

**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	03.05.2018				

**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  $\pm 0.5\%$ .

**Equipment Specifications**

Precision: 0.25° (NFMS Goniometer)

Luminance (Y):  $\pm 3\%$  (Imaging Colotimeter IC-PMI2)

Color Accuracy:  $\pm 0.002$  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)	3099
CCT (K)	3,013
Cx	0.4347
Cy	0.4011
CRI	93
Luminous Efficacy (lm/W)	84.884
Angle (°)	72.0

## Luminaire Electric Specifications

Voltage (VAC)	221.4
Current (A)	0.17
Power (W)	36.50886
Power Factor	0.97
LED Voltage(VDC)	34.7
LED Current(mA)	897
LED Power(W)	31.1259

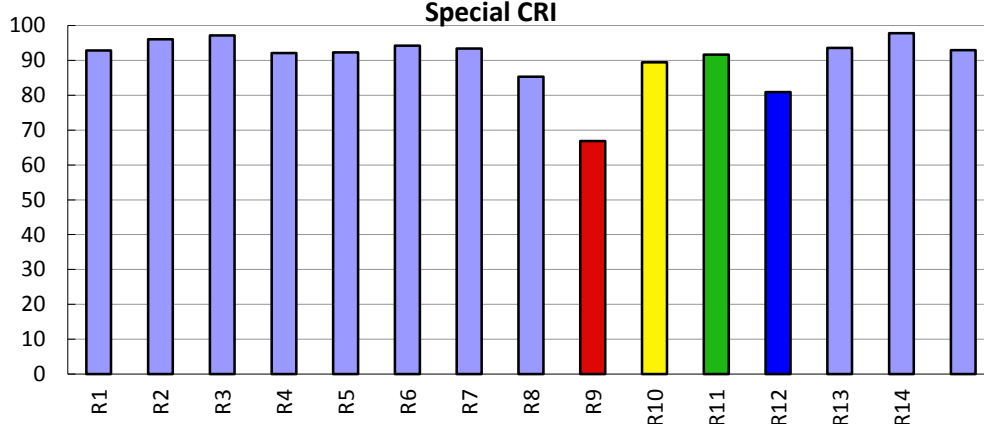
## Measurement Preset Specifications

External ND Filter	YES
ND Filter	ND1
F-Number	8
Exposure Time (ms)	134.17
Distance(mm)	2020

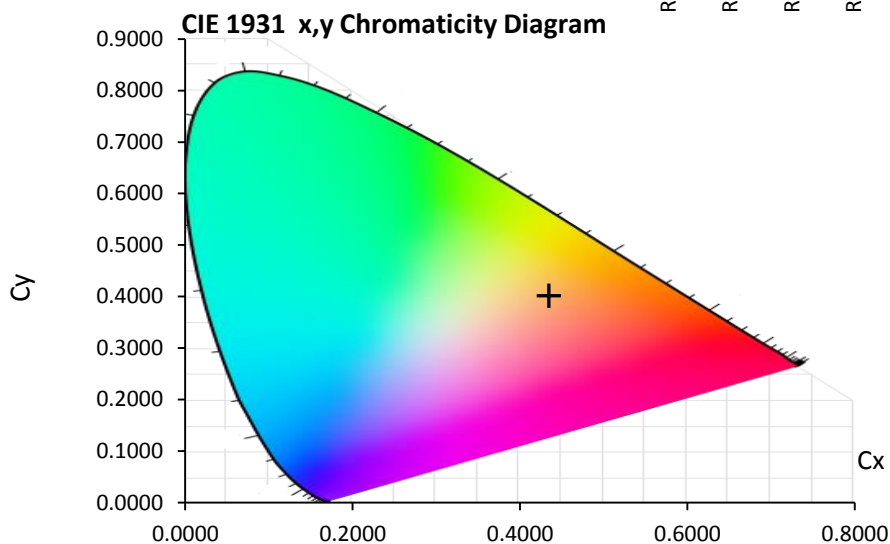
## Rendering Index

CRI	
R1	92.9
R2	96.1
R3	97.2
R4	92.1
R5	92.3
R6	94.3
R7	93.4
R8	85.3
R9	66.8
R10	89.5
R11	91.7
R12	81.0
R13	93.6
R14	97.8
CRI Ra	92.9

