip Light Width:** 12mm

**Package Content:** 4 Way PCB Connectors (Pack of 3)

666561406929

## CONTROLLERS (Sold Separately)



**Model:** SR-2819S (R3)

**SKU:** 666561430863

**Compatible Receivers:**

- SR-1009EA-5C (R-25.5A) 300-900W **SKU:** 666561430818
- SR-1009TYWi-5C (R-4A) 300-900W **SKU:** 666561430788
- SR-1009EATYWi-5C (R-8A) 96-192W **SKU:** 666561430795



**Model:** VBD-MI-4Z-B3

**SKU:** 666561412913

**Compatible Receivers:**

- VBD-MI-FUT037 **SKU:** 666561412869
- VBD-MI-FUT038 **SKU:** 666561425180

### Disclaimer:

The data and information contained in this specification sheet are subject to change without notice; the ratings supplied are provided based on the product manufacturer. The information contained in this specification sheet should not be considered a warranty, expressed or implied, including, but not limited to, a warranty of merchantability or fitness for a particular purpose. In no event shall Veroboard be liable for any incidental or consequential damages resulting from the use, misuse, or inability to use the product. This exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory.

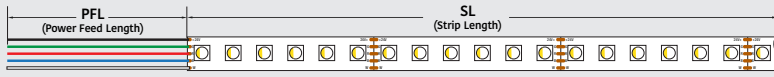
To see all available controllers and remote controls, please scan the QR code with your smartphone.



## CUSTOM ORDERING GUIDE ✂

**Single Run (Straight Run):** The below ordering guide will be used for single run LED strip.

- **PFL:** Power Feed Length
- **SL:** Strip Length

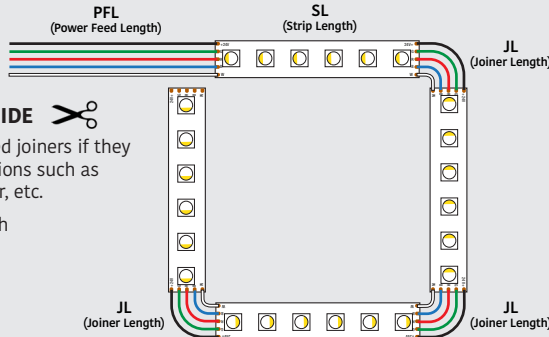


Example: 2 (QTY) x 36" (PFL) - 84" (SL)  x  -

## CUSTOM ORDERING GUIDE ✂

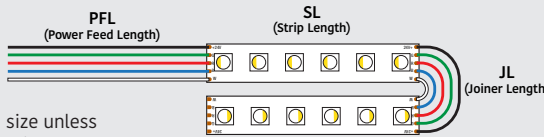
**Joiner:** LED strip lights need joiners if they are used for curve applications such as corner side, behind a mirror, etc.

- **PFL:** Power Feed Length
- **SL:** Strip Length
- **JL:** Joiner Length



x  -  -  -  -  -  -  -

Example: 1 (QTY) x 12" (PFL) - 46" (SL) - 1" (JL) - 36" (SL) - 1" (JL) - 46" (SL) - 1" (JL) - 36" (SL)



