

# Photometric Report

EXTERIOR WASH PRO XL QUAD 4000K – Neutral White

LM-79-08 Compliant

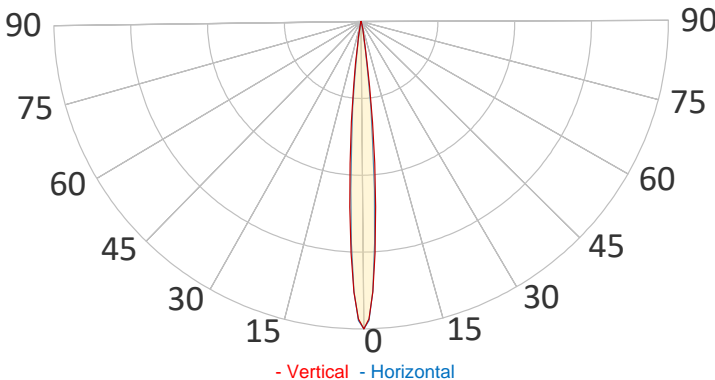
## GENERAL SPECIFICATIONS

Total Fixture Output:	7533 lm
Light Engine Output:	10040 lm
Efficacy:	36 lm/W
Lens Option:	Native
Beam Angle H (50%):	8 °
Beam Angle V (50%):	8 °
CRI:	70+
CQS:	77
TM-30 Rf:	74.7
TM-30 Rg:	119.9
TLCI:	42
Color Temperature:	4000 K



## SAMPLE MEASUREMENT

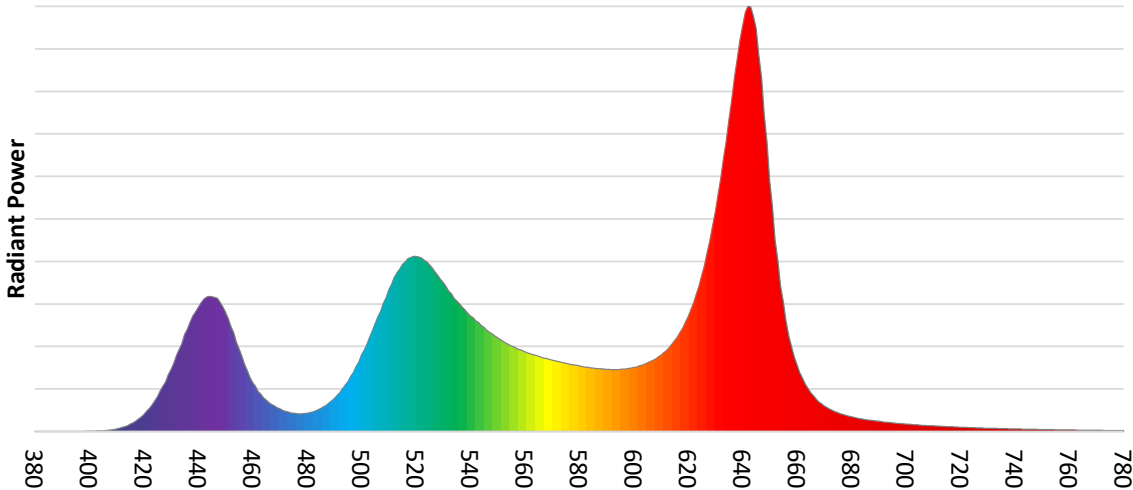
POLAR PLOT



Catalog Number:	MAR-90590004
Measured Output:	7533 lm
Measured Peak:	255793 cd
Consumed Power:	209 W
Efficacy:	36 lm/W
Beam Angle H (50%):	8.2 °
Beam Angle V (50%):	8.2 °

Measurement Condition:	
Ambient Temperature:	25 ° +/- 5 ° C
AC Supply:	230V/50Hz
Fan Mode:	No Fan
Fixture Warm-up Time:	30 minutes

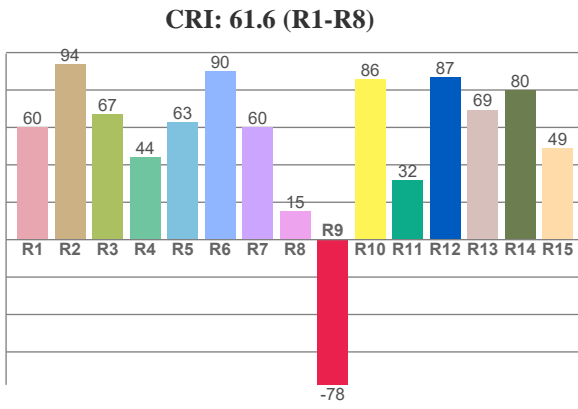
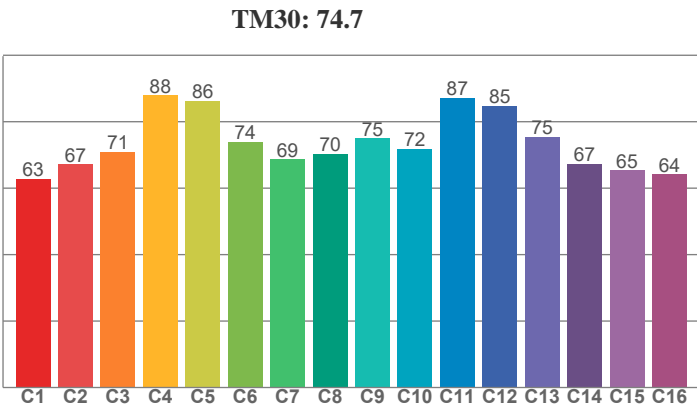
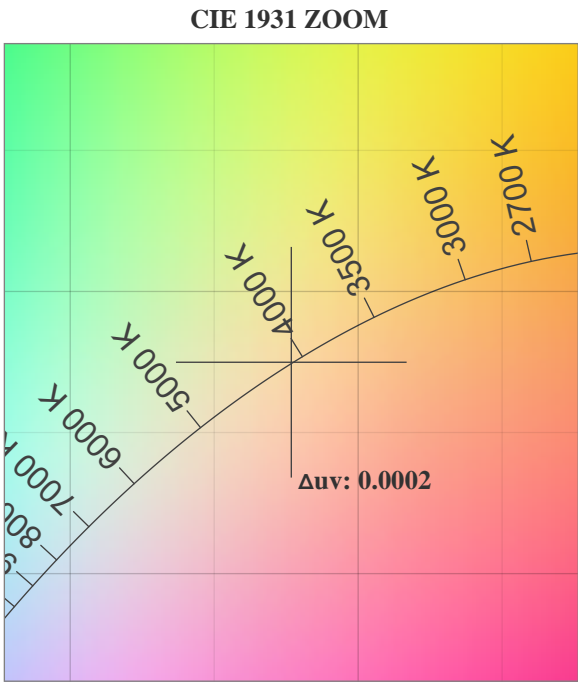
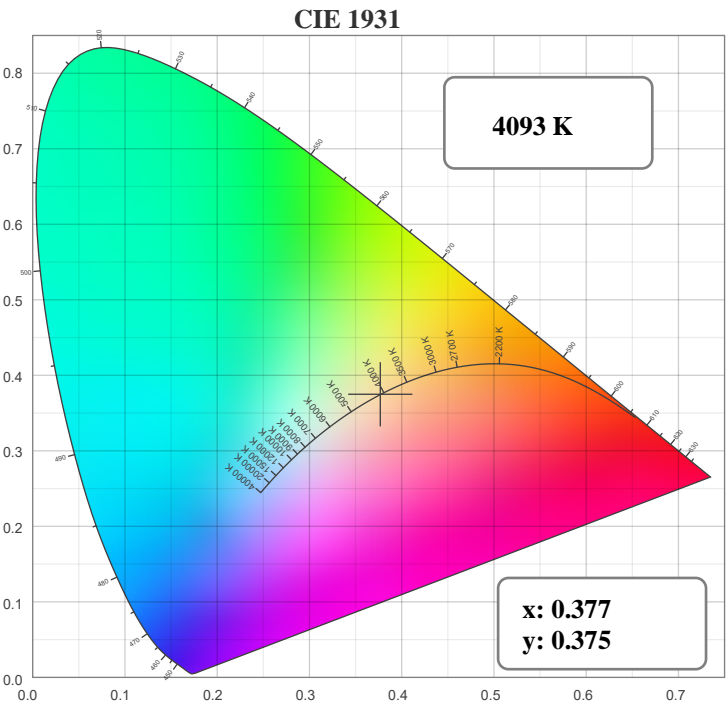
SPECTRAL DISTRIBUTION