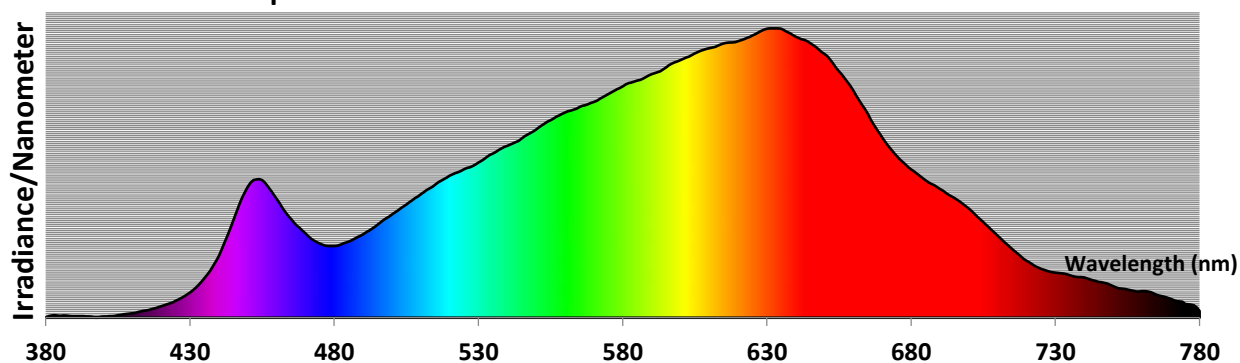
## Special CRI



## CIE 1931 x,y Chromaticity Diagram



## Relative Spectral Power Distribution

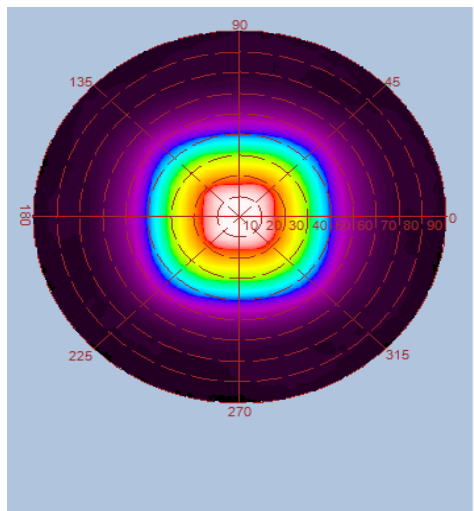


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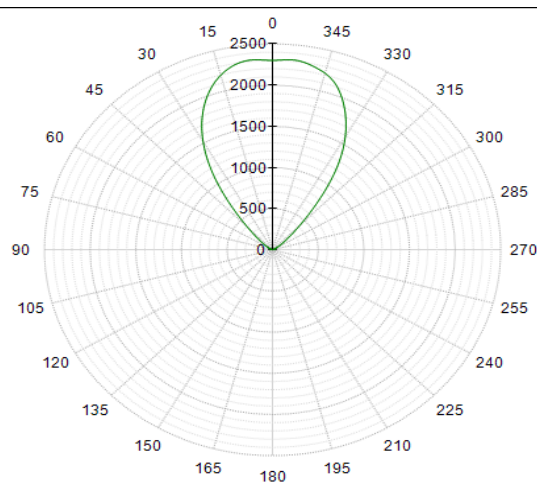
## Intensity Distribution - Polar Curve

Intensity Radar Plot (ray trace to infinity)



Luminous Intensity (Candela)

Luminous Intensity Distribution



## Cone Diagram

0.5	0.72 0.71	E(0°) E(C90) E(C0)	35.9° 35.4°	9203 2469 2523
1.0	1.45 1.42	E(0°) E(C90) E(C0)	35.9° 35.4°	2301 617 631
1.5	2.17 2.13	E(0°) E(C90) E(C0)	35.9° 35.4°	1023 274 280
2.0	2.90 2.84	E(0°) E(C90) E(C0)	35.9° 35.4°	575 154 158
2.5	3.62 3.55	E(0°) E(C90) E(C0)	35.9° 35.4°	368 99 101
3.0	4.34 4.26	E(0°) E(C90) E(C0)	35.9° 35.4°	256 69 70

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

— C0 - C180 (Half value angle: 70.8°)  
— 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	20.9	21.8	21.2	22.0	22.2	21.1	21.9	21.4	22.1	22.3
	3H	20.8	21.6	21.1	21.8	22.0	21.0	21.7	21.3	22.0	22.2
	4H	20.8	21.5	21.1	21.7	22.0	20.9	21.6	21.2	21.9	22.2
	6H	20.7	21.4	21.0	21.6	21.9	20.9	21.5	21.2	21.8	22.1
	8H	20.7	21.3	21.0	21.6	21.9	20.9	21.5	21.2	21.8	22.1
	12H	20.7	21.3	21.0	21.6	21.9	20.9	21.4	21.2	21.8	22.1
4H	2H	20.8	21.5	21.1	21.7	22.0	20.9	21.7	21.3	21.9	22.2
	3H	20.7	21.3	21.0	21.6	21.9	20.8	21.4	21.2	21.7	22.0
	4H	20.6	21.1	21.0	21.5	21.8	20.8	21.3	21.2	21.6	22.0
	6H	20.6	21.0	21.0	21.4	21.8	20.8	21.2	21.2	21.6	21.9
	8H	20.6	21.0	21.0	21.3	21.7	20.8	21.1	21.2	21.5	21.9
	12H	20.6	20.9	21.0	21.3	21.7	20.8	21.1	21.2	21.5	21.9
8H	4H	20.5	20.9	20.9	21.3	21.7	20.7	21.1	21.1	21.5	21.9
	6H	20.5	20.8	20.9	21.2	21.7	20.7	21.0	21.1	21.4	21.8
	8H	20.5	20.7	20.9	21.2	21.7	20.7	20.9	21.1	21.4	21.8
	12H	20.5	20.7	20.9	21.2	21.6	20.7	20.9	21.2	21.4	21.9
12H	4H	20.5	20.8	20.9	21.2	21.7	20.7	21.0	21.1	21.4	21.8
	6H	20.5	20.7	20.9	21.2	21.6	20.6	20.9	21.1	21.3	21.8
	8H	20.4	20.7	20.9	21.1	21.6	20.6	20.9	21.1	21.3	21.8
Variation of the observerposition for the luminaire distance S											
S = 1.0H		+2.9 / -6.6					+2.8 / -5.7				
S = 1.5H		+5.0 / -8.9					+5.0 / -8.2				
S = 2.0H		+7.0 / -9.9					+7.0 / -9.6				
Standard table		BK00					BK00				
Correction summand		2.5					2.7				
Corrected glare indices referring to 3100lm total luminous flux											

## Sample Pictures