**Note:** Joiners will be 1-inch size unless customers require a specific size.

x  -  -  -

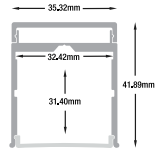
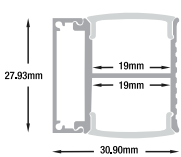
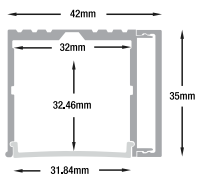
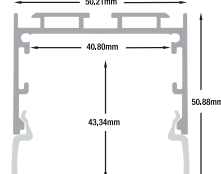
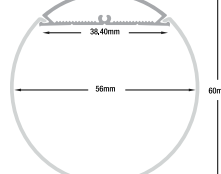
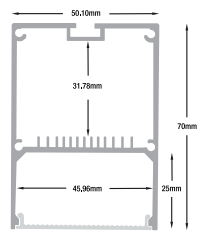
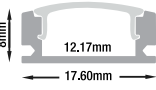
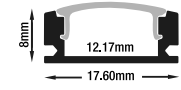
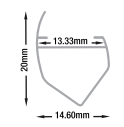
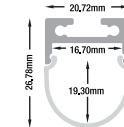
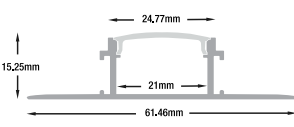
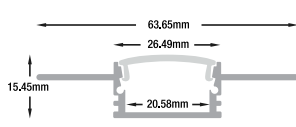
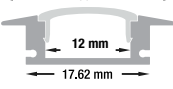
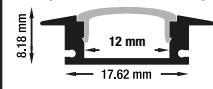
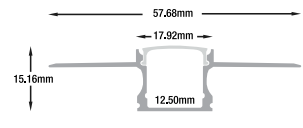
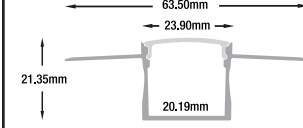
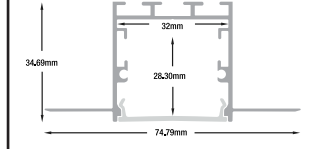

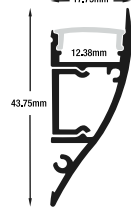
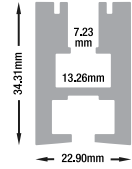
Example: 2 (QTY) x 24" (PFL) - 52" (SL) - 1" (JL) - 52" (SL)

## RECOMMENDED LED ALUMINUM CHANNELS

(Sold Separately)

|   |   |   |
|---|---|---|
| <b>VBD-CH-S4</b><br><br>15.5mm, 12mm, 17.5mm  | <b>VBD-CH-S4B</b><br><br>15.5mm, 12mm, 17.5mm                   | <b>VBD-CH-S6</b><br><br>10.6mm, 20.15mm, 23.44mm          |
| SKU: 666561423278   | SKU: 666561423285   | SKU: 666561423315   |
| <b>VBD-CH-S5</b><br><br>6mm, 13mm, 17mm   | <b>VBD-CH-S5B</b><br><br>6mm, 13mm, 17mm                        | <b>VBD-CH-B1</b><br><br>6.14mm, 13.89mm, 18.77mm          |
| SKU: 666561423292   | SKU: 666561423308   | SKU: 666561423360   |
| <b>VBD-CH-C2</b><br><br>18.5mm, 14mm, 18.5mm  | <b>VBD-CH-C2B</b><br><br>18.5mm, 14mm, 18.5mm                   | <b>VBD-CH-RF4</b><br><br>23.4mm, 18.6mm, 12mm             |
| SKU: 666561423506   | SKU: 666561423513   | SKU: 666561423377   |
| <b>VBD-CH-RF1</b><br><br>12.5mm, 15mm, 17mm   | <b>VBD-CH-RF1B</b><br><br>12.5mm, 15mm, 17mm                    | <b>VBD-CH-C1</b><br><br>25.68mm, 15.07mm, 21.19mm         |
| SKU: 666561423339   | SKU: 666561423346   | SKU: 666561423490   |
| <b>VBD-CH-C3</b><br><br>30mm, 20mm, 20mm, 30mm  | <b>VBD-CH-C3B</b><br><br>30mm, 20mm, 20mm, 30mm                 | <b>VBD-CH-W1</b><br><br>26.16mm, 12mm, 21.43mm            |
| SKU: 666561423520   | SKU: 666561423537   | SKU: 666561423445   |
| <b>VBD-CH-RF7</b><br><br>32.16mm, 75mm, 58mm, 25.50mm, 71mm, 90mm                         | <b>VBD-CH-RF8</b><br><br>32mm, 70.15mm, 23.50mm, 75mm           | <b>VBD-CH-S2</b><br><br>9.68mm, 56.75mm, 17.29mm, 13.22mm |
| SKU: 666561423407   | SKU: 666561423414   | SKU: 666561423254   |
| <b>VBD-CH-WC4</b><br><br>45.50mm, 85mm, 26.72mm, 57.68mm, 14.67mm, 32.28mm, 37.85mm, 90mm | <b>VBD-CH-WC5</b><br><br>39mm, 43.03mm, 43.03mm, 53.84mm, 102mm | <b>VBD-CH-ST2</b><br><br>21mm, 95mm, 13mm                 |
| SKU: 666561423629   | SKU: 666561423636   | SKU: 666561423582   |
| <b>VBD-CH-S3</b><br><br>55.38mm, 13.56mm, 7.96mm  | <b>VBD-CH-RF6</b><br><br>31.90mm, 46.42mm, 23.80mm, 50.20mm     | <b>VBD-CH-RF5</b><br><br>32mm, 30.84mm, 35.65mm, 34.79mm  |
| SKU: 666561423261   | SKU: 666561423391   | SKU: 666561423384   |
| <b>VBD-CH-R2</b><br><br>25.95mm, 22.94mm, 17.46mm, 21.84mm                                | <b>VBD-CH-R2B</b><br><br>25.95mm, 22.94mm, 17.46mm, 21.84mm     | <b>VBD-CH-D10</b><br><br>136mm, 13.66mm, 12mm, 19mm       |
| SKU: 666561423742   | SKU: 666561428280   | SKU: 666561420023   |

