

VEROBOARD®

LED Type: VBDFS-3528-XXXX-60-12-WP
Colour: 3000K • 6000K

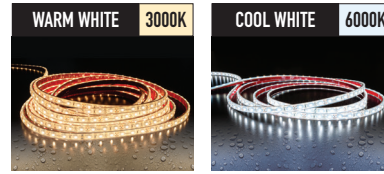
Contact Name: _____

Company: _____

Phone: _____

Email: _____

| | Wattage | Brightness |
|-----------|---------|--------------|
| Per Foot | 1.5W/ft | 128-146Lm/ft |
| Per Meter | 4.5W/m | 420-480Lm/m |

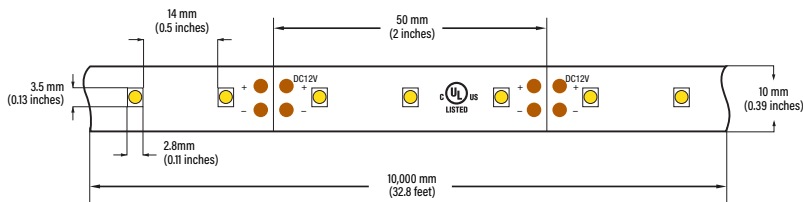


666561423933 666561420154

DESCRIPTION

Flexible 10 mm wide linear LED strip. Available in 10 meter (32.8 feet) rolls that can be cut every 3 LEDs (50 mm or 2 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), it 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

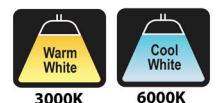
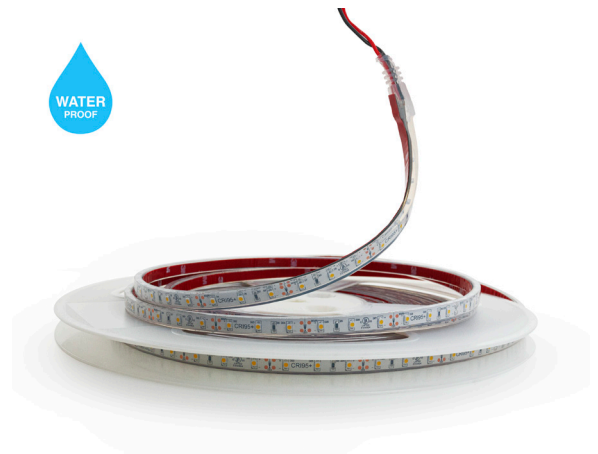
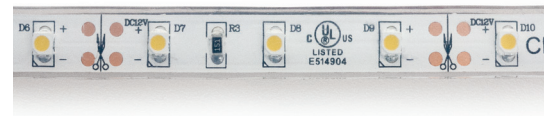


SPECIFICATIONS

| | |
|-------------------------------|---|
| Model: | VBDFS-3528-xxxx-60-12-WP |
| Color Temperatures: | 3000K • 6000K |
| LED Type: | 3528 SMD |
| LED Qty: | 60 LEDs per meter |
| LM/LED: | 7-8 Lm per LED |
| Input Voltage (VF): | 12V DC |
| Power: | 4.5W per meter (1.5W/ft) |
| Brightness: | 420-480 Lm/meter (128-146 Lm/ft) |
| Lifespan: | >50,000 hours |
| PCB: | 4oz PCB, Double-side, white colour 10mm width |
| IP Rating: | IP68 |
| Rendering Index (Ra): | CRI>95 |
| Beam Angle: | 120° |
| Dimmable: | Yes |
| Cut Size: | Every 3 LED chips (2") |
| Operating Temperature: | -40°C to +40°C |
| Dimensions: | 10,000 x 10 x 5.8mm (393.6" x 0.39" x 0.22") |
| Certificates: | UL / RoHS |
| Roll Length: | 10 meter roll (32.8ft) |