# Photometric Report

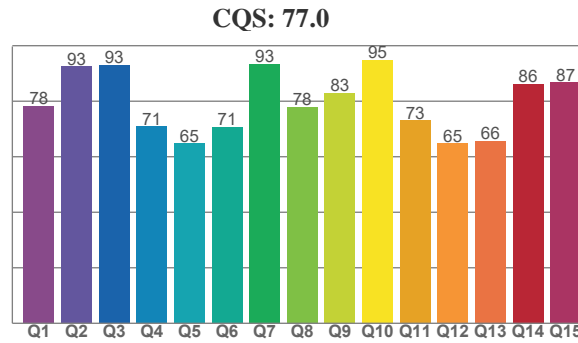
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## CHROMATICITY



## COLOR PARAMETERS

Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg
4093 K	61.6	-77.6	74.7	119.9



Television Lighting Consistency Index	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate CIE 1964	Color Coordinate CIE 1964	Color Deviation from Black Body
TLCI	CQS	x	y	u	v	Δuv
42	77.0	0.377	0.375	0.223	0.333	0.0002

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TM30

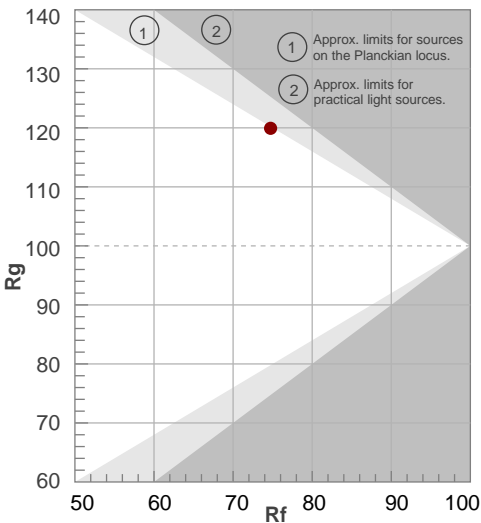
Rf 74.7

Fidelity index Rf

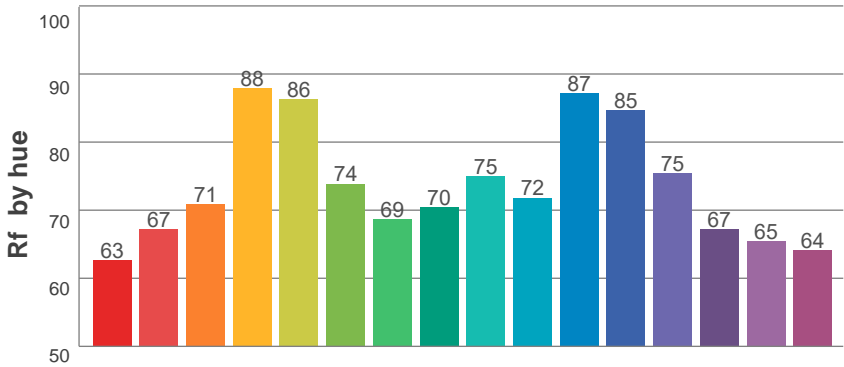
Rg 119.9

Gamut index Rg

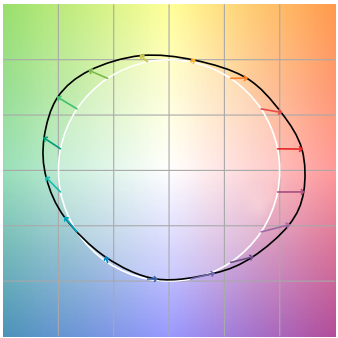
Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	63	21%	-5%
2	67	13%	-13%
3	71	8%	-12%
4	88	2%	-3%
5	86	7%	5%
6	74	15%	10%
7	69	20%	1%
8	70	16%	-7%
9	75	10%	-15%
10	72	2%	-17%
11	87	-3%	-4%
12	85	-2%	8%
13	75	-1%	22%
14	67	7%	19%
15	65	17%	19%
16	64	23%	5%



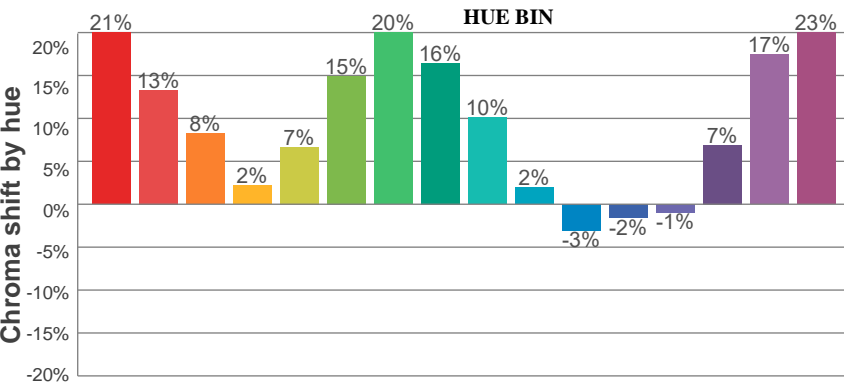
HUE BIN



COLOR VECTOR GRAPHICS



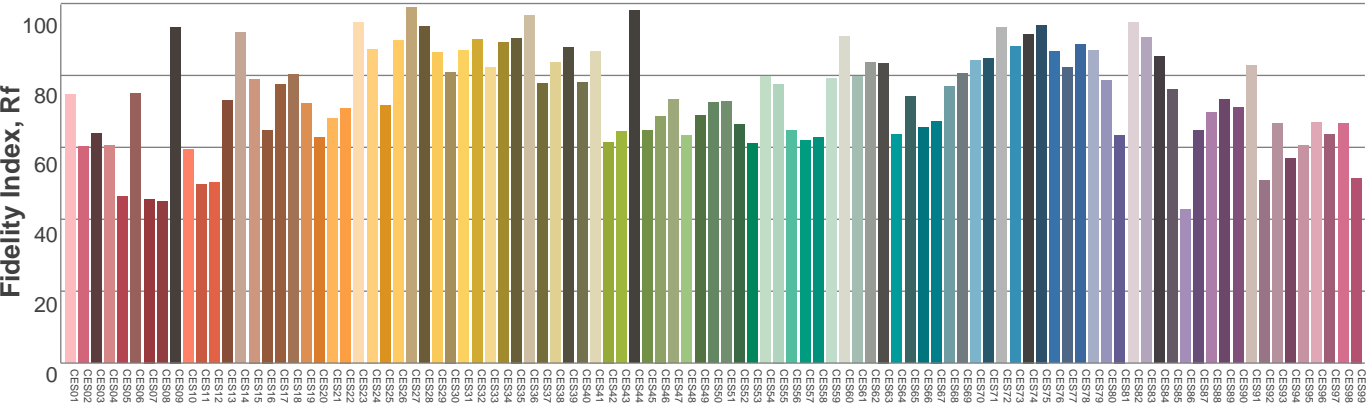
HUE BIN



COLOR DISTORTION GRAPHICS



COLOR EVALUATION SAMPLE



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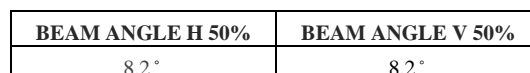
The diagram illustrates the beam spread and illuminance of a 100W PAR38 beam light. The beam angle is 8.3°. The beam is shown as a cone originating from a light source. The beam width and distance are given in both meters and feet. The illuminance (Lux\*) and footcandle (fc) values are shown at various distances along the beam.

