

Photometric Measurement Report

Generated by Radiant Vision Systems Light Measurement Platform

Luminaire Model	L AN4203031 BUZLU				
Led & Driver Type	BRIDGELUX	VERO 10	&	TCI	UNIVERSAL 20
Luminaire Type	ANKASTRE				
Luminaire Family	SIGHT				
Holder	0				
Reflector / Lens Degree	18				
Brand	LAMP 83				
Date of issue	10.01.2018				

Test Standards

EN 13032-1:2012 and EN 13032-4:2013 Light and Lighting. Measurement and presentation of photometric data of lamps and luminaires

IESNA LM-79-08 Approved Method: Electrical and Photometric Measurements of SSL Products(Type-C)

Test and Test Method

The photometric measurements listed in this report are performed by a Radiant Vision Systems PM-NFMS™ near field goniometer system. The NFMS system performs brightness and color measurements as a function of viewing angle. It provides accurate near-field luminance distribution data and generates far field distribution data.

Test Equipment

Name	Serial / Version
The PM-NFMS™ system consists of a PM-Series™ Imaging Colorimeter IC-PMI2	SN# 79046501
NFMS 800 two-axis goniometer	SN# 641502001
SP-1000 spectrometer	SN# 3017942276
PM-NFMS™ software	Version 4.9.9
ProSource™ Software	Version 10.2.2

The measurement data is preserved as a set of images Radiant Source Model™(RSMX). The ProSource™ Software (Version 10.2.2) was been used to convert the RSMX to a ray set(LTD file)

Laboratory Environment and Conditions

The measurement was done in the photometric laboratory of Lamp83 (Istanbul). It is a climate controlled dark room. Also a AC/DC power stabilisation unit is used(Pyramid Plus PPS310,8KW,10kVA,SN# 073010T0066).

Temperature:	25°C	(± 1 °C)
Moisture:	60%	(± 10 %)

The luminaire was thermally stabilized for **at least 45 minutes** on the goniometer. The end of the stabilization period has been reached if in the last 10 minutes the luminance output has not changed by more than ± 0.5%.

Equipment Specifications

Precision: 0.25° (NFMS Goniometer)

Luminance (Y): ± 3% (Imaging Colotimeter IC-PMI2)

Color Accuracy: ± 0.002 Illuminant A type sourc (Spectrometer SP-1000)

Tested By:

Gökhan AKSEL
Test Technician

Reviewed By:

Anıl TOKER
Physics Engineer

Approved By:

Erdoğan EMREM
R&D Manager

LAMP83 Aydınlatma San. Ve Tic. A.S

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Luminaire
Spectroradiometric Results

Luminous Flux (lm)	608
CCT (K)	3,033
Illuminance	595
Cx	0.4331
Cy	0.4000
CRI	83
Luminous Efficacy (lm/W)	49.7
Angle (°)	24.5

Luminaire Electric Specifications

Voltage (VAC)	221.4
Current (A)	0.06
Power (W)	12.22128
Power Factor	0.92
LED Voltage(VDC)	25.7
LED Current(mA)	360
LED Power(W)	9.252

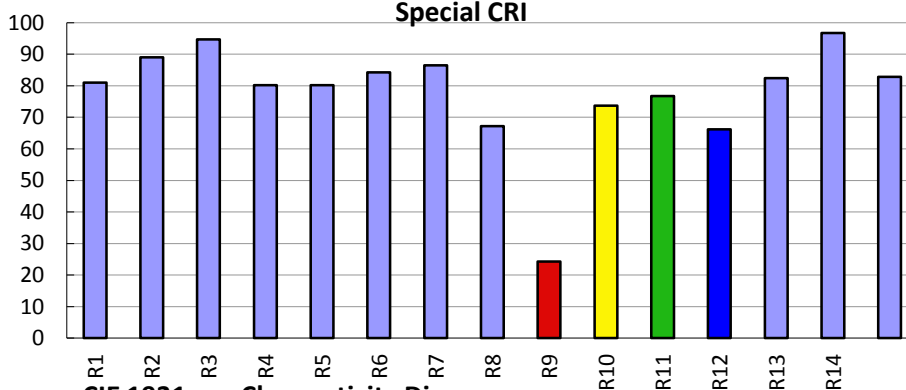
Measurement Preset
Specifications

External ND Filter	YES
ND Filter	ND1
F-Number	8
Exposure Time (ms)	192.2
Distance(mm)	2075

