

**Photometric Measurement Report**

Generated by Radiant Vision Systems Light Measurement Platform

Luminaire Model	L DL2402030				
Led & Driver Type	SAMSUNG	26D2	&	TCI	PROFESSIONALE 42
Luminaire Type	DOWNLIGHT				
Luminaire Family	L-UGR				
Holder	BAHO HOLDER				
Reflector / Lens Degree	72				
Brand	LAMP 83				
Date of issue	02.05.2018				

**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

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## Luminaire Spectroradiometric Results

Luminous Flux (lm)	2241
CCT (K)	2,996
Cx	0.4364
Cy	0.4024
CRI	93
Luminous Efficacy (lm/W)	95.852
Angle (°)	72.0

## Luminaire Electric Specifications

Voltage (VAC)	221.4
Current (A)	0.11
Power (W)	23.37984
Power Factor	0.96
LED Voltage(VDC)	33.71
LED Current(mA)	603
LED Power(W)	20.32713

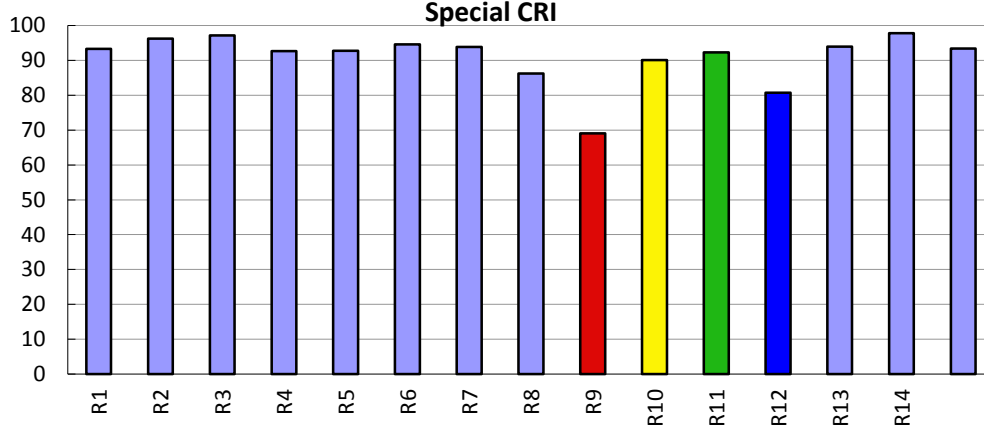
## Measurement Preset Specifications

External ND Filter	YES
ND Filter	ND1
F-Number	8
Exposure Time (ms)	184.83
Distance(mm)	2020

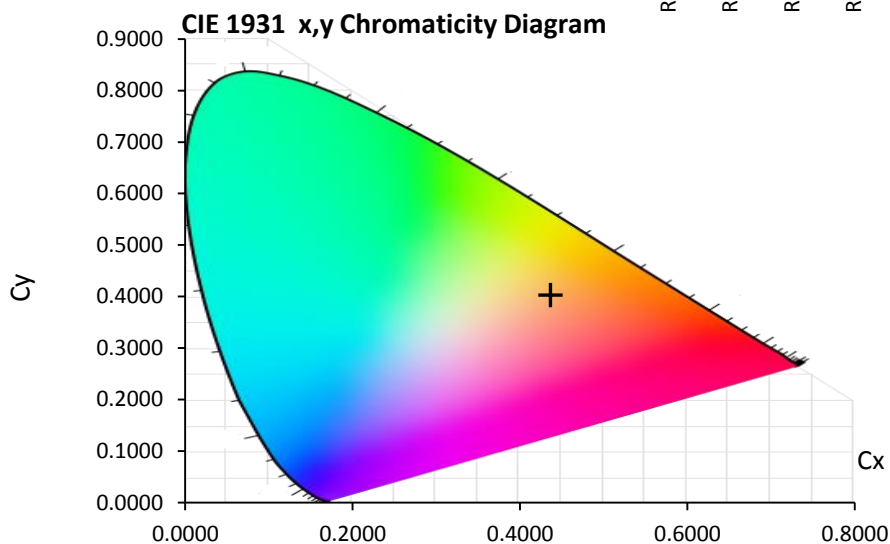
## Rendering Index

CRI	
R1	93.3
R2	96.3
R3	97.2
R4	92.7
R5	92.7
R6	94.6
R7	93.9
R8	86.3
R9	69.0
R10	90.1
R11	92.3
R12	80.7
R13	94.0
R14	97.8
CRI Ra	93.4