Distance (meter)	Distance (feet)	Beam width (meter)	Beam width (feet)	Lux*	Footcandle*
1 m	3.3 ft	0.1 m	0.5 ft	225028 lx	20906 fc
5 m	16.4 ft	0.7 m	2.4 ft	9001 lx	836 fc
10 m	32.8 ft	1.5 m	4.8 ft	2250 lx	209 fc
15 m	49.2 ft	2.2 m	7.1 ft	1000 lx	93 fc
20 m	65.6 ft	2.9 m	9.5 ft	563 lx	52 fc

\*measured at center of beam

*distance in [m] for illuminance in [lux]    distance in [ft] for illuminance in [fc]*

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
225028lx	56257lx	25003lx	14064lx	9001lx	6251lx	4592lx	3516lx	2778lx	2250lx	1860lx	1563lx	1332lx	1148lx	1000lx	879lx	779lx	695lx	623lx	563lx
20905.7fc	5226.4fc	2322.9fc	1306.6fc	836.2fc	580.7fc	426.6fc	326.7fc	258.1fc	209.1fc	172.8fc	145.2fc	123.7fc	106.7fc	92.9fc	81.7fc	72.3fc	64.5fc	57.9fc	52.3fc



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## TEST INFORMATION

Test date:	From February 13, 2024, to February 21, 2024
Date of receipt samples:	February 21, 2024
Quantity of receipt samples:	1 unit per model

## EQUIPMENT LIST

ID	Instrument	Model	Cal. date	Next cal. Date
AC Power Meter	EF-I-0287	PF9811	2024.02.08	2024.03.07
AC Power Meter	EF-I-1002	PF2010	2024.02.08	2024.03.07
Photometric colorimetric electric system (2-meter sphere)	EF-I-900	HASS 2000	Before used	Before used
21V/3.9289A standard lamp	EF-I-963	D204	2023.04.11	2024.04.10
Goniophotometer	EF-I-902	GO-R5000	2024.02.08	2024.03.07
Wireless temperature transmitter	EF-I-958	DWRP-B (0)	2024.02.08	2024.03.07

## REFERENCE STANDARDS OR METHODS

ANSI/NEMA/ ANSLG C78.377-2017	Specifications for the Chromaticity of Solid-State Lighting Products
ANSI C82.77-2002	Harmonic Emission Limits Related Power Quality Requirements for Lighting Equipment
CIE Pub. No. 13.3-1995	Method of Measuring and Specifying Color Rendering of Light Sources
CIE Pub. No. 15:2004	Colorimetry
IES LM-79-08	Electrical and Photometric Measurements of Solid-State Lighting Products

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## TEST CONDUCTED AND METHOD

### Ambient Condition

The ambient temperature in which measurements are being taken was maintained at  $25 \pm 2$  °C, the air flow around the sample(s) being tested did not affect the performance.

### Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within 0.2 percent under load.

### Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

### Electrical Instrumentation

The calibration uncertainties of the instruments for AC voltage and current were less than 0.2 percent, and the calibration uncertainty of the AC power meter was less than 0.5 percent (9% confidence interval,  $k=2$ ).

### Color Measurement Method

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the color characteristics (Color rendering index, correlated color temperature, chromaticity coordinate) were calculated from these by software automatically.

10 samples were measured as customer required.

### Total Luminous Flux Measurement Method

Total luminous flux was measured by both sphere-spectroradiometer system and goniophotometer.

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the total luminous flux was calculated from these by software automatically.

Light intensity distribution was measured by a type C goniophotometer (with mirror) which can keep the sample in burn position when the tests conduct, and the total luminous flux was calculated from the intensity data by software automatically.

1 sample was measured by sphere method, and 1 sample was measured by goniophotometer method.

Correction factor (self-absorption) has been considered when doing measurement.

### Luminous Intensity Distribution Measurement Method

Light intensity distribution was measured by a type C goniophotometer (with mirror) which can keep the sample in burn position when the tests conduct, and the kinds of graph were generated by software automatically.

1 sample was measured as customer required.