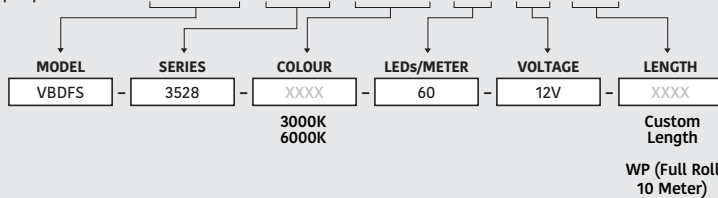


Every 2 inches
Cut Points



ORDERING GUIDE

Example part number: **VBDFS - 3528 - XXXX - 60 - 12 - WP**



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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

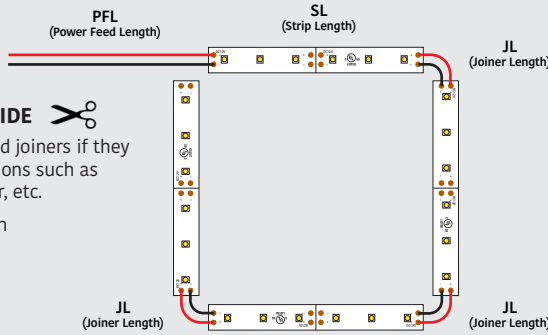


Example: 2 (QTY) x 36" (PFL) - 84" (SL) QTY x PFL - SL

CUSTOM ORDERING GUIDE ✂

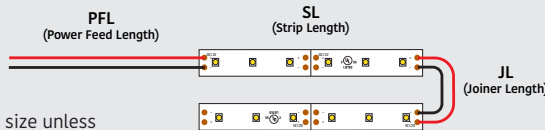
Joiner: LED strip lights need joiners if they are used for curve applications such as corner side, behind a mirror, etc.

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



QTY x PFL - SL - JL - SL - JL - SL - JL - SL

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.

QTY x PFL - SL - JL - SL

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

RECOMMENDED LED ALUMINUM CHANNELS

(Sold Separately)

| | | |
|--|--|--|
| VBD-CH-S4 15.5mm x 12mm x 17.5mm | VBD-CH-S4B 15.5mm x 12mm x 17.5mm | VBD-CH-S6 10.6mm x 20.15mm x 23.44mm |
| SKU: 666561423278 | SKU: 666561423285 | SKU: 666561423315 |
| VBD-CH-S5 6mm x 13mm x 17mm | VBD-CH-S5B 6mm x 13mm x 17mm | VBD-CH-B1 6.14mm x 13.89mm x 18.77mm |
| SKU: 666561423292 | SKU: 666561423308 | SKU: 666561423360 |
| VBD-CH-C2 18.5mm x 14mm x 18.5mm | VBD-CH-C2B 18.5mm x 14mm x 18.5mm | VBD-CH-RF4 23.4mm x 18.6mm x 18.6mm |
| SKU: 666561423506 | SKU: 666561423513 | SKU: 666561423377 |
| VBD-CH-RF1 12.5mm x 15mm x 17mm | VBD-CH-RF1B 12.5mm x 15mm x 17mm | VBD-CH-C1 25.68mm x 15.07mm x 21.19mm |
| SKU: 666561423339 | SKU: 666561423346 | SKU: 666561423490 |
| VBD-CH-C3 30mm x 20mm x 30mm | VBD-CH-C3B 30mm x 20mm x 30mm | VBD-CH-W1 26.16mm x 12mm x 21.43mm |
| SKU: 666561423520 | SKU: 666561423537 | SKU: 666561423445 |
| VBD-CH-RF7 32.16mm x 75mm x 90mm | VBD-CH-RF8 32mm x 70.15mm x 75mm | VBD-CH-S2 9.68mm x 56.75mm x 17.29mm |
| SKU: 666561423407 | SKU: 666561423414 | SKU: 666561423254 |
| VBD-CH-WC4 45.50mm x 85mm x 37.85mm | VBD-CH-WC5 39mm x 43.03mm x 43.03mm | VBD-CH-ST2 21mm x 95mm x 13mm |
| SKU: 666561423629 | SKU: 666561423636 | SKU: 666561423582 |
| VBD-CH-S3 55.38mm x 13.56mm x 7.96mm | VBD-CH-RF6 31.90mm x 46.42mm x 50.20mm | VBD-CH-RF5 32mm x 30.84mm x 34.79mm |
| SKU: 666561423261 | SKU: 666561423391 | SKU: 666561423384 |
| VBD-CH-C4 30mm x 20mm x 30mm | VBD-CH-C4B 30mm x 20mm x 30mm | VBD-CH-RF2 11mm x 12.15mm x 21.45mm |
| SKU: 666561423544 | SKU: 666561423551 | SKU: 666561423353 |
| VBD-CH-RF3 27mm x 20mm x 17mm | VBD-CH-R2 25.95mm x 22.94mm x 17.46mm | VBD-CH-R2B 25.95mm x 22.94mm x 17.46mm |
| SKU: 666561423360 | SKU: 666561423742 | SKU: 666561428280 |
| VBD-CH-D10 136mm x 13.66mm x 12mm | | SKU: 666561420023 |

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| | | | | | |
|--|---|--|---|--|---|
| VBD-CH-WC1 SKU: 666561423599 | VBD-CH-WC2 SKU: 666561423605 | VBD-CH-WC3 SKU: 666561423612 | VBD-CH-S1 SKU: 666561423247 | VBD-CH-R3 SKU: 666561423759 | VBD-CH-RF10 SKU: 666561423438 |
| VBD-CH-E1 SKU: 666561423483 | VBD-CH-W2 SKU: 666561423452 | VBD-CH-C5 SKU: 666561423568 | VBD-CH-S7 SKU: 666561423322 | VBD-CH-R1 SKU: 666561423735 | VBD-CH-D1 SKU: 666561423643 |
| VBD-CH-W3 SKU: 666561423469 | VBD-CH-W4 SKU: 666561423476 | VBD-CH-D5 SKU: 666561423681 | VBD-CH-D7 SKU: 666561423704 | VBD-CH-D8 SKU: 666561423711 | |
| VBD-CH-S5 SKU: 666561429966 | VBD-CH-S5B SKU: 666561429973 | VBD-CH-D9 SKU: 666561423728 | VBD-CH-M1 SKU: 666561423773 | VBD-CH-M1B SKU: 666561431013 | |
| VBD-CH-RS5 SKU: 666561428631 | VBD-CH-RS5B SKU: 666561428648 | | | | |

Note: 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: sales@veroboard.com

RECOMMENDED LED POWER SUPPLIES (Sold Separately)

For more options and varieties, please visit our website: 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-012-030C2DM5i1 | 100-277V | 12V | 30W | IP67 | Class 2 | 16ft | 666561425999 |
| VBD-012-060C2DM5i1 | 100-277V | 12V | 60W | IP67 | Class 2 | 32ft | 666561426002 |
| VBD-012-100C2DM5i1 | 100-277V | 12V | 100W | IP65 | Type HL | 53.3ft | 666561428426 |
| VBD-012-150C2DM5i1 | 100-277V | 12V | 150W | IP65 | Type HL | 80ft | 666561428433 |
| VBD-012-180C2DM5i1 | 100-277V | 12V | 180W (3x60W) | IP67 | Class 2 | 96ft | 666561426019 |
| VBD-012-300C2DM5i1 | 100-277V | 12V | 300W (5x60W) | IP67 | Class 2 | 160ft | 666561426026 |

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-012-024DM | 100-130V | 12V | 24W | IP20 | Class 2 | 13ft | 666561415761 |
| VBD-012-048DM | 100-130V | 12V | 48W | IP20 | Class 2 | 25.6ft | 666561415754 |
| VBD-012-060DM | 100-130V | 12V | 60W | IP20 | Class 2 | 32ft | 666561415747 |
| VBD-012-096DM | 100-130V | 12V | 96W | IP67 | - | 51ft | 666561415730 |
| VBD-012-150DM | 100-130V | 12V | 150W | IP67 | - | 80ft | 666561415723 |
| VBD-012-200DM | 100-130V | 12V | 200W | IP67 | - | 106.6ft | 666561415716 |
| VBD-012-300VTHWJ | 100-277V | 12V | 300W | IP65 | - | 160ft | 666561419790 |

Dali Dimming Constant Voltage



| Model No. | Input Voltage | Output Voltage | Wattage | IP Rating | Class | Max. Strip Length | SKU# |
|---------------|---------------|----------------|---------|-----------|---------|-------------------|--------------|
| VBD-012-030DD | 100-265V AC | 12V | 30W | IP20 | Class 2 | 16ft | 666561427290 |
| VBD-012-060DD | 100-265V AC | 12V | 60W | IP65 | Class 2 | 32ft | 666561427313 |
| VBD-012-096DD | 100-265V AC | 12V | 96W | IP65 | ----- | 51.2ft | 666561427337 |
| VBD-012-150DD | 100-265V AC | 12V | 150W | IP65 | ----- | 80ft | 666561427351 |

Plug-in Drivers



| Model No. | Input Voltage | Output Voltage | Wattage | IP Rating | Class | Max. Strip Length | SKU# |
|-----------------|---------------|----------------|---------|-----------|---------|-------------------|--------------|
| VBDA-012-012P1J | 100-240V AC | 12V | 12W | IP20 | Class 2 | 6.4ft | 666561428945 |
| VBDA-012-024P1J | 100-240V AC | 12V | 24W | IP20 | Class 2 | 12.8ft | 666561428952 |
| VBDA-012-036P1J | 100-240V AC | 12V | 36W | IP20 | Class 2 | 19.2ft | 666561428976 |
| VBDA-012-060P1J | 100-240V AC | 12V | 60W | IP20 | ----- | 32ft | 666561428990 |

Notes: _____

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.

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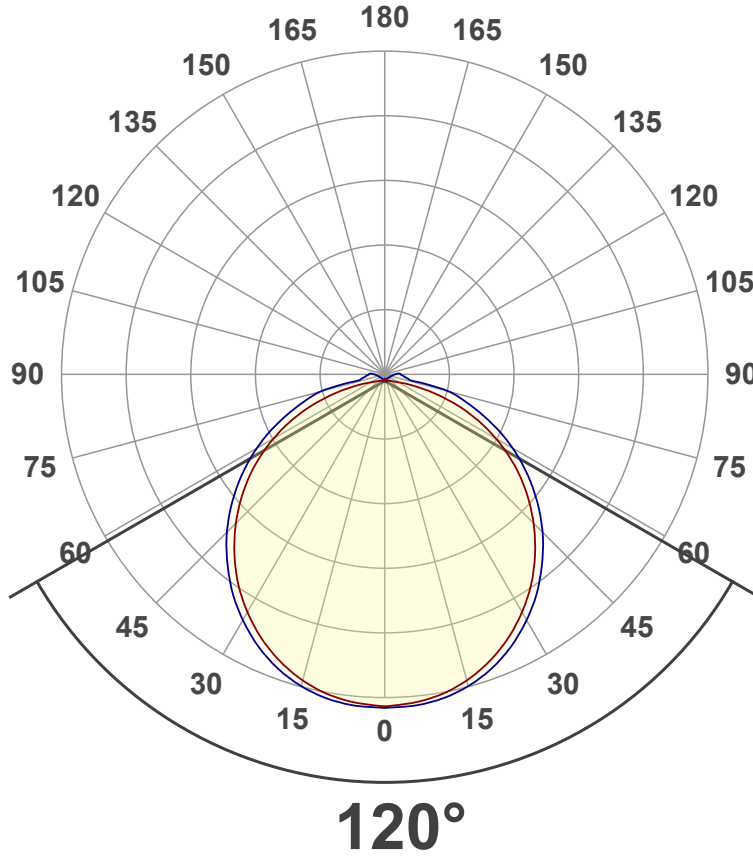
Light Measurement Report

Print date: 2023-04-26

Measurement date and time: 2023-04-25 3:02:35 PM – Measurement no. VFR-230425-0170-MS

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

| | |
|-------------------|----------------|
| Lumen Up% / Down% | 3.91% / 96.09% |
| Peak Intensity | 32.0 cd |
| Beam Angle (50%) | 120° |
| Beam Angle (90%) | 118.3° |
| Beam Angle (10%) | 112.5° |

Cut-off Angle

| | |
|--------------|--------|
| Average 2,5% | 212.8° |
|--------------|--------|

Field Angle

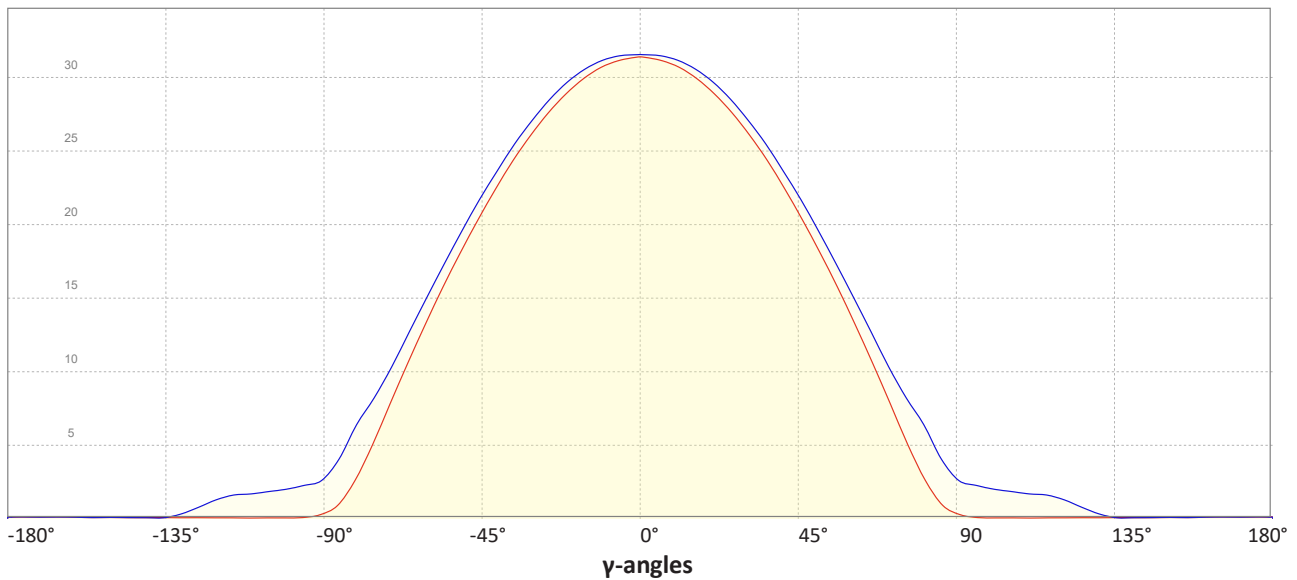
| | |
|-------------|--------|
| Average 10% | 168.9° |
|-------------|--------|

Intensity Ratio

| | |
|--------------|-------|
| In 120° cone | 73.0% |
| In 90° cone | 49.3% |

C000-C180
C090-C270

Linear distribution diagram - Intensity (candela) vs γ -angle



Light Measurement Report

Print date: 2023-04-26

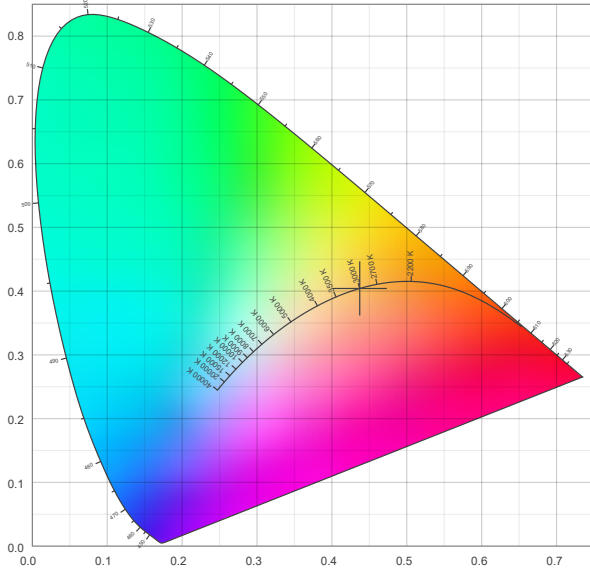
Measurement date and time: 2023-04-25 3:02:35 PM – Measurement no. VFR-230425-0170-MS

Color details

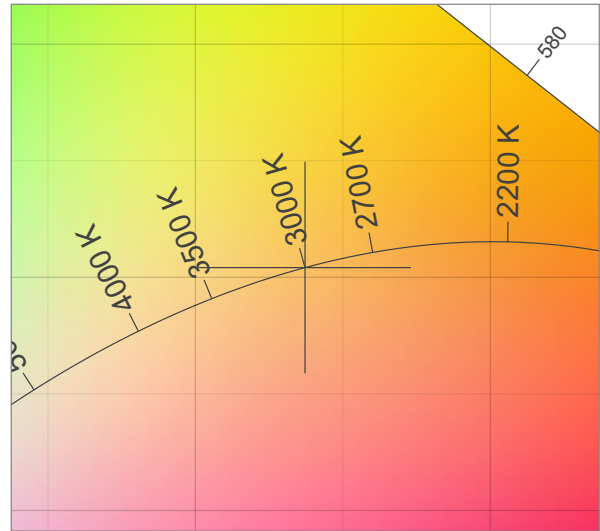
Correlated Color Temperature, Target CCT = 3000 K
 Correlated Color Temperature, Measured CCT = 2935 K
 Color Rendering Index CRI 94.6
 Color Rendering Index, R9 (red component) R9 = 88.4
 Color Rendering TM30-18 Rf 88.2 – Rg 92.4
 Color Quality Scale CQS = 83.6

MacAdam Steps SDCM = 10.2
 Color coordinates CIE 1931 (x;y) = (0.437;0.404)
 Color coordinate CIEs 1960 (u';v') = (0.251;0.348)
 Color deviation from BBL Duv = 0.0088
 Color coordinate CIEs 1976 (CIELUV) (u'';v'') = (0.251;0.251)

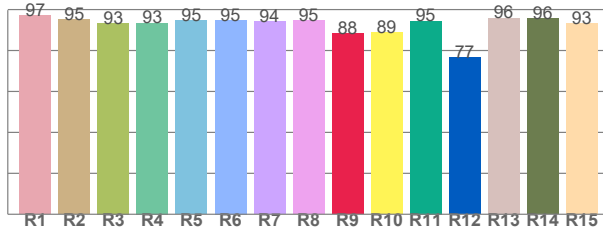
CIE 1931



CIE 1931 – zoomed on Planckian locus



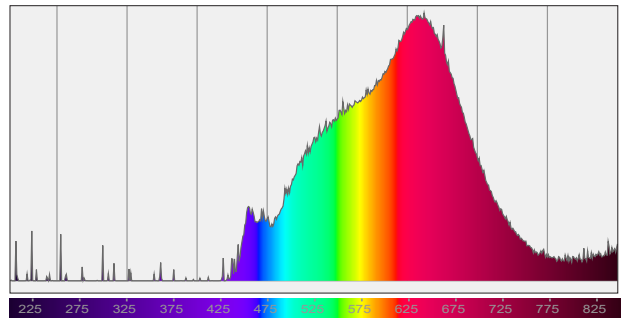
Color Rendering Index per reference color (CIE 1995)



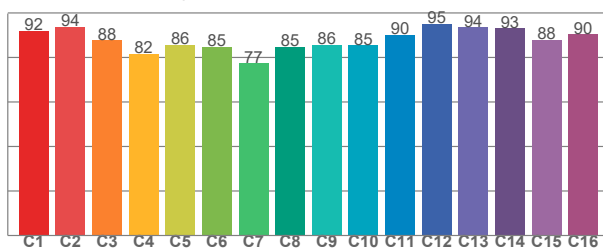
CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 97.0 | 95.2 | 93.4 | 93.4 | 94.6 | 94.8 | 94.1 | 94.7 | 88.4 | 88.9 | 94.5 | 76.7 | 95.8 | 95.7 | 93.3 |

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



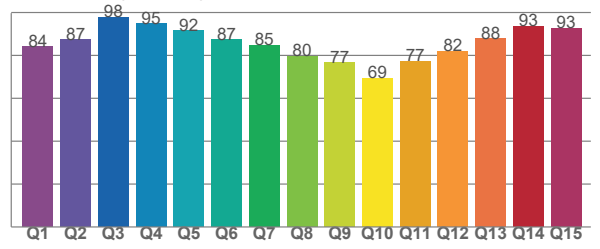
TM30-18 Rf-values per hue bin



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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 92.0 | 93.9 | 87.7 | 81.7 | 85.7 | 84.8 | 77.3 | 84.9 | 85.6 | 85.4 | 90.3 | 95.2 | 93.5 | 93.2 | 87.9 | 90.4 |

Color Quality Scale by reference color



CQS Q values

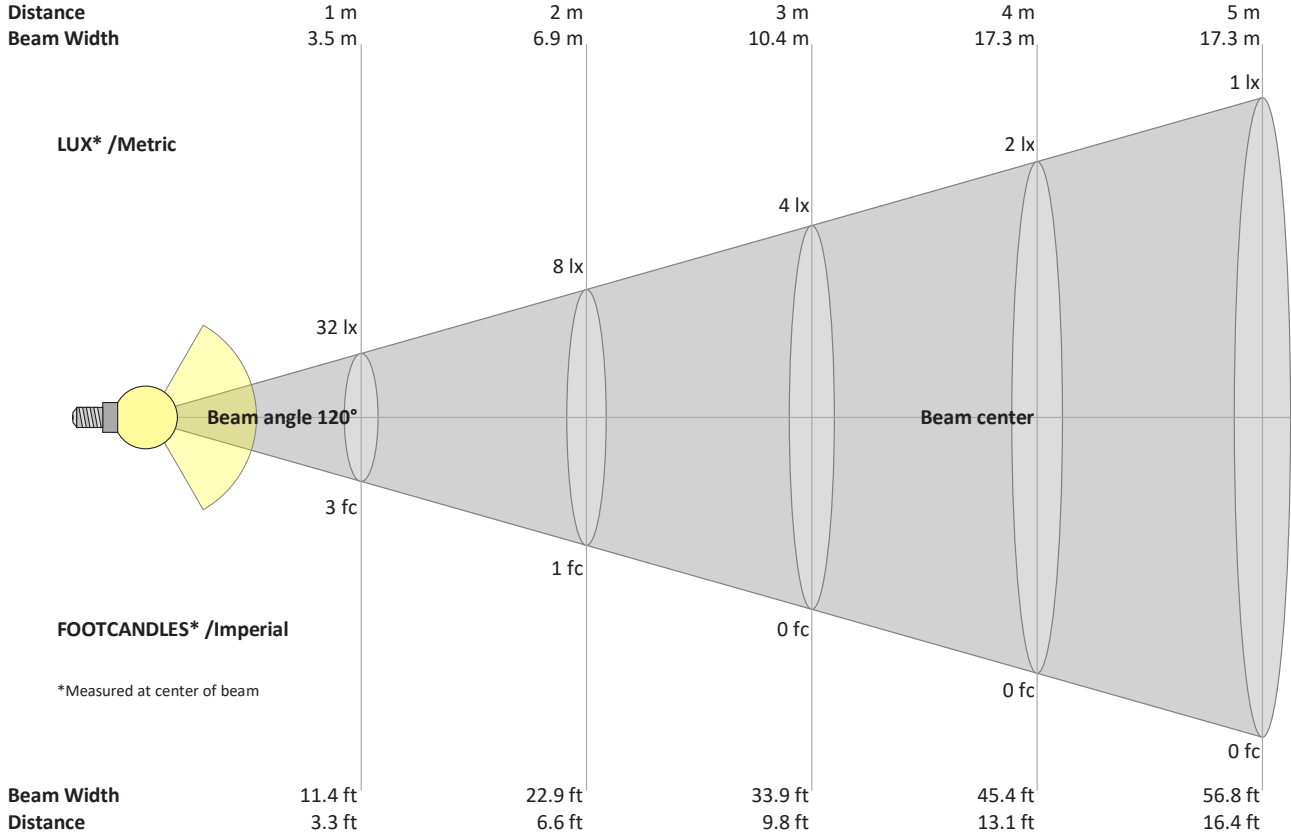
| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 84.0 | 87.4 | 97.7 | 94.8 | 91.5 | 87.3 | 84.7 | 79.6 | 76.5 | 69.4 | 77.2 | 82.0 | 87.7 | 93.5 | 92.8 |

Light Measurement Report

Print date: 2023-04-26

Measurement date and time: 2023-04-25 3:02:35 PM – Measurement no. VFR-230425-0170-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 | |
| 32 | 8 | 4 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | lux |
| 3 | 0.7 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|----------|
| 31.9 | 31.6 | 31.2 | 30.5 | 29.5 | 28.3 | 26.8 | 25.1 | 23.2 | 21.1 | 18.9 | 16.5 | 14.0 | 11.3 | 8.6 | 5.8 | 3.2 | 1.3 | 0.4 | 0.1 | cd |
| 100% | 99% | 98% | 96% | 93% | 89% | 84% | 79% | 73% | 66% | 59% | 52% | 44% | 36% | 27% | 18% | 10% | 4% | 1% | 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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|----------|
| 31.9 | 31.9 | 31.6 | 31.1 | 30.2 | 29.1 | 27.7 | 26.1 | 24.2 | 22.3 | 20.1 | 17.9 | 15.6 | 13.2 | 10.8 | 8.6 | 6.7 | 4.5 | 2.8 | 2.3 | cd |
| 100% | 100% | 99% | 97% | 95% | 91% | 87% | 82% | 76% | 70% | 63% | 56% | 49% | 41% | 34% | 27% | 21% | 14% | 9% | 7% | 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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|----------|
| 31.9 | 31.6 | 31.2 | 30.5 | 29.5 | 28.3 | 26.8 | 25.1 | 23.2 | 21.1 | 18.9 | 16.5 | 14.0 | 11.3 | 8.6 | 5.8 | 3.2 | 1.3 | 0.4 | 0.1 | cd |
| 100% | 99% | 98% | 96% | 93% | 89% | 84% | 79% | 73% | 66% | 59% | 52% | 44% | 36% | 27% | 18% | 10% | 4% | 1% | 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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|----------|
| 31.9 | 31.9 | 31.6 | 31.1 | 30.2 | 29.1 | 27.7 | 26.1 | 24.2 | 22.3 | 20.1 | 17.9 | 15.6 | 13.2 | 10.8 | 8.6 | 6.7 | 4.5 | 2.8 | 2.3 | cd |
| 100% | 100% | 99% | 97% | 95% | 91% | 87% | 82% | 76% | 70% | 63% | 56% | 49% | 41% | 34% | 27% | 21% | 14% | 9% | 7% | of 0°val |