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|   |  |   |   |  |  |  |
|---|--|---|---|--|--|--|
| <b>VBD-CH-WC1</b><br><br>SKU: 666561423599 | <b>VBD-CH-WC2</b><br><br>SKU: 666561423605  | <b>VBD-CH-WC3</b><br><br>SKU: 666561423612 | <b>VBD-CH-S1</b><br><br>SKU: 666561423247 | <b>VBD-CH-R3</b><br><br>SKU: 666561423759   | <b>VBD-CH-RF10</b><br><br>SKU: 666561423438 |  |
| <b>VBD-CH-S55</b><br><br>SKU: 666561429966 | <b>VBD-CH-S55B</b><br><br>SKU: 666561429973 | <b>VBD-CH-C5</b><br><br>SKU: 666561423568  | <b>VBD-CH-R1</b><br><br>SKU: 666561423735  | <b>VBD-CH-D1</b><br><br>SKU: 666561423643  | <b>VBD-CH-D5</b><br><br>SKU: 666561423681   |  |
| <b>VBD-CH-RS5</b><br><br>SKU: 666561428631 | <b>VBD-CH-RS5B</b><br><br>SKU: 666561428648 | <b>VBD-CH-D7</b><br><br>SKU: 666561423704  |   |  | <b>VBD-CH-D8</b><br><br>SKU: 666561423711    | <b>VBD-CH-D9</b><br><br>SKU: 666561423728 |
| <b>VBD-CH-M1</b><br><br>SKU: 666561423773  | <b>VBD-CH-M1B</b><br><br>SKU: 666561431013  | <b>VBD-CH-E1</b><br><br>SKU: 666561423483  |   | <b>Note:</b> To avoid a dark spot on the sides of these channels (RF10, RF6, RF8, R3, S1, R3) we recommend installing more than one Run LED Strip. For more details please contact us at: <a href="mailto:sales@veroboard.com">sales@veroboard.com</a> |  |  |

## RECOMMENDED LED POWER SUPPLIES (Sold Separately)

For more options and varieties, please visit our website: [www.veroboard.com](http://www.veroboard.com)

### Constant Voltage Dimmable LED Drivers (5 in 1), Triac/Phase, 0-10V, 1-10V, Potentiometer, 10V PWM 5 in 1 Dimming



| Model No.          | Input Voltage | Output Voltage | Wattage      | IP Rating | Class   | Max. Strip Length | SKU#         |
|--------------------|---------------|----------------|--------------|-----------|---------|-------------------|--------------|
| VBD-024-030C2DM5i1 | 100-277V      | 24V            | 30W          | IP67      | Class 2 | 4.4ft             | 666561426033 |
| VBD-024-060C2DM5i1 | 100-277V      | 24V            | 60W          | IP67      | Class 2 | 8.7ft             | 666561426040 |
| VBD-024-080C2DM5i1 | 100-277V      | 24V            | 80W          | IP67      | Class 2 | 11.6ft            | 666561426088 |
| VBD-024-096C2DM5i1 | 100-277V      | 24V            | 96W          | IP67      | Class 2 | 14ft              | 666561426057 |
| VBD-024-192C2DM5i1 | 100-277V      | 24V            | 192W (2x96W) | IP67      | Class 2 | 28ft              | 666561426064 |
| VBD-024-288C2DM5i1 | 100-277V      | 24V            | 288W (3x96W) | IP67      | Class 2 | 42ft              | 666561426071 |

### Constant Voltage Triac LED Drivers forward Phase, Magnetic Low Voltage & Triac Dimmers



| Model No.        | Input Voltage | Output Voltage | Wattage | IP Rating | Class   | Max. Strip Length | SKU#         |
|------------------|---------------|----------------|---------|-----------|---------|-------------------|--------------|
| VBD-024-024DM    | 100-130V      | 24V            | 24W     | IP20      | Class 2 | 3.5ft             | 666561415839 |
| VBD-024-048DM    | 100-130V      | 24V            | 48W     | IP20      | Class 2 | 7ft               | 666561415822 |
| VBD-024-060DM    | 100-130V      | 24V            | 60W     | IP20      | Class 2 | 8.7ft             | 666561415815 |
| VBD-024-096DM    | 100-130V      | 24V            | 96W     | IP67      | Class 2 | 14ft              | 666561415808 |
| VBD-024-150DM    | 100-130V      | 24V            | 150W    | IP67      | -       | 22ft              | 666561415792 |
| VBD-024-200DM    | 100-130V      | 24V            | 200W    | IP67      | -       | 29ft              | 666561415785 |
| VBD-024-300VTHWJ | 100-277V      | 24V            | 300W    | IP65      | -       | 43.6ft            | 666561419806 |

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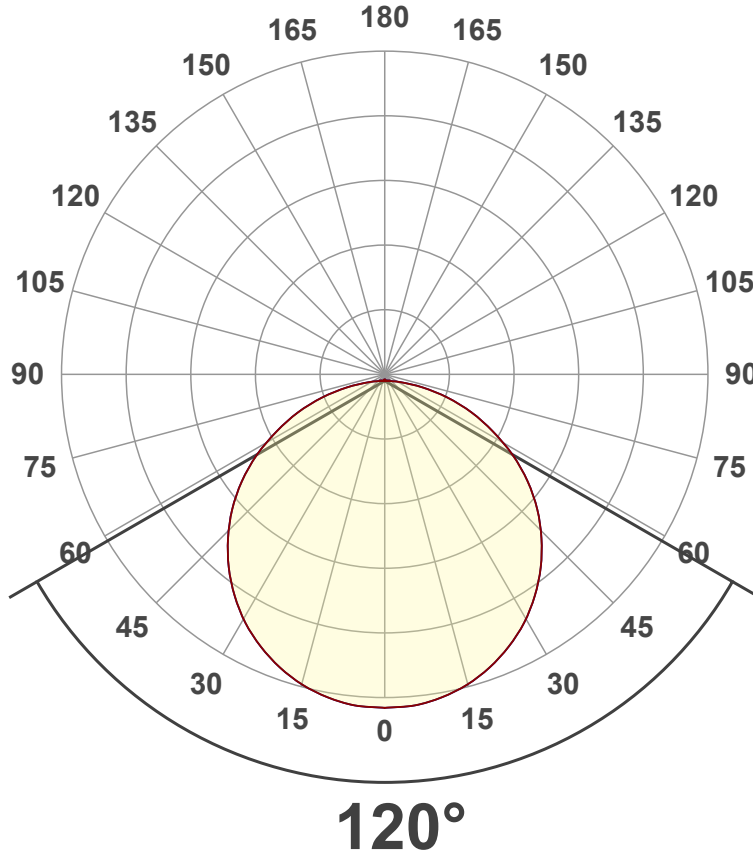
# Light Measurement Report

Print date: 2023-05-02

Measurement date and time: 2023-05-02 1:04:25 PM – Measurement no. VFR-230502-0198-MS

## Luminous Intensity diagram

Unit: 0-100% of peak intensity



## Main Values

|                   |                |
|-------------------|----------------|
| Lumen Up% / Down% | 0.51% / 99.49% |
| Peak Intensity    | 12.0 cd        |
| Beam Angle (50%)  | 120°           |
| Beam Angle (90%)  | 115.6°         |
| Beam Angle (10%)  | 115.6°         |