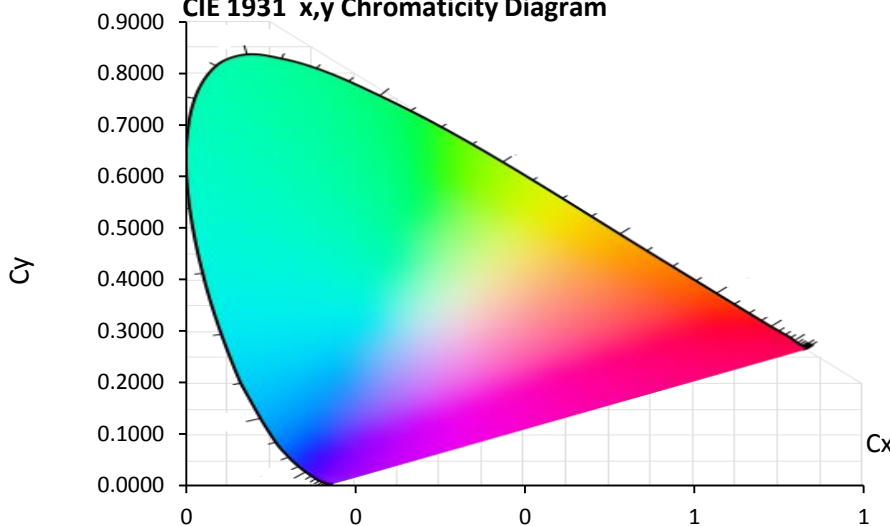
Rendering Index

CRI	
R1	81.0
R2	89.1
R3	94.7
R4	80.1
R5	80.2
R6	84.3
R7	86.4
R8	67.2
R9	24.3
R10	73.7
R11	76.8
R12	66.2
R13	82.4
R14	96.7
CRI Ra	82.9