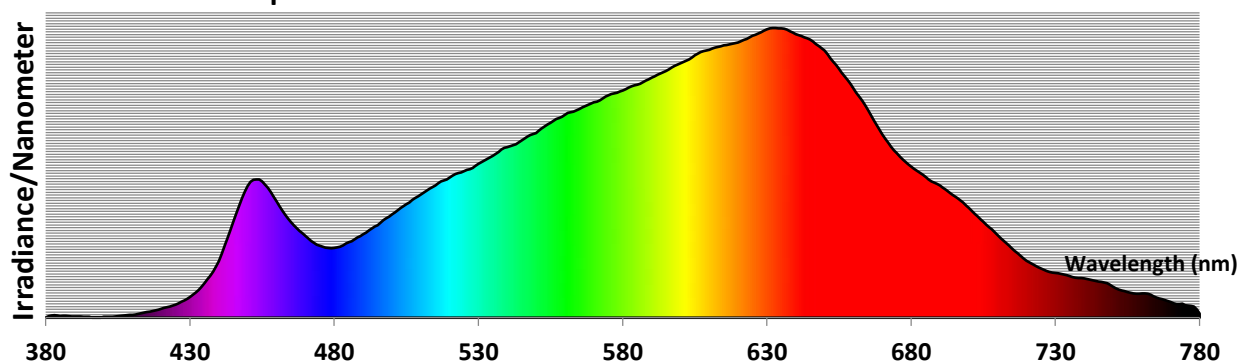
## Special CRI



## CIE 1931 x,y Chromaticity Diagram



## Relative Spectral Power Distribution



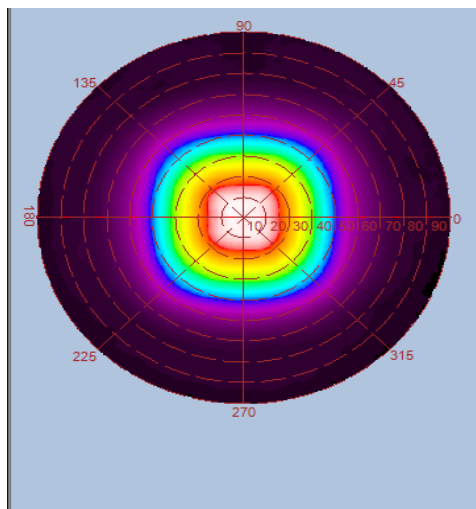
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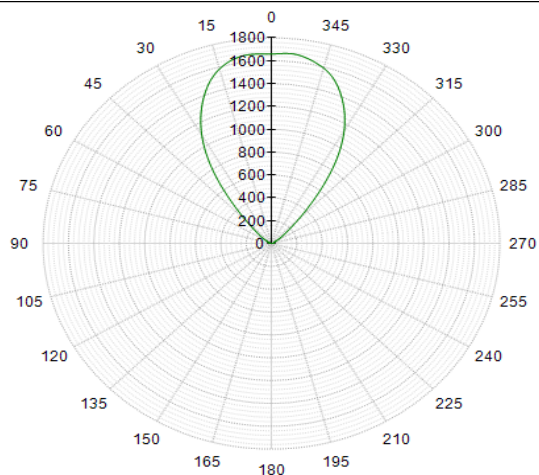
### Intensity Distribution - Polar Curve

Intensity Radar Plot (ray trace to infinity)

Luminous Intensity Distribution



Luminous Intensity (Candela)



### Cone Diagram

0.5	0.72 0.71	E(0°) E(C90) 35.9° E(C0) 35.5°	6634 1776 1806
1.0	1.45 1.43	E(0°) E(C90) 35.9° E(C0) 35.5°	1658 444 452
1.5	2.17 2.14	E(0°) E(C90) 35.9° E(C0) 35.5°	737 197 201
2.0	2.90 2.85	E(0°) E(C90) 35.9° E(C0) 35.5°	415 111 113
2.5	3.62 3.57	E(0°) E(C90) 35.9° E(C0) 35.5°	265 71 72
3.0	4.34 4.28	E(0°) E(C90) 35.9° E(C0) 35.5°	184 49 50

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

— C0 - C180 (Half value angle: 71.0°)  
— C90 - C270 (Half value angle: 71.8°)

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## UGR Table

## Glare Evaluation According to UGR

$\rho$ Ceiling		70	70	50	50	30	70	70	50	50	30
$\rho$ Walls		50	30	50	30	30	50	30	50	30	30
$\rho$ 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	19.7	20.5	20.0	20.7	21.0	20.0	20.8	20.2	21.0	21.2
	3H	19.6	20.4	19.9	20.6	20.8	19.9	20.6	20.2	20.9	21.1
	4H	19.6	20.3	19.9	20.5	20.8	19.8	20.5	20.1	20.8	21.1
	6H	19.5	20.2	19.9	20.5	20.8	19.8	20.5	20.1	20.7	21.0
	8H	19.5	20.1	19.9	20.4	20.7	19.8	20.4	20.1	20.7	21.0
	12H	19.5	20.1	19.9	20.4	20.7	19.8	20.4	20.1	20.7	21.0
4H	2H	19.6	20.3	19.9	20.5	20.8	19.8	20.5	20.1	20.8	21.0
	3H	19.5	20.1	19.8	20.4	20.7	19.7	20.3	20.1	20.6	21.0
	4H	19.4	20.0	19.8	20.3	20.6	19.7	20.2	20.1	20.6	20.9
	6H	19.4	19.9	19.9	20.3	20.6	19.7	20.2	20.1	20.5	20.9
	8H	19.5	19.8	19.9	20.2	20.6	19.7	20.1	20.1	20.5	20.9
	12H	19.5	19.8	19.9	20.2	20.6	19.7	20.1	20.2	20.5	20.9
8H	4H	19.4	19.8	19.8	20.1	20.5	19.6	20.0	20.0	20.4	20.8
	6H	19.4	19.7	19.8	20.1	20.6	19.6	20.0	20.1	20.4	20.8
	8H	19.4	19.7	19.9	20.1	20.6	19.7	19.9	20.1	20.4	20.8
	12H	19.4	19.6	19.9	20.1	20.6	19.7	19.9	20.2	20.4	20.9
12H	4H	19.3	19.7	19.8	20.1	20.5	19.6	19.9	20.0	20.3	20.8
	6H	19.3	19.6	19.8	20.1	20.5	19.6	19.9	20.1	20.3	20.8
	8H	19.4	19.6	19.9	20.1	20.6	19.6	19.9	20.1	20.3	20.8

Variation of the observer position for the luminaire distance S

S = 1.0H	+2.8 / -5.8	+2.7 / -5.0
S = 1.5H	+4.9 / -7.5	+4.9 / -7.0
S = 2.0H	+6.9 / -8.1	+6.8 / -7.9
Standard table	BK00	BK00
Correction summand	1.3	1.6

Corrected glare indices referring to 2241lm total luminous flux

## Sample Pictures