## Cut-off Angle

|              |        |
|--------------|--------|
| Average 2,5% | 176.4° |
|--------------|--------|

## Field Angle

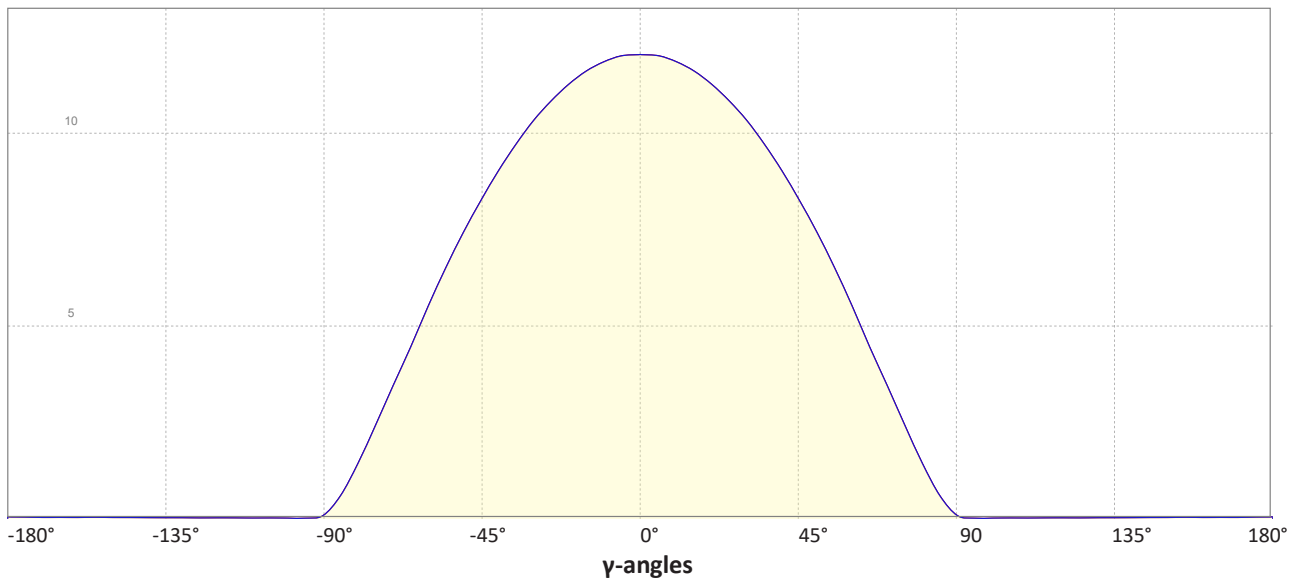
|             |        |
|-------------|--------|
| Average 10% | 163.4° |
|-------------|--------|

## Intensity Ratio

|              |       |
|--------------|-------|
| In 120° cone | 77.4% |
| In 90° cone  | 52.2% |

**C000-C180**  
**C090-C270**

## Linear distribution diagram - Intensity (candela) vs $\gamma$ -angle



# Light Measurement Report

Print date: 2023-05-02

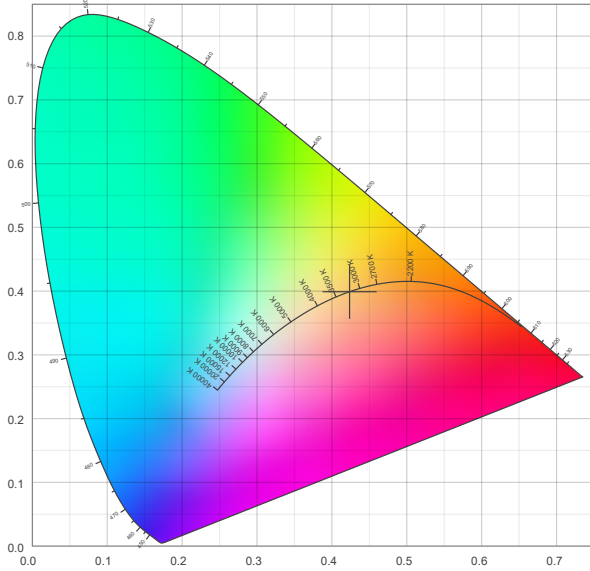
Measurement date and time: 2023-05-02 1:04:25 PM – Measurement no. VFR-230502-0198-MS

## Color details

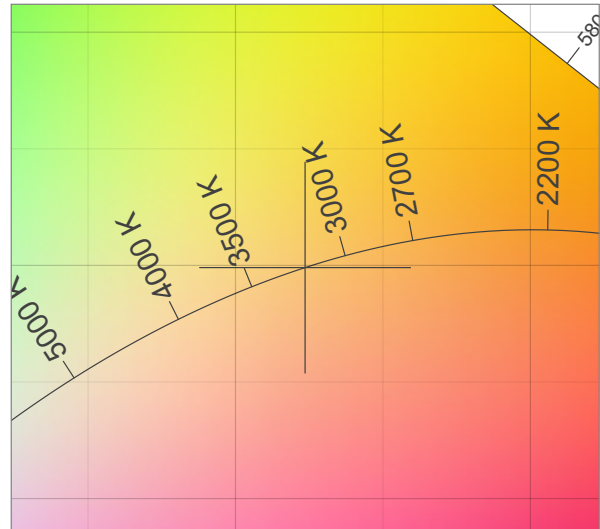
Correlated Color Temperature, Target CCT = 3200 K  
 Correlated Color Temperature, Measured CCT = 2996 K  
 Color Rendering Index CRI 97.7  
 Color Rendering Index, R9 (red component) R9 = 97.9  
 Color Rendering TM30-18 R<sub>f</sub> 94.9 – R<sub>g</sub> 102.5  
 Color Quality Scale CQS = 95.1

MacAdam Steps  
 Color coordinates CIE 1931 (x;y) = (0.424;0.399)  
 Color coordinate CIEs 1960 (u';v') = (0.244;0.345)  
 Color deviation from BBL Duv = -0.0028  
 Color coordinate CIEs 1976 (CIELUV) (u';v') = (0.244;0.244)

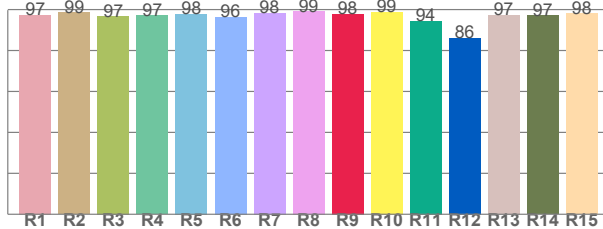
### CIE 1931



### CIE 1931 – zoomed on Planckian locus



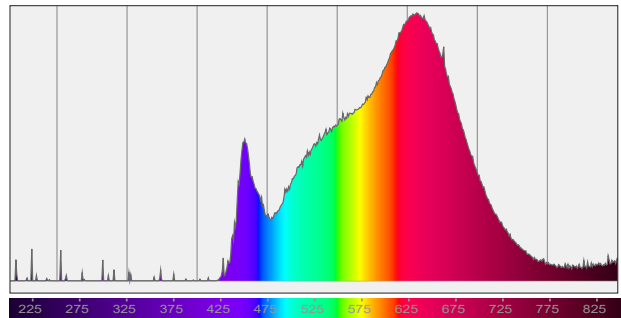
### Color Rendering Index per reference color (CIE 1995)



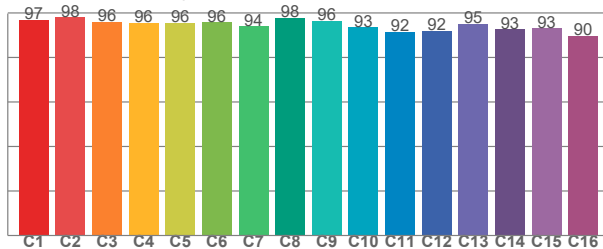
CRI R values, only R1-R8 are used to calculate final CRI value

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   | R9   | R10  | R11  | R12  | R13  | R14  | R15  |
| 97.4 | 98.6 | 96.8 | 97.2 | 98.0 | 96.3 | 98.3 | 99.2 | 97.9 | 98.8 | 94.5 | 86.1 | 97.4 | 97.1 | 98.0 |

### Spectral power distribution (SPD) / W/nm – 0-100%



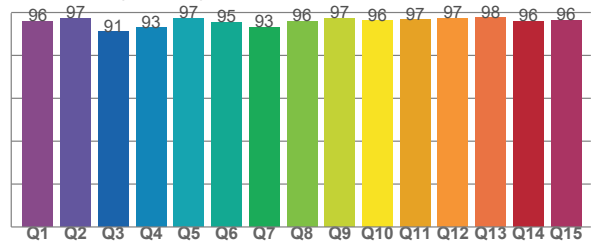
### TM30-18 Rf-values per hue bin



TM30 C values, 16 binned values out of total of 99 C values

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
| 96.9 | 98.0 | 96.1 | 95.5 | 95.5 | 95.9 | 94.0 | 97.8 | 96.4 | 93.5 | 91.5 | 92.0 | 95.2 | 92.7 | 93.2 | 89.8 |

### Color Quality Scale by reference color



CQS Q values

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
| 95.9 | 97.3 | 91.1 | 92.8 | 97.2 | 95.4 | 93.1 | 95.9 | 97.2 | 96.1 | 96.7 | 97.4 | 97.6 | 95.8 | 96.4 |

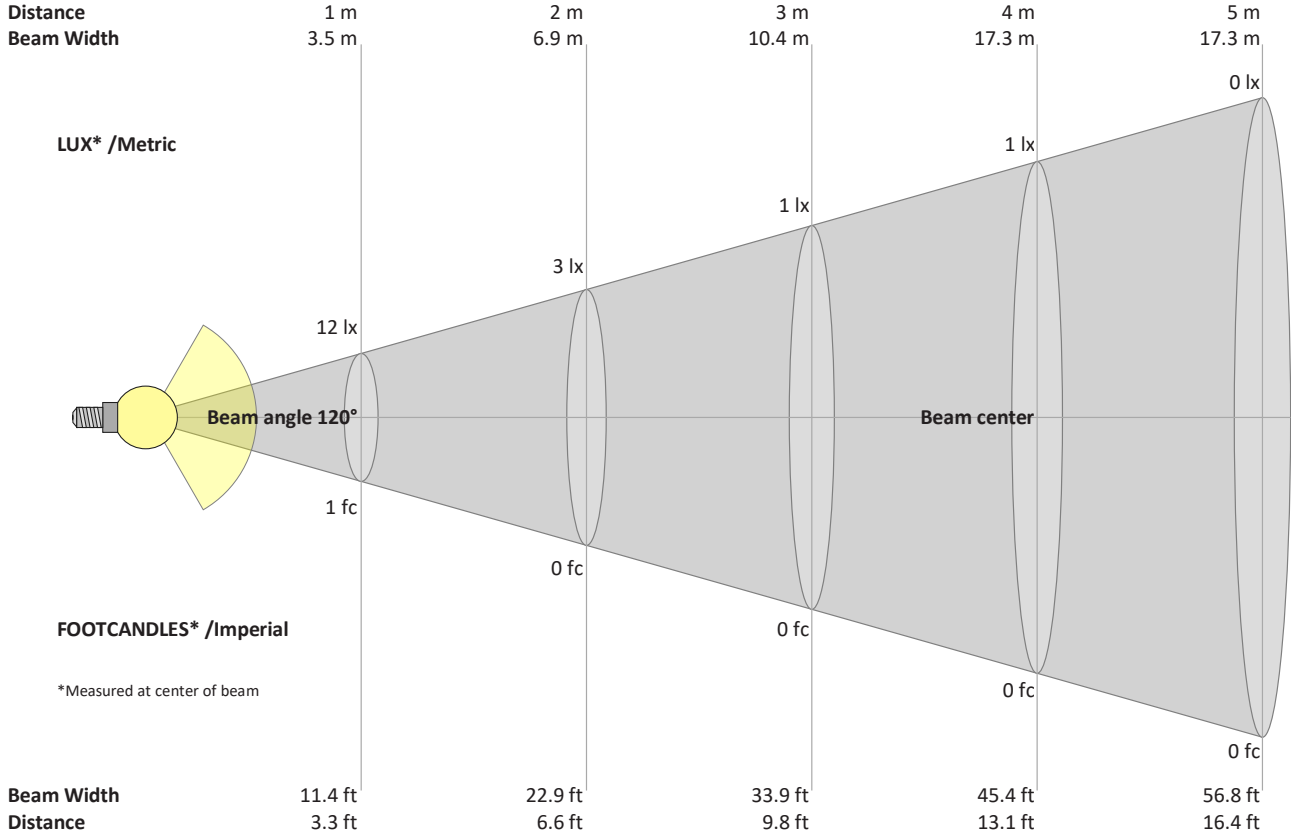


# Light Measurement Report

Print date: 2023-05-02

Measurement date and time: 2023-05-02 1:04:25 PM – Measurement no. VFR-230502-0198-MS

## Beam Details



### Beam intensities from 1 – 20 m

| 1   | 2   | 3   | 4    | 5    | 6    | 7  | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | m  |     |
|-----|-----|-----|------|------|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|----|-----|
| 3.3 | 6.6 | 9.8 | 13.1 | 16.4 | 19.7 | 23 | 26.2 | 29.5 | 32.8 | 36.1 | 39.4 | 42.7 | 45.9 | 49.2 | 52.5 | 55.8 | 59.1 | 62.3 | 65.6 | ft |     |
| 12  | 3   | 1   | 1    | 0    | 0    | 0  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0  | lux |
| 1.1 | 0.3 | 0.1 | 0.1  | 0    | 0    | 0  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0  | fc  |

### Intensities in 0° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | y   |          |
|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 12.0 | 12.0 | 11.9 | 11.6 | 11.3 | 10.9 | 10.4 | 9.8 | 9.1 | 8.3 | 7.5 | 6.6 | 5.6 | 4.5 | 3.5 | 2.5 | 1.5 | 0.7 | 0.1 | 0.0 | 0.0 | cd       |
| 100% | 100% | 99%  | 97%  | 94%  | 90%  | 86%  | 81% | 75% | 69% | 62% | 55% | 46% | 38% | 29% | 21% | 12% | 5%  | 1%  | 0%  | 0%  | of 0°val |

### Intensities in 90° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | y   |          |
|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 12.0 | 12.0 | 11.9 | 11.6 | 11.3 | 10.9 | 10.4 | 9.8 | 9.1 | 8.3 | 7.5 | 6.6 | 5.6 | 4.5 | 3.5 | 2.5 | 1.5 | 0.7 | 0.1 | 0.0 | 0.0 | cd       |
| 100% | 100% | 99%  | 97%  | 94%  | 90%  | 86%  | 81% | 75% | 69% | 62% | 55% | 46% | 38% | 29% | 21% | 12% | 5%  | 1%  | 0%  | 0%  | of 0°val |

### Intensities in 180° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | y   |          |
|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 12.0 | 12.0 | 11.9 | 11.6 | 11.3 | 10.9 | 10.4 | 9.8 | 9.1 | 8.3 | 7.5 | 6.6 | 5.6 | 4.5 | 3.5 | 2.5 | 1.5 | 0.7 | 0.1 | 0.0 | 0.0 | cd       |
| 100% | 100% | 99%  | 97%  | 94%  | 90%  | 86%  | 81% | 75% | 69% | 62% | 55% | 46% | 38% | 29% | 21% | 12% | 5%  | 1%  | 0%  | 0%  | of 0°val |

### Intensities in 270° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | y   |          |
|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 12.0 | 12.0 | 11.9 | 11.6 | 11.3 | 10.9 | 10.4 | 9.8 | 9.1 | 8.3 | 7.5 | 6.6 | 5.6 | 4.5 | 3.5 | 2.5 | 1.5 | 0.7 | 0.1 | 0.0 | 0.0 | cd       |
| 100% | 100% | 99%  | 97%  | 94%  | 90%  | 86%  | 81% | 75% | 69% | 62% | 55% | 46% | 38% | 29% | 21% | 12% | 5%  | 1%  | 0%  | 0%  | of 0°val |