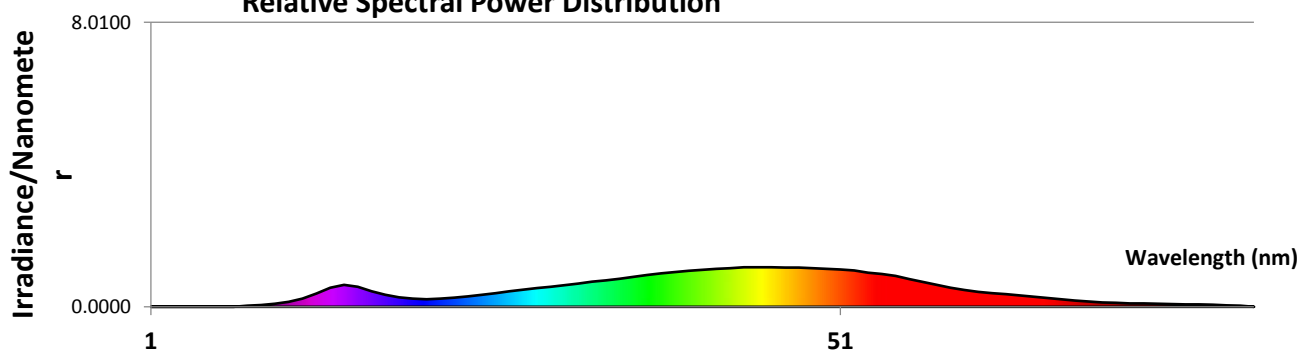
Special CRI



CIE 1931 x,y Chromaticity Diagram



Relative Spectral Power Distribution

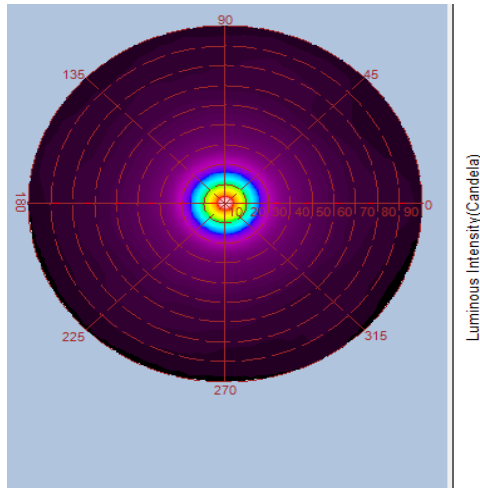


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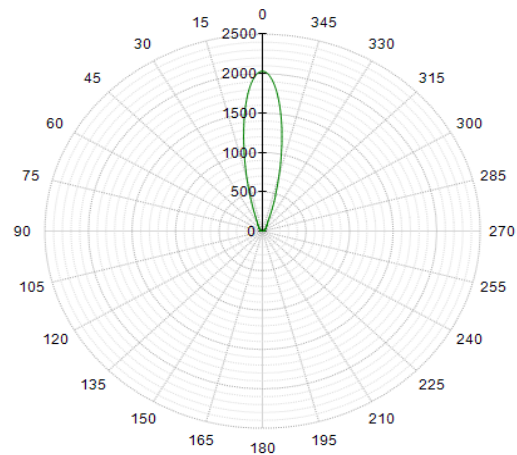
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Intensity Distribution - Polar Curve

Intensity Radar Plot (ray trace to infinity)



Luminous Intensity Distribution

**Cone Diagram**

0.5	0.22 0.20	E(0°) E(C90) E(C0)	12.3° 11.4°	8116 3804 3842
1.0	0.44 0.40	E(0°) E(C90) E(C0)	12.3° 11.4°	2029 951 960
1.5	0.65 0.60	E(0°) E(C90) E(C0)	12.3° 11.4°	902 423 427
2.0	0.87 0.81	E(0°) E(C90) E(C0)	12.3° 11.4°	507 238 240
2.5	1.09 1.01	E(0°) E(C90) E(C0)	12.3° 11.4°	325 152 154
3.0	1.31 1.21	E(0°) E(C90) E(C0)	12.3° 11.4°	225 106 107

Distance [m] Cone Diameter [m] Illuminance [lx]

— C0 - C180 (Half value angle: 22.8°)
— C90 - C270 (Half value angle: 24.6°)

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UGR Table**Glare Evaluation According to UGR**

ρ Ceiling		70	70	50	50	30	70	70	50	50	30
ρ Walls		50	30	50	30	30	50	30	50	30	30
ρ Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	15.9	16.8	16.2	17.0	17.2	16.3	17.2	16.6	17.4	17.7
	3H	17.0	17.9	17.3	18.1	18.3	17.6	18.4	17.8	18.6	18.9
	4H	17.5	18.3	17.8	18.6	18.8	18.1	18.9	18.4	19.1	19.4
	6H	18.0	18.7	18.3	19.0	19.3	18.6	19.3	18.9	19.6	19.9
	8H	18.1	18.8	18.5	19.1	19.4	18.8	19.5	19.2	19.8	20.1
	12H	18.3	18.9	18.6	19.3	19.6	19.0	19.7	19.4	20.0	20.3
4H	2H	16.5	17.2	16.8	17.5	17.8	16.8	17.6	17.1	17.8	18.1
	3H	17.9	18.6	18.3	18.9	19.2	18.2	18.9	18.6	19.2	19.5
	4H	18.6	19.1	18.9	19.5	19.8	18.9	19.5	19.3	19.8	20.2
	6H	19.2	19.7	19.6	20.0	20.4	19.5	20.1	20.0	20.4	20.8
	8H	19.4	19.9	19.8	20.2	20.7	19.8	20.3	20.3	20.7	21.1
	12H	19.6	20.0	20.0	20.4	20.8	20.1	20.5	20.5	20.9	21.3
8H	4H	18.9	19.4	19.3	19.8	20.2	19.2	19.7	19.6	20.1	20.5
	6H	19.7	20.1	20.2	20.5	21.0	20.0	20.4	20.5	20.8	21.3
	8H	20.1	20.4	20.5	20.8	21.3	20.4	20.7	20.9	21.2	21.6
	12H	20.3	20.6	20.8	21.1	21.6	20.7	21.0	21.2	21.5	22.0
12H	4H	19.0	19.4	19.4	19.8	20.2	19.3	19.7	19.7	20.1	20.5
	6H	19.8	20.1	20.3	20.6	21.1	20.1	20.4	20.6	20.9	21.3
	8H	20.2	20.5	20.7	20.9	21.4	20.5	20.8	21.0	21.3	21.8
Variation of the observerposition for the luminaire distance S											
S = 1.0H		+0.2 / -0.3					+0.2 / -0.3				
S = 1.5H		+0.4 / -0.6					+0.5 / -0.5				
S = 2.0H		+0.7 / -1.0					+0.9 / -0.8				
Standard table		BK06					BK06				
Correction summand		2.8					3.1				
Corrected glare indices referring to 609lm total luminous flux											

Sample Pictures