

LM-79-08 Test Report
For
RAB LIGHTING INC

(Brand Name: N/A)

170 Ludlow Ave, PO BOX 970, Northvale, NJ 07647-2305 USA

Model name(s):
DLW0103(WFD6B)

Report Type: Testing and Report According to IES LM-79-2008

**Type of
Luminaire:** Downlights

Report Date: 2023-09-26

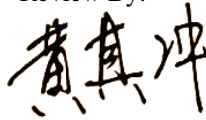
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	15.0 W
Rated Initial Lamp Lumen	1500 lm
Declared CCT	2700K/3000K/3500K/4000K/5000K

1.2 Test Specifications:

Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25°C ±1°C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1°vertical intervals and 22.5°horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25°C ±1°C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25°C ±1°C. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1.1 Electrical, Photometric and Chromaticity Measurements

Test date	2023-09-25	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0103(WFD6B)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202309250010	120.0	60	0.121	14.30	0.989

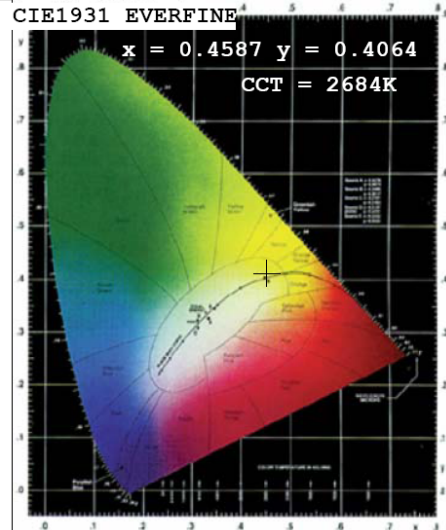
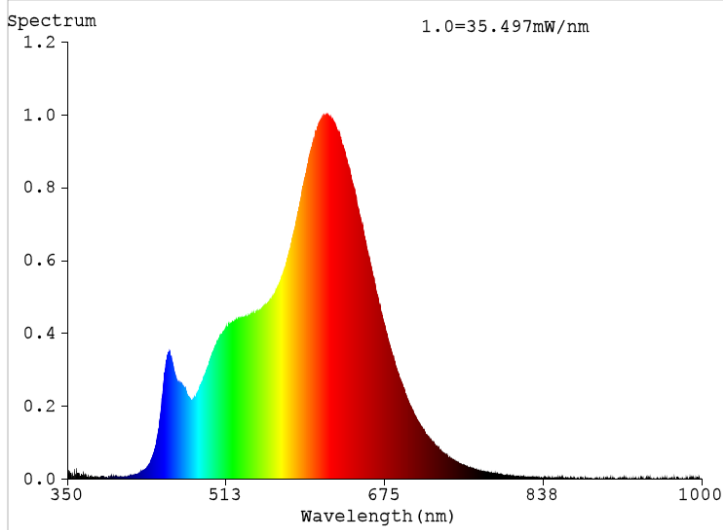
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	55
Frequency (Hz)	60	R2	97	R10	92
CCT (K)	2684	R3	92	R11	95
Duv	-0.0015	R4	98	R12	84
Chromaticity (x, y)	x=0.4587 y=0.4064	R5	98	R13	99
Chromaticity (u', v')	u'=0.2636 v'=0.5256	R6	89	R14	96
Color Rendering Index (CRI)	92.0	R7	87	R15	90
R9	55	R8	77	--	--

Photometric Measurement – Goniophotometer Method:

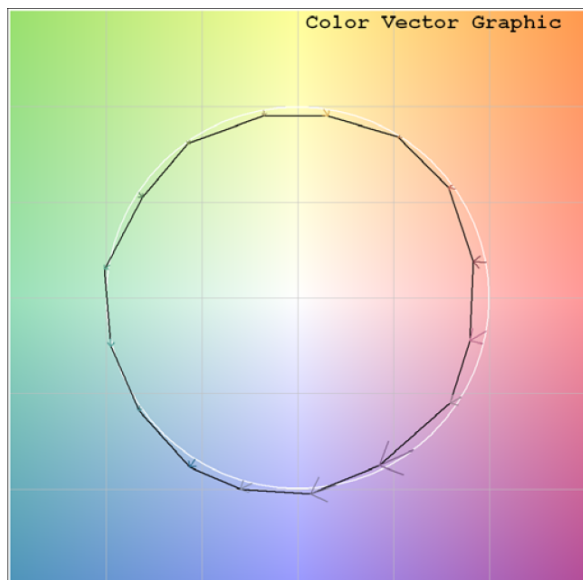
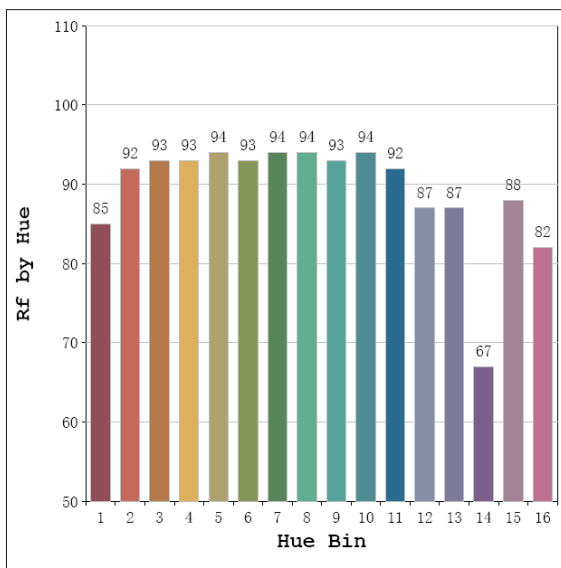
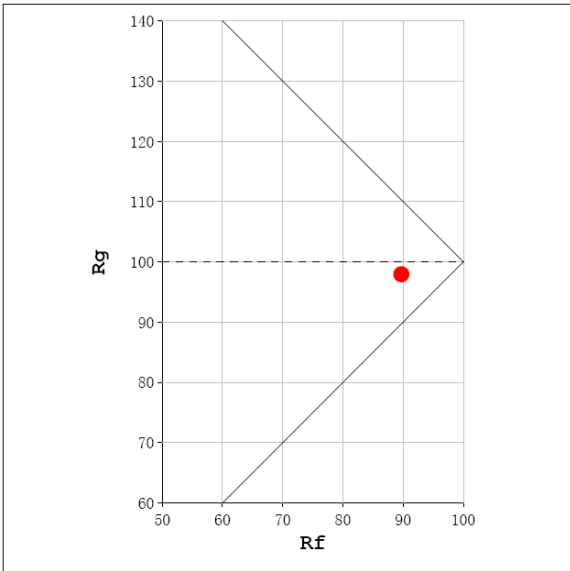
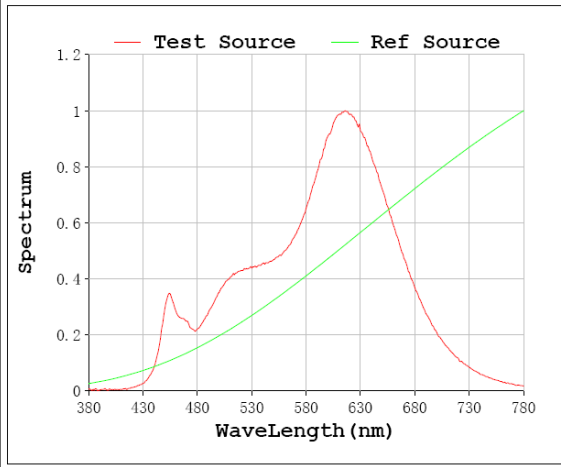
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1503.3
Luminous Efficacy (lm/W)	105.13
Beam Angle (°)	93.2
Center Beam Candle Power (cd)	719.2

Spectral Power Distribution & Chromaticity Diagram



TM30

Rf: 90 CCT: 2684 K u': 0.2636
 Rg: 98 Duv: -0.0015 v': 0.5256

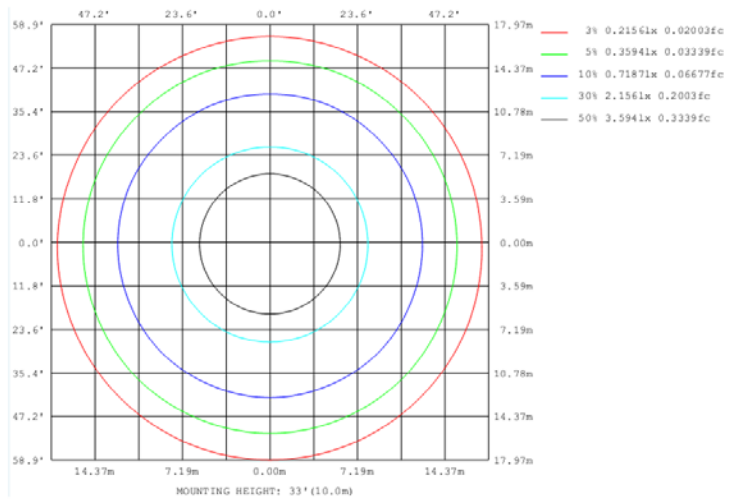
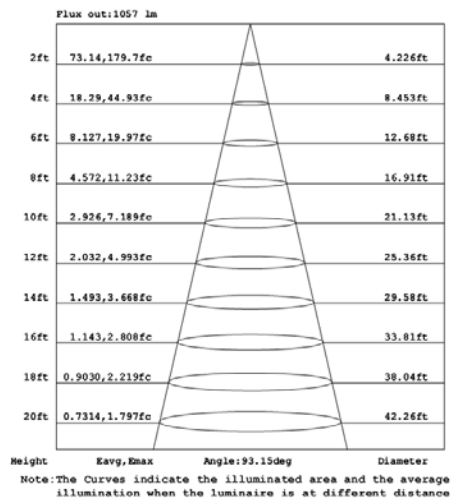
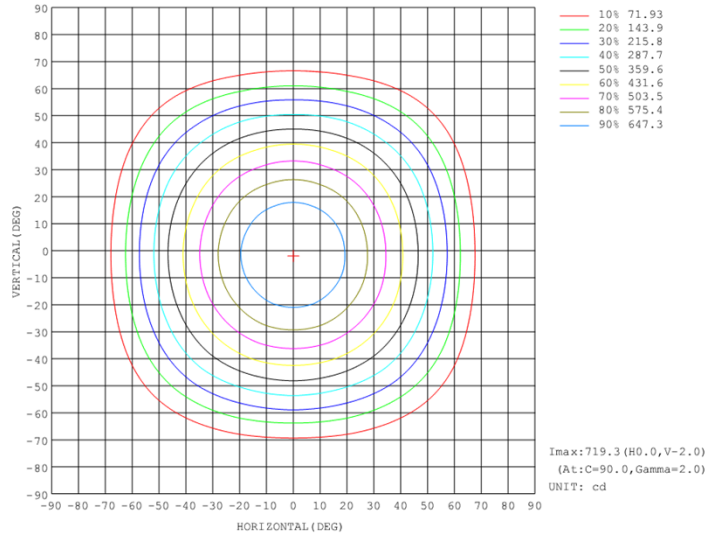
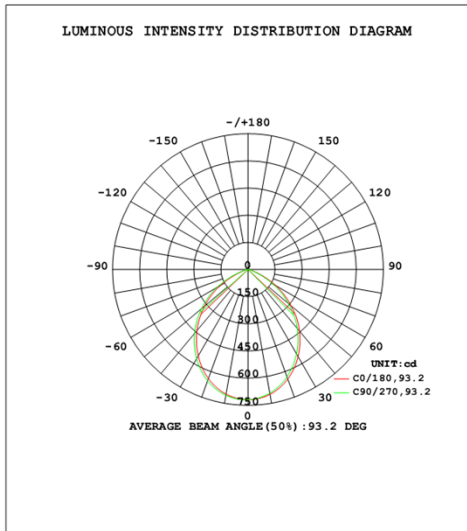


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	534.5	35.6%
0-40	846.6	56.3%
0-60	1359.4	90.4%
60-90	143.9	9.6%
70-100	35.5	2.4%
90-120	0.0	0.0%
0-90	1503.3	100.0%
90-180	0.0	0.0%
0-180	1503.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	67.7	4.5%	90-100	0.0	0.0%
10-20	190.2	12.7%	100-110	0.0	0.0%
20-30	276.6	18.4%	110-120	0.0	0.0%
30-40	312.1	20.8%	120-130	0.0	0.0%
40-50	292.5	19.5%	130-140	0.0	0.0%
50-60	220.3	14.7%	140-150	0.0	0.0%
60-70	108.5	7.2%	150-160	0.0	0.0%
70-80	29.4	2.0%	160-170	0.0	0.0%
80-90	6.1	0.4%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2023-09-25	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0103(WFD6B)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202309250010	120.0	60	0.120	14.20	0.989

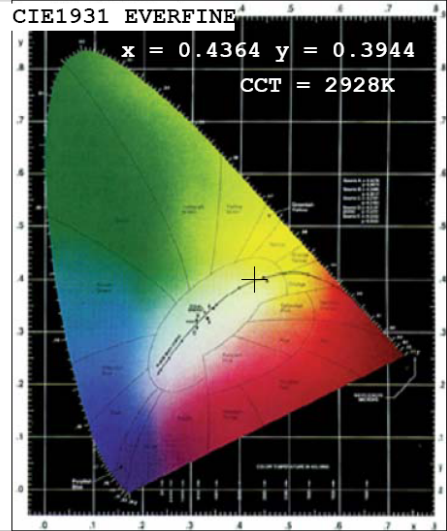
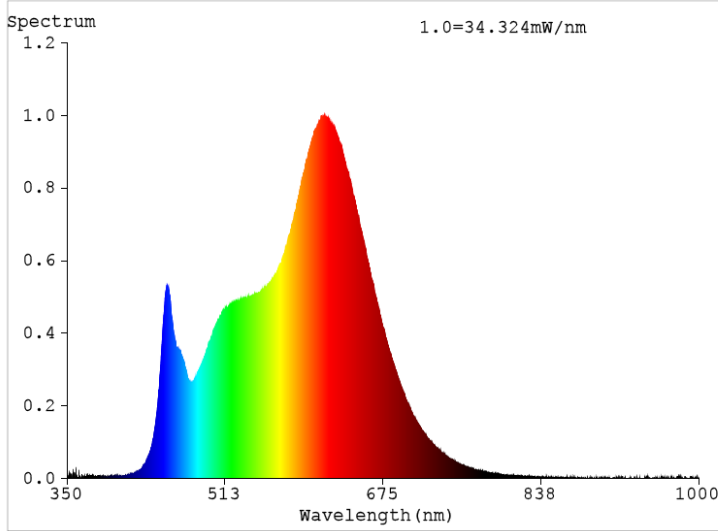
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	63
Frequency (Hz)	60	R2	96	R10	91
CCT (K)	2928	R3	92	R11	94
Duv	-0.0038	R4	99	R12	83
Chromaticity (x, y)	x=0.4364 y=0.3944	R5	97	R13	97
Chromaticity (u', v')	u'=0.2545 v'=0.5174	R6	89	R14	97
Color Rendering Index (CRI)	92.5	R7	88	R15	94
R9	63	R8	81	--	--

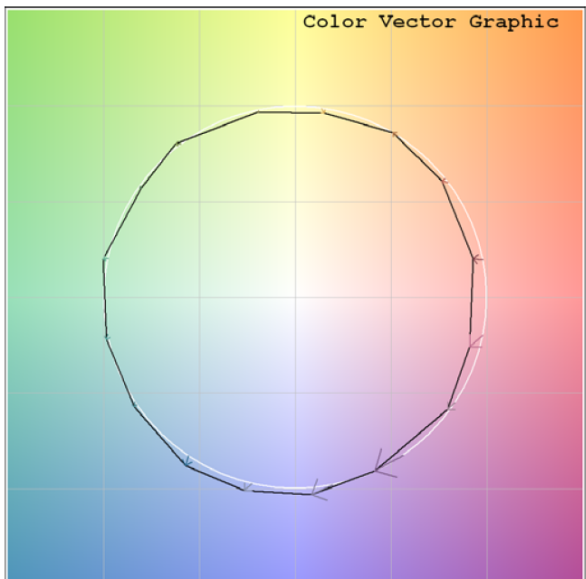
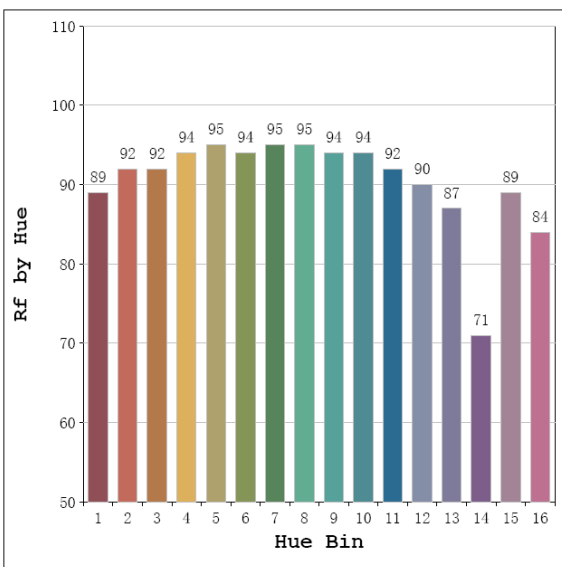
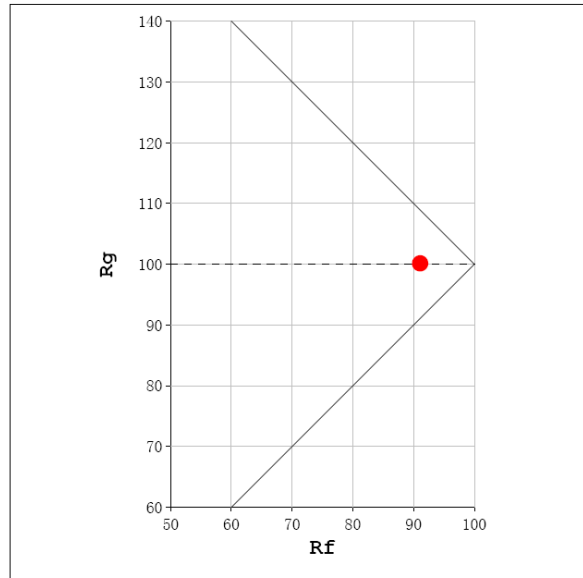
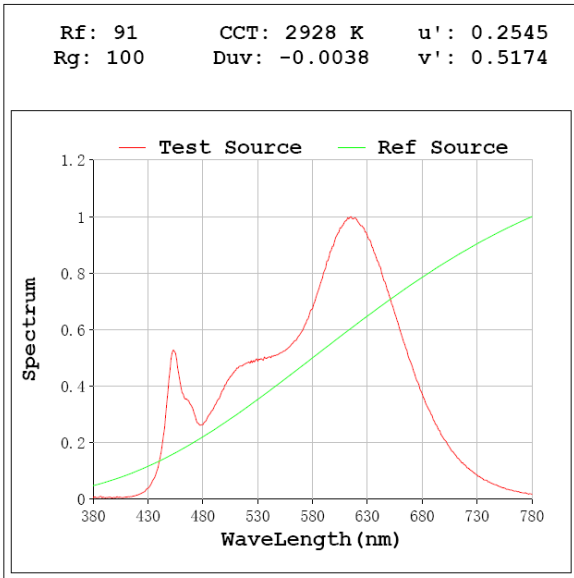
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1539.9
Luminous Efficacy (lm/W)	108.44
Beam Angle (°)	93.4
Center Beam Candle Power (cd)	736.1

Spectral Power Distribution & Chromaticity Diagram



TM30

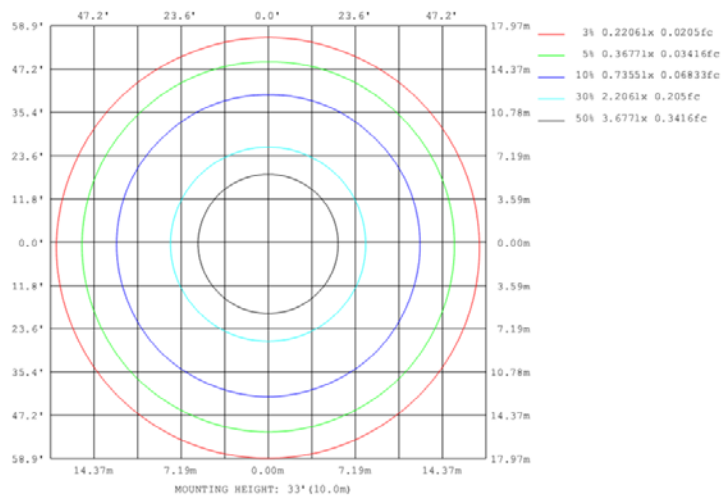
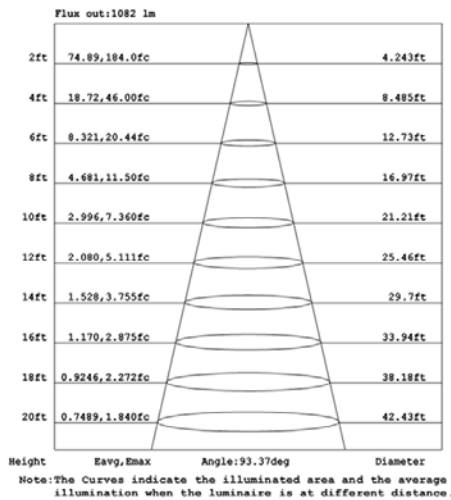
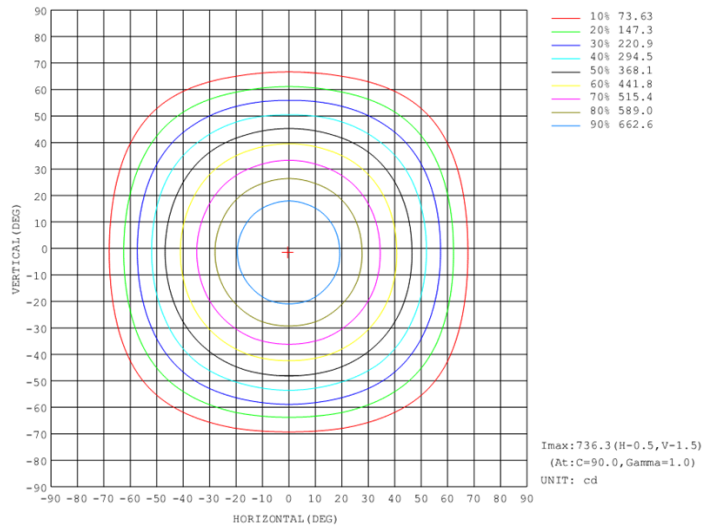
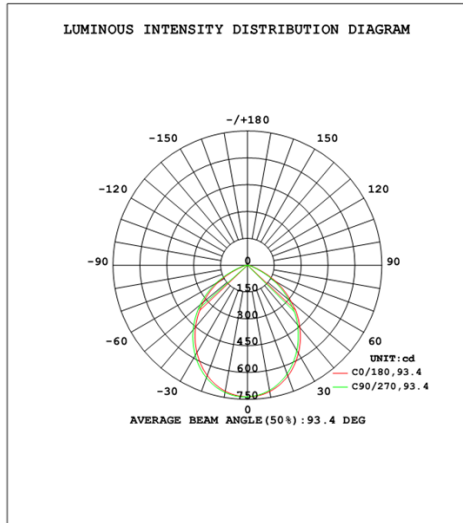


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	547.1	35.5%
0-40	866.7	56.3%
0-60	1392.3	90.4%
60-90	147.6	9.6%
70-100	36.4	2.4%
90-120	0.0	0.0%
0-90	1539.9	100.0%
90-180	0.0	0.0%
0-180	1539.9	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	69.3	4.5%	90-100	0.0	0.0%
10-20	194.7	12.6%	100-110	0.0	0.0%
20-30	283.1	18.4%	110-120	0.0	0.0%
30-40	319.6	20.8%	120-130	0.0	0.0%
40-50	299.9	19.5%	130-140	0.0	0.0%
50-60	225.8	14.7%	140-150	0.0	0.0%
60-70	111.2	7.2%	150-160	0.0	0.0%
70-80	30.2	2.0%	160-170	0.0	0.0%
80-90	6.2	0.4%	170-180	0.0	0.0%

Photometric Data



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2023-09-25	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0103(WFD6B)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202309250010	120.0	60	0.118	14.00	0.989

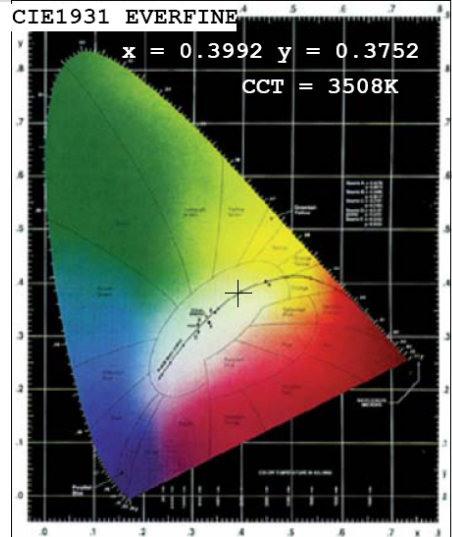
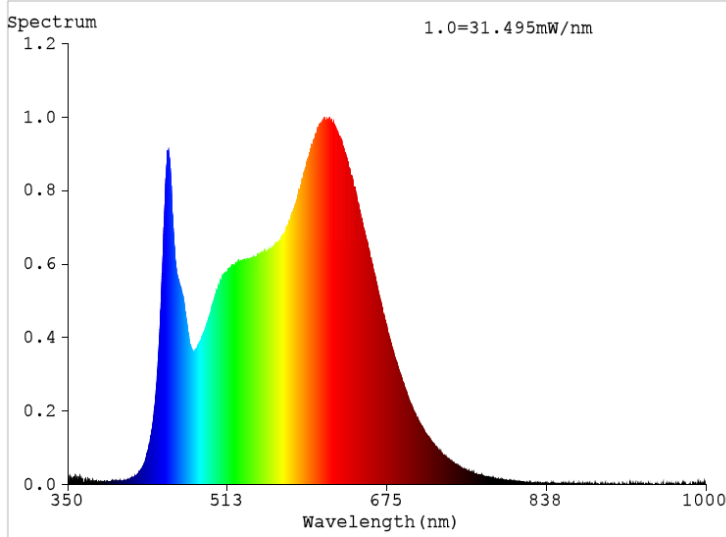
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	75
Frequency (Hz)	60	R2	96	R10	92
CCT (K)	3508	R3	95	R11	95
Duv	-0.0056	R4	99	R12	82
Chromaticity (x, y)	x=0.3992 y=0.3752	R5	97	R13	96
Chromaticity (u', v')	u'=0.2382 v'=0.5037	R6	91	R14	98
Color Rendering Index (CRI)	94.1	R7	91	R15	97
R9	75	R8	87	--	--

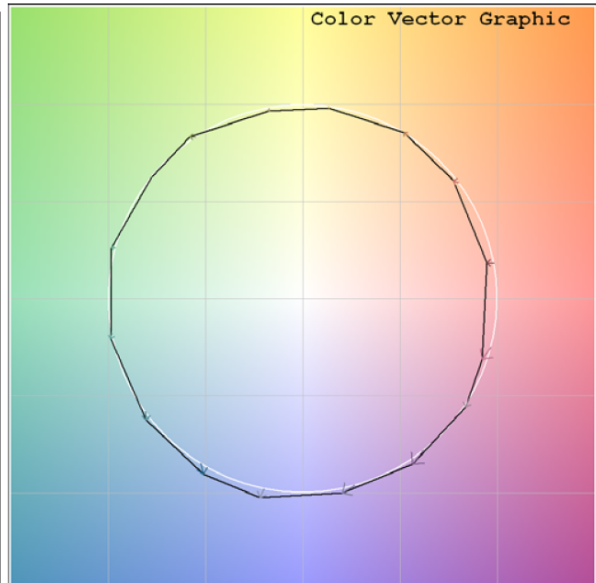
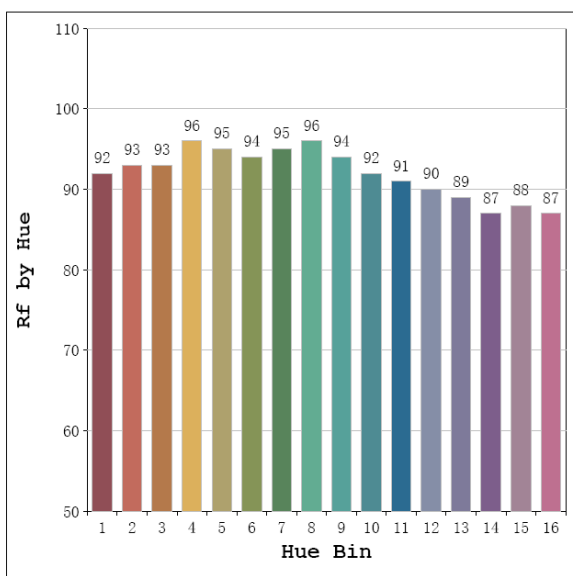
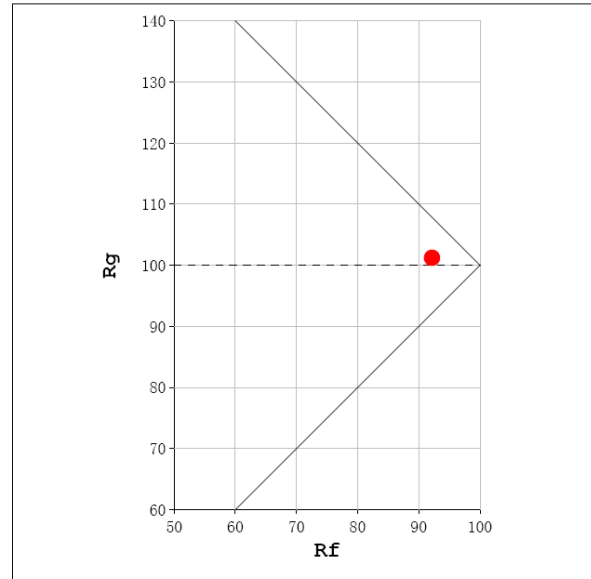
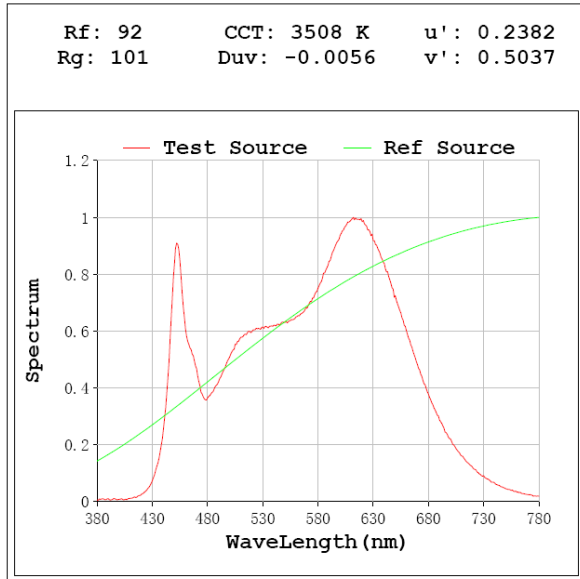
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1602.4
Luminous Efficacy (lm/W)	114.46
Beam Angle (°)	93.5
Center Beam Candle Power (cd)	765.0

Spectral Power Distribution & Chromaticity Diagram



TM30

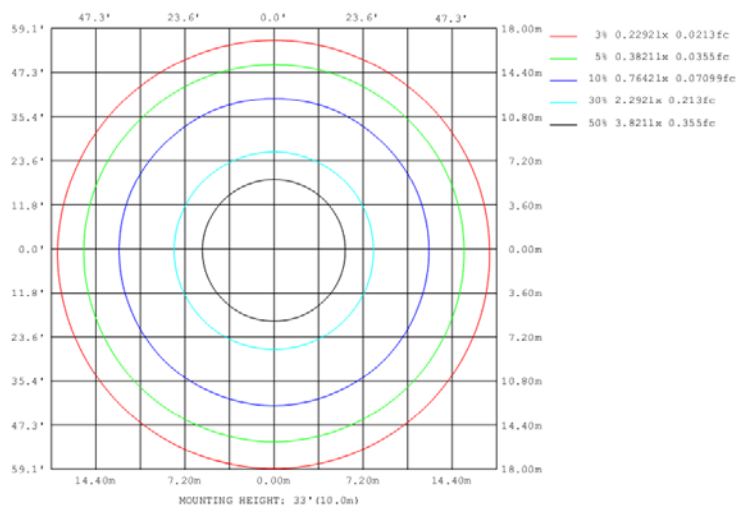
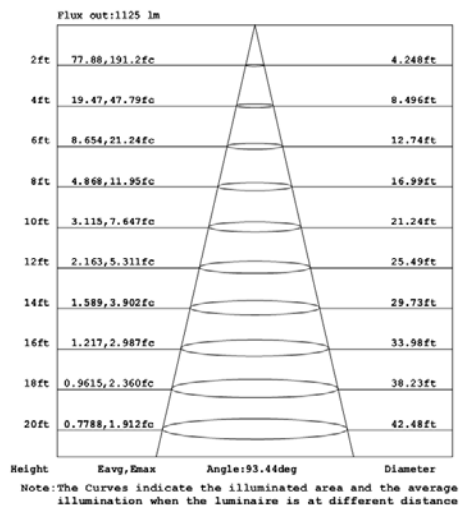
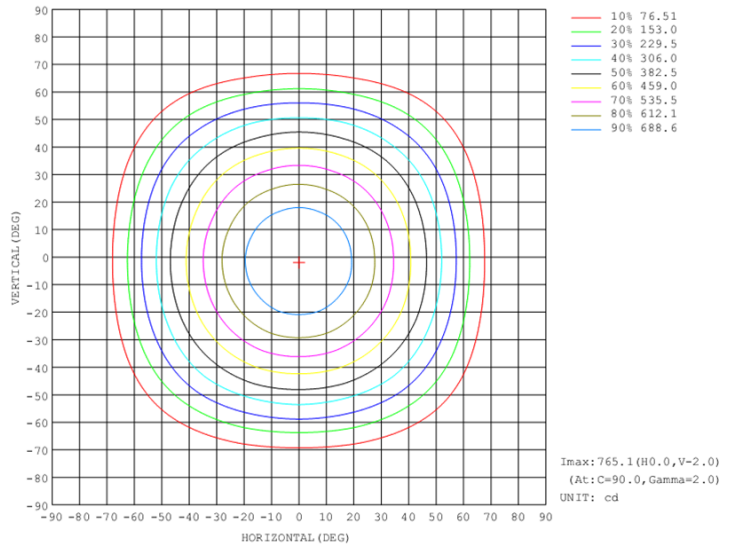
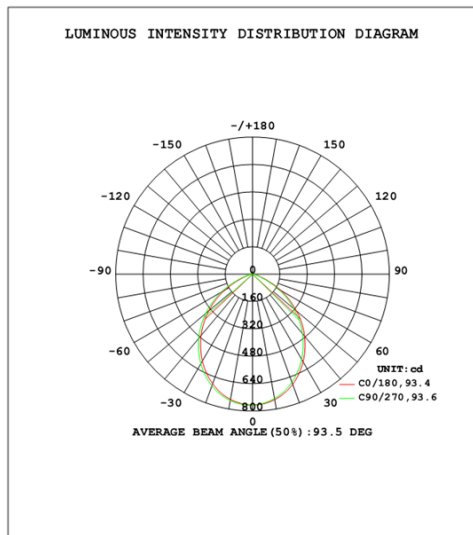


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	568.7	35.5%
0-40	901.1	56.2%
0-60	1448.6	90.4%
60-90	153.9	9.6%
70-100	37.9	2.4%
90-120	0.0	0.0%
0-90	1602.4	100.0%
90-180	0.0	0.0%
0-180	1602.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	72.0	4.5%	90-100	0.0	0.0%
10-20	202.3	12.6%	100-110	0.0	0.0%
20-30	294.4	18.4%	110-120	0.0	0.0%
30-40	332.4	20.7%	120-130	0.0	0.0%
40-50	312.3	19.5%	130-140	0.0	0.0%
50-60	235.2	14.7%	140-150	0.0	0.0%
60-70	116.0	7.2%	150-160	0.0	0.0%
70-80	31.4	2.0%	160-170	0.0	0.0%
80-90	6.5	0.4%	170-180	0.0	0.0%

Photometric Data



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2023-09-25	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0103(WFD6B)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202309250010	120.0	60	0.120	14.20	0.989

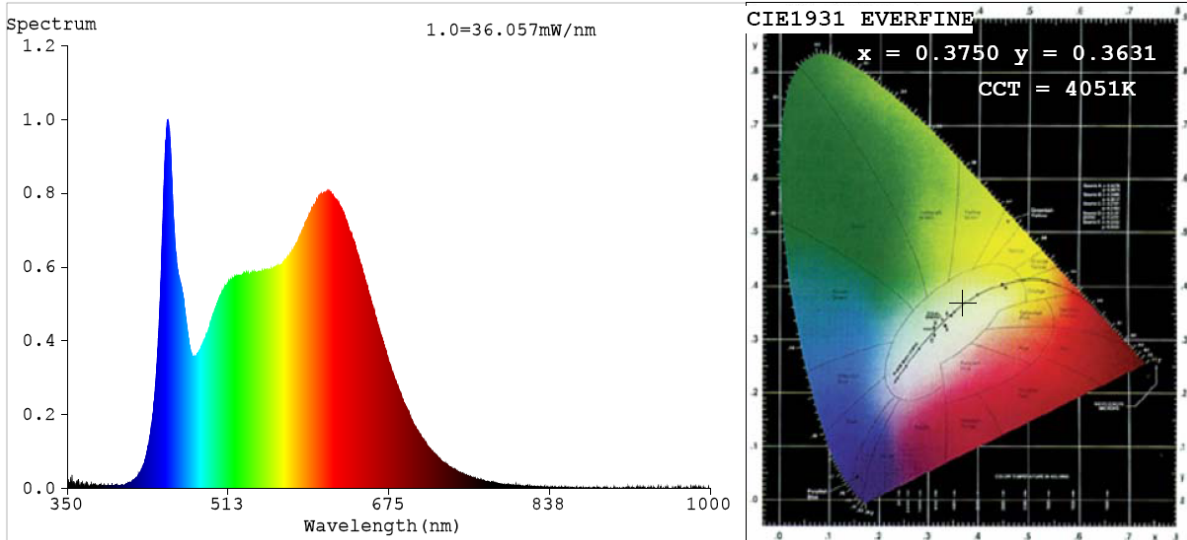
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	79
Frequency (Hz)	60	R2	97	R10	96
CCT (K)	4051	R3	98	R11	96
Duv	-0.0049	R4	99	R12	79
Chromaticity (x, y)	x=0.3750 y=0.3631	R5	97	R13	97
Chromaticity (u', v')	u'=0.2270 v'=0.4946	R6	93	R14	99
Color Rendering Index (CRI)	95.5	R7	93	R15	98
R9	79	R8	90	--	--

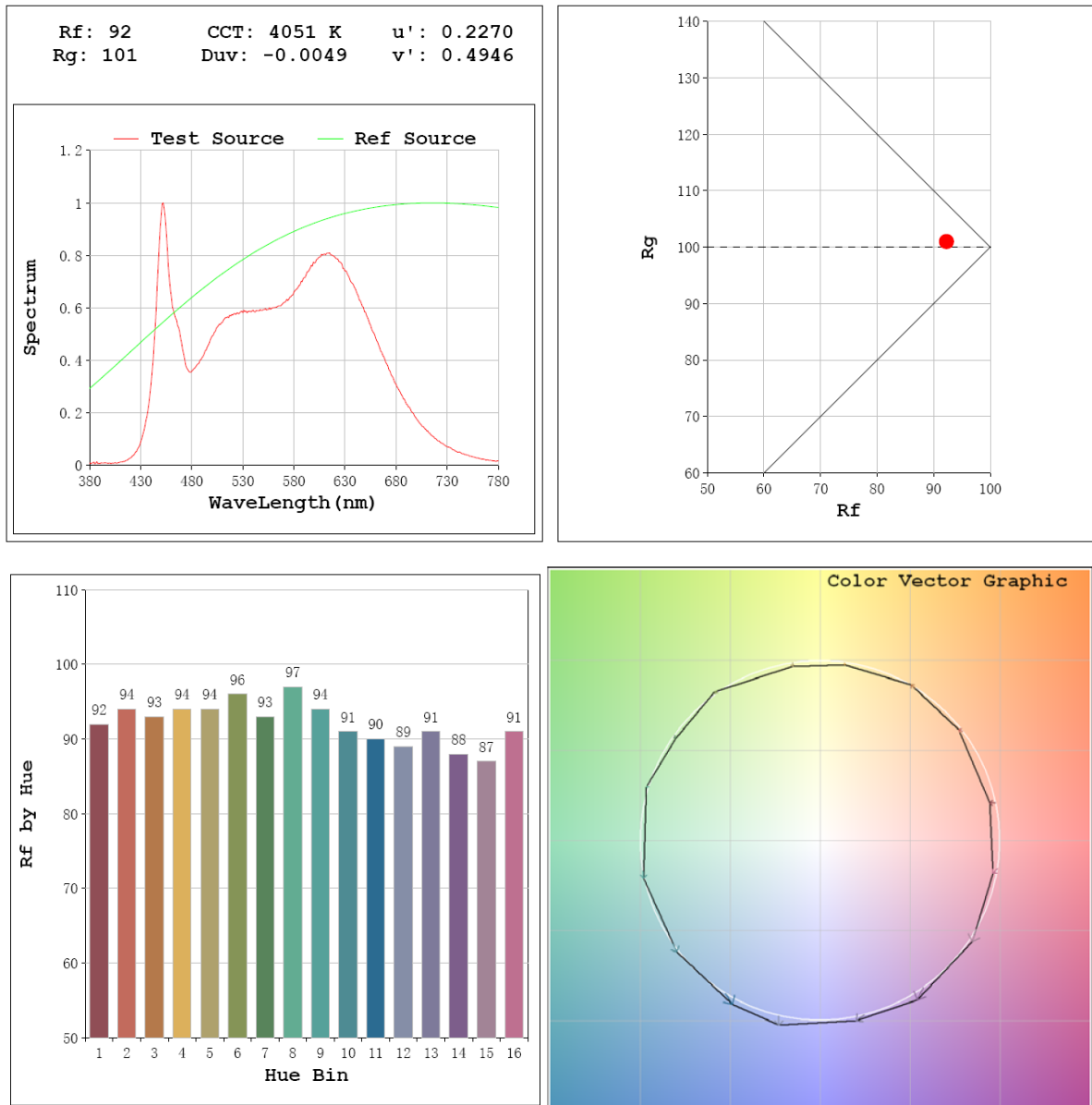
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1628.7
Luminous Efficacy (lm/W)	114.70
Beam Angle (°)	93.6
Center Beam Candle Power (cd)	776.7

Spectral Power Distribution & Chromaticity Diagram



TM30

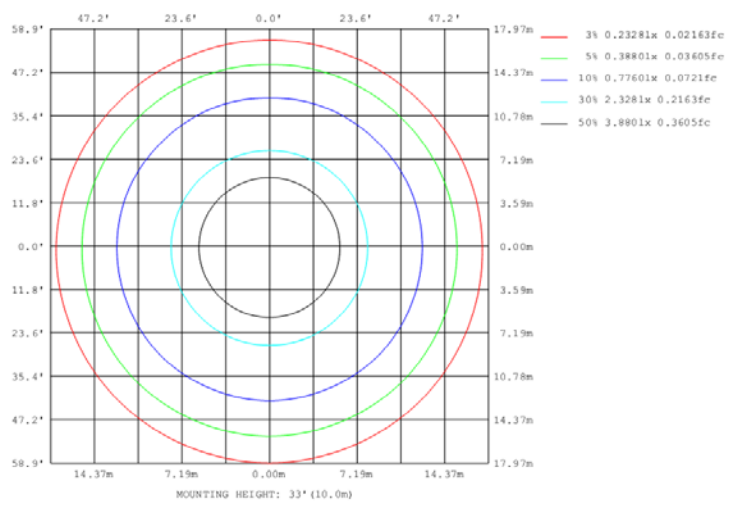
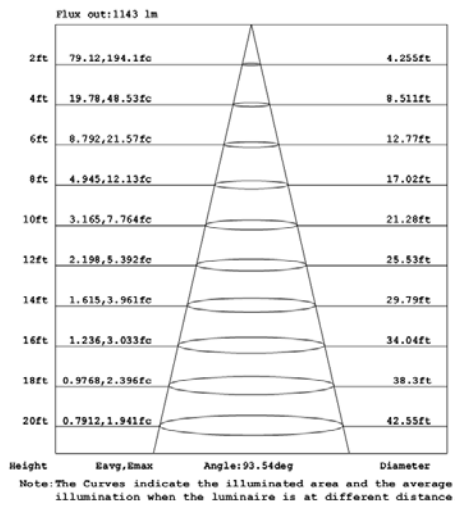
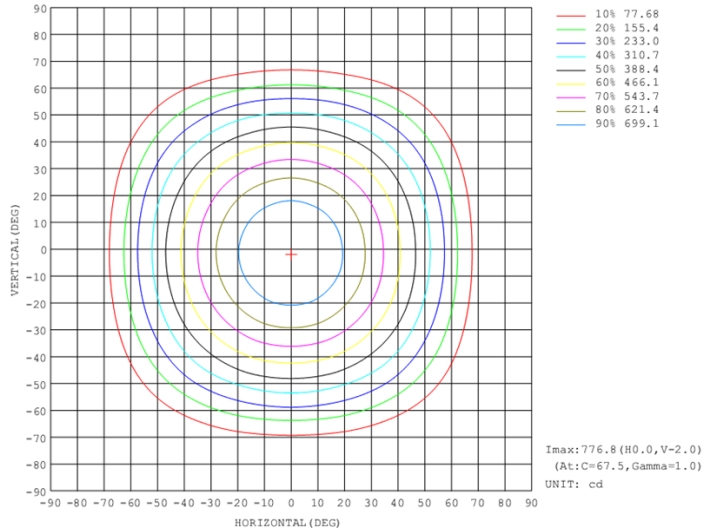
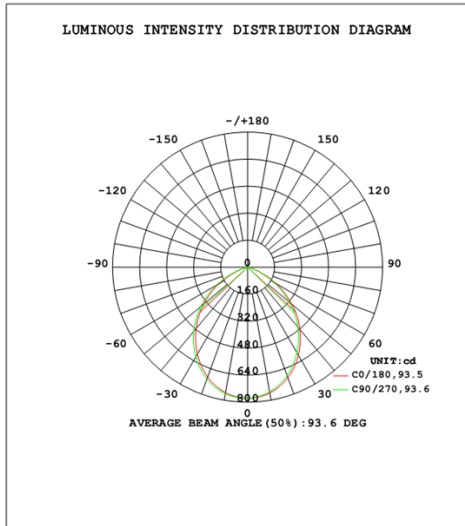


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	577.6	35.5%
0-40	915.3	56.2%
0-60	1472.2	90.4%
60-90	156.6	9.6%
70-100	38.5	2.4%
90-120	0.0	0.0%
0-90	1628.7	100.0%
90-180	0.0	0.0%
0-180	1628.7	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	73.1	4.5%	90-100	0.0	0.0%
10-20	205.5	12.6%	100-110	0.0	0.0%
20-30	299.0	18.4%	110-120	0.0	0.0%
30-40	337.7	20.7%	120-130	0.0	0.0%
40-50	317.6	19.5%	130-140	0.0	0.0%
50-60	239.3	14.7%	140-150	0.0	0.0%
60-70	118.1	7.2%	150-160	0.0	0.0%
70-80	32.0	2.0%	160-170	0.0	0.0%
80-90	6.6	0.4%	170-180	0.0	0.0%

Photometric Data



2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2023-09-25	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0103(WFD6B)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202309250010	120.0	60	0.122	14.50	0.989

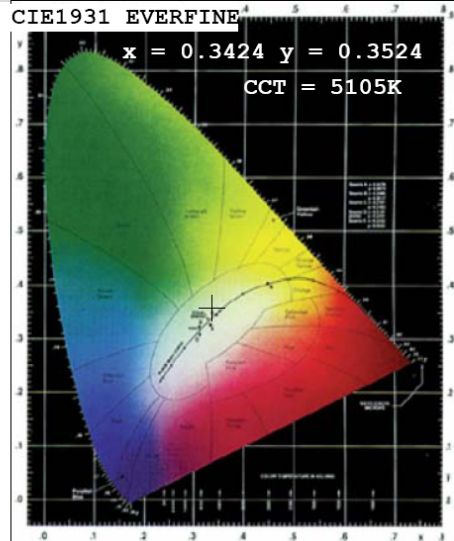
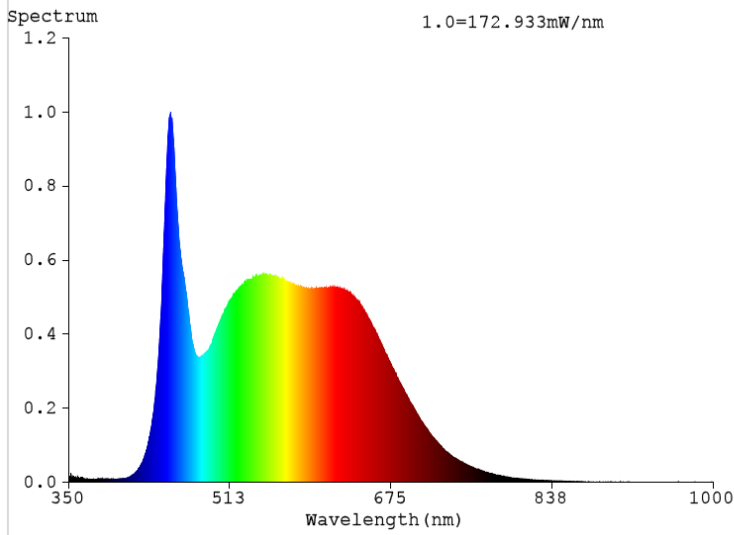
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	95	R9	79
Frequency (Hz)	60	R2	96	R10	90
CCT (K)	5105	R3	95	R11	94
Duv	0.0015	R4	94	R12	71
Chromaticity (x, y)	x=0.3424 y=0.3524	R5	94	R13	96
Chromaticity (u', