

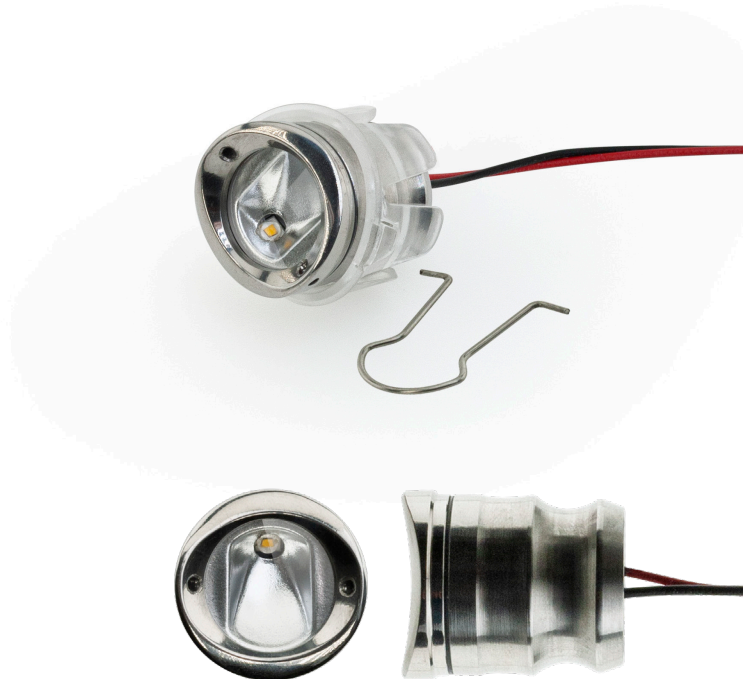
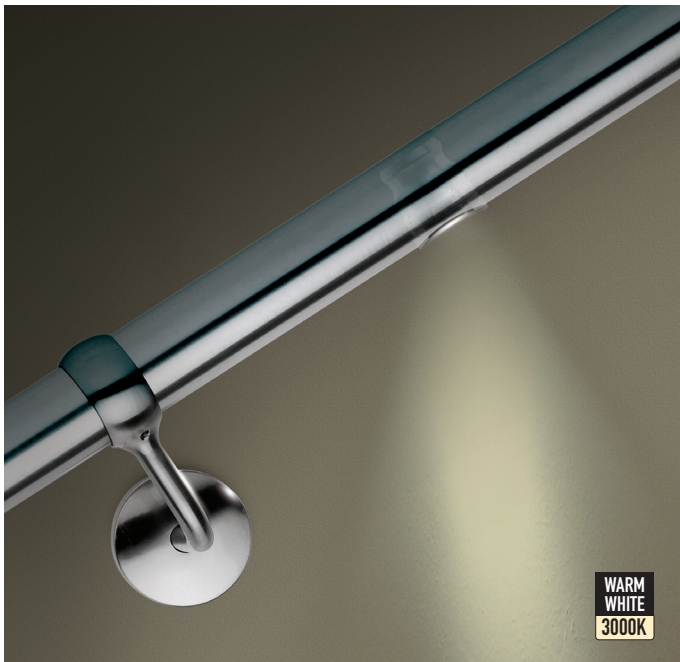
## VBDL-1014-0100-A Handrail Light 3000K

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_



### SPECIFICATIONS

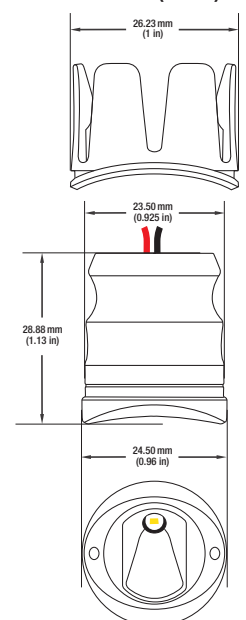
Model No.	VBDL-1014-0100-A
Voltage	12-24V DC
Power	1.5W
Brightness	65 Lumens
Color Temperature	3000K (Warm White)
Beam Angle	60°
Material	Stainless Steel
Light Source	1 SMD
LED Type	Integrated LED
Rendering Index	CRI>90
IP Rating	IP67 (Outdoor Rated)
Wire Length	2 Meters
Installation	Recessed

- Incandescent Equivalent Wattage (15W).
- Spotlight with glass protection and silicone diffuser.
- Fits perfectly into the handrail of diameter 2-2.5 inches, giving you the desired spots.
- Concealed wired cable from view within the handrail of the staircase, balcony, or baluster fittings.
- With IP rating IP67 can be used both indoor and outdoor in various applications.
- Can be installed in new handrails or retrofitted into existing ones.
- Applicable for both interior and exterior staircase, balconies, walkway and pedestal bridges, etc.
- Well heat dissipation, Long life-span, and low light decay.
- We offer a step-down transformer to line voltage in both hardwire and plugin.
- Depending upon the wattage of the transformer, any number of lights can go on 1 switch.

Glass Shield



Cut Size (1 inch)



#### 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.



SKU: 666561416751

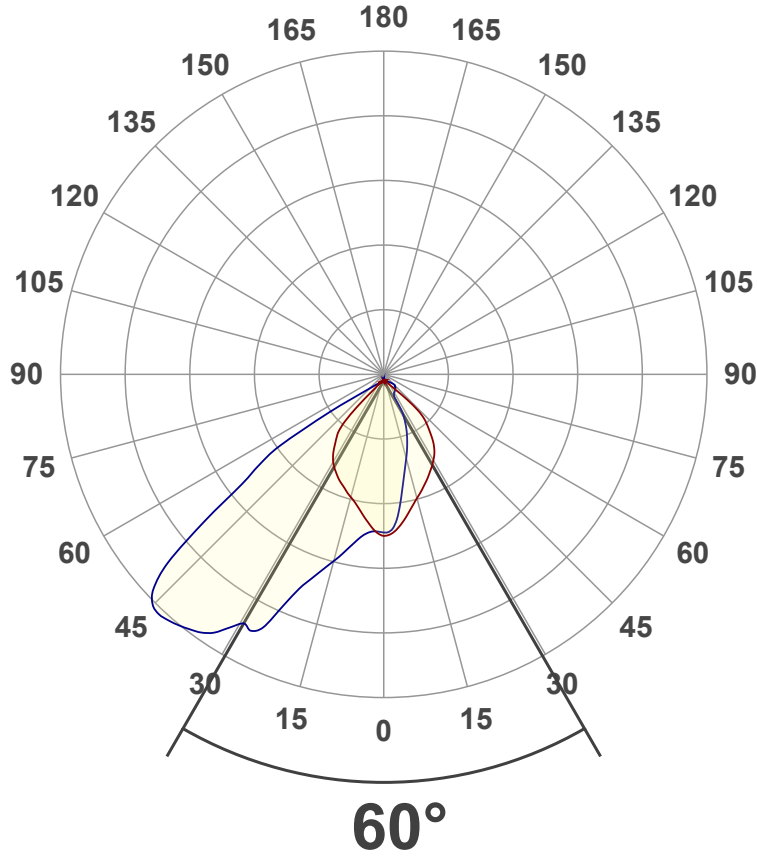
# Light Measurement Report

Print date: 2023-02-01

Measurement date and time: 2023-02-01 11:34:19 AM – Measurement no. VFR-230201-0034-MS

## Luminous Intensity diagram

Unit: 0-100% of peak intensity



## Main Values

Output (total Lumen)	65.0 lm
Lumen Up% / Down%	0.08% / 99.92%
Peak Intensity	63.1 cd
Beam Angle (50%)	60°
Beam Angle (90%)	45.4°
Beam Angle (10%)	79.1°

## Cut-off Angle

Average 2,5%	135.9°
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## Field Angle

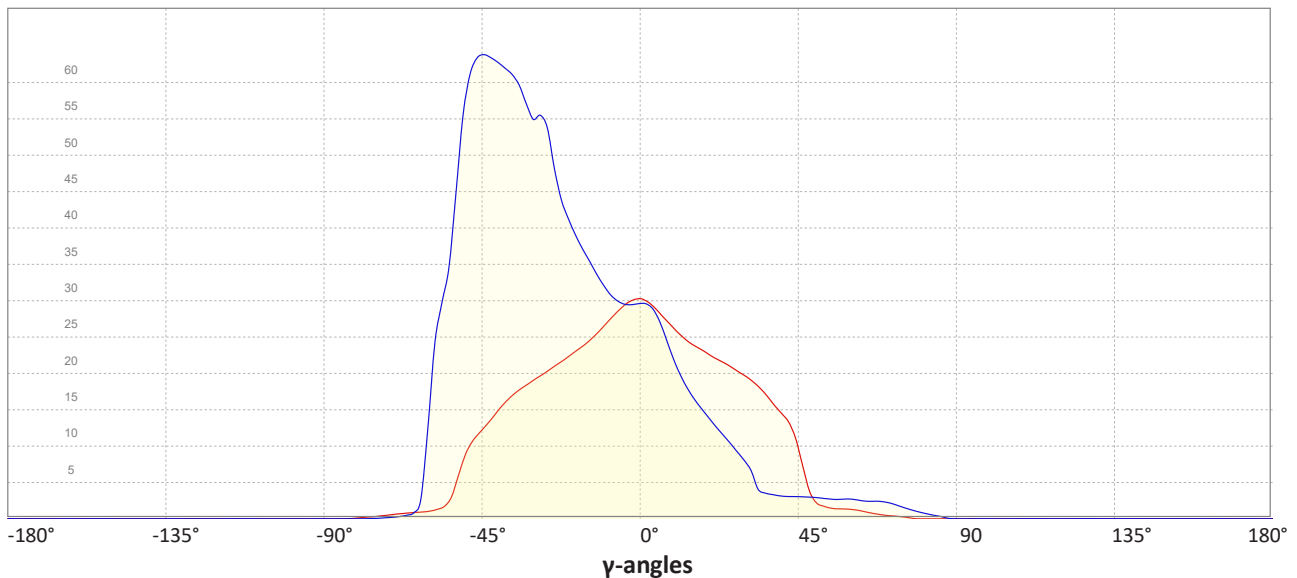
Average 10%	98.1°
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## Intensity Ratio

In 120° cone	96.3%
In 90° cone	69.5%

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

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



# Light Measurement Report

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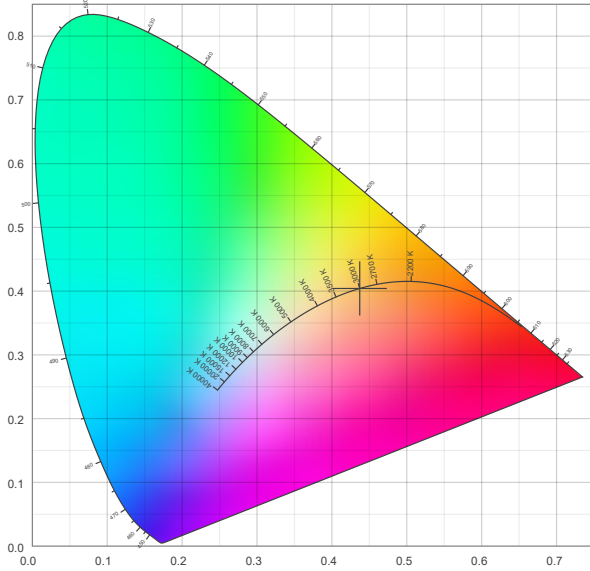
Measurement date and time: 2023-02-01 11:34:19 AM – Measurement no. VFR-230201-0034-MS

## Color details

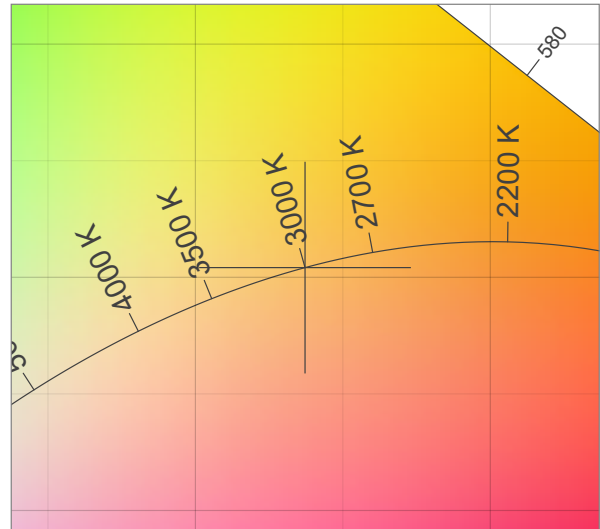
Correlated Color Temperature, Target CCT = 3000 K  
 Correlated Color Temperature, Measured CCT = 3038 K  
 Color Rendering Index CRI 83.6  
 Color Rendering Index, R9 (red component) R9 = 14.1  
 Color Rendering TM30-18 R<sub>f</sub> 84.8 – R<sub>g</sub> 95.5  
 Color Quality Scale CQS = 82.4

MacAdam Steps SDCM = 1.3  
 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 = 0.0002  
 Color coordinate CIEs 1976 (CIELUV) (u'';v'') = (0.251;0.251)

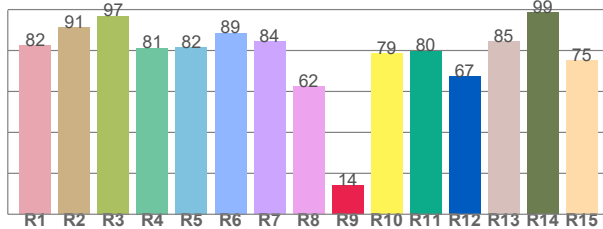
### CIE 1931



### CIE 1931 – zoomed on Planckian locus



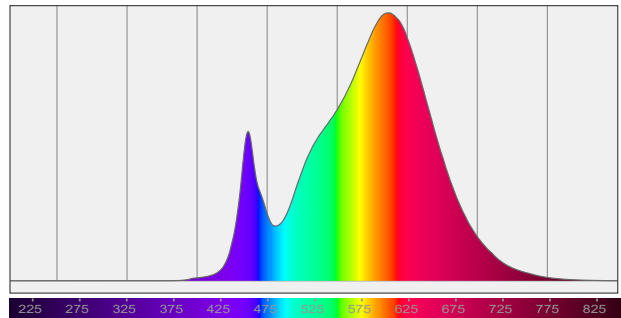
### Color Rendering Index per reference color (CIE 1995)



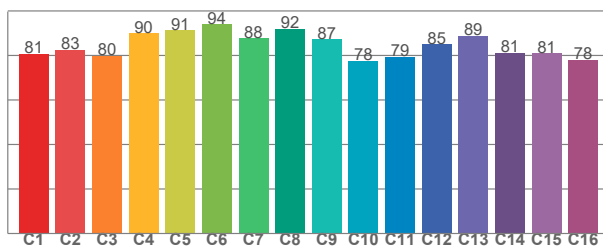
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82.3	91.3	96.9	81.3	81.6	88.6	84.4	62.5	14.1	78.6	79.7	67.2	84.6	98.5	75.2

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



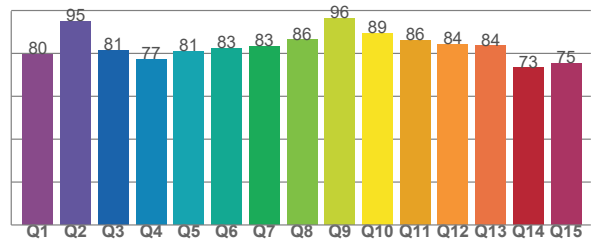
### TM30-18 Rf-values per hue bin



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
80.7	82.5	79.9	89.9	91.3	94.0	87.8	92.0	87.3	77.7	79.4	85.1	88.8	81.3	80.9	78.0

### Color Quality Scale by reference color



CQS Q values

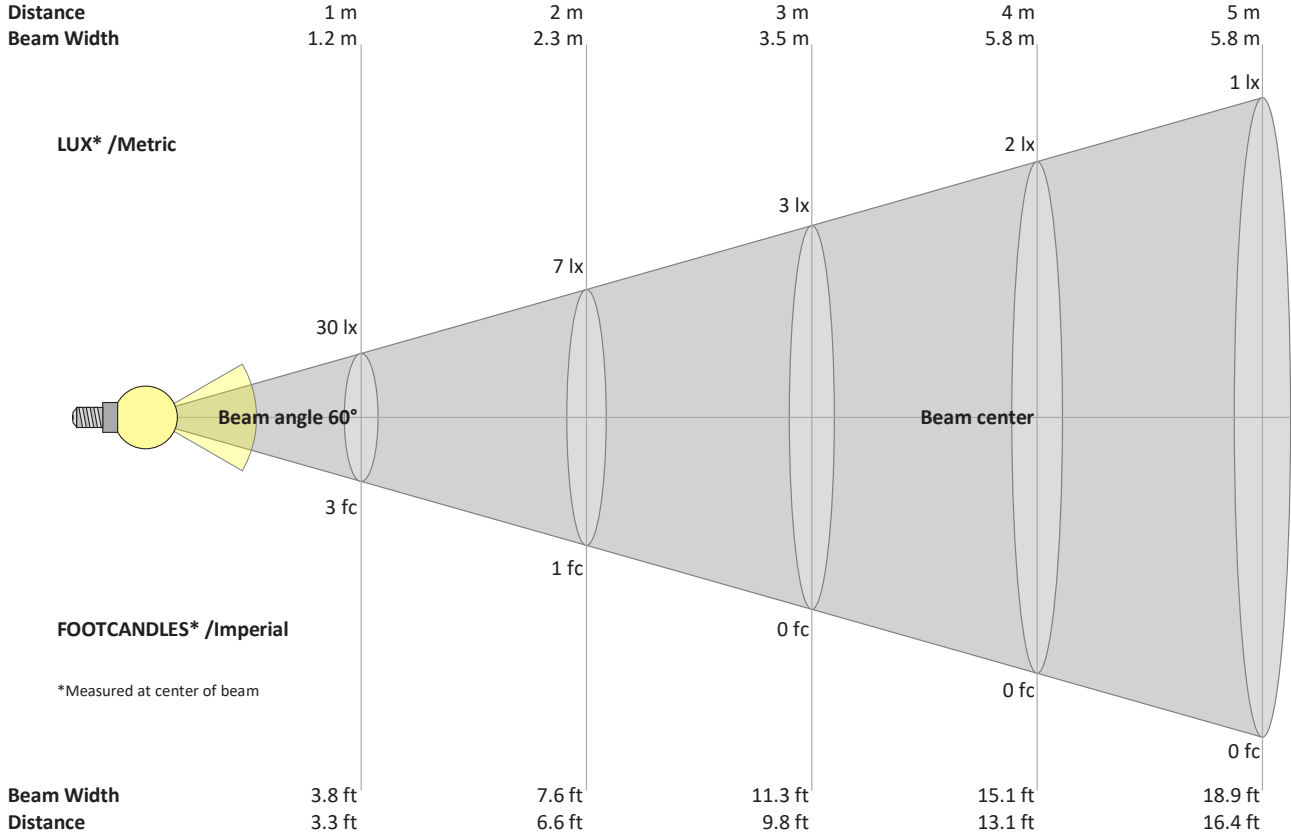
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
79.6	95.1	81.4	77.3	81.0	82.5	83.3	86.4	96.3	89.2	86.0	84.3	83.5	73.3	75.4

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## 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	
30	7	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	lux
2.7	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°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	y
29.6	29.7	29.2	28.4	27.4	26.4	25.4	24.4	23.6	22.9	22.2	21.5	20.9	20.2	19.6	19.0	18.3	17.7	16.9	16.0	cd
100%	101%	99%	96%	93%	89%	86%	83%	80%	77%	75%	73%	71%	68%	66%	64%	62%	60%	57%	54%	of 0°val

### Intensities in 90° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	y
29.6	29.1	28.2	26.2	23.7	21.1	19.0	17.3	15.9	14.6	13.5	12.3	11.2	10.1	8.9	7.7	6.0	3.9	3.5	3.3	cd
100%	98%	95%	89%	80%	71%	64%	59%	54%	50%	45%	42%	38%	34%	30%	26%	20%	13%	12%	11%	of 0°val

### Intensities in 180° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	y
29.6	29.5	28.7	27.7	26.7	25.7	24.8	24.0	23.4	22.8	22.2	21.7	21.2	20.6	20.0	19.4	18.7	17.8	16.8	15.6	cd
100%	100%	97%	94%	90%	87%	84%	81%	79%	77%	75%	73%	72%	70%	68%	66%	63%	60%	57%	53%	of 0°val

### Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	y
29.6	29.1	29.2	29.5	30.3	31.5	33.0	34.7	36.4	38.2	40.3	42.8	46.7	52.0	54.5	54.4	56.0	58.4	60.1	61.1	cd
100%	99%	99%	100%	102%	106%	111%	117%	123%	129%	136%	145%	158%	176%	184%	184%	189%	197%	203%	206%	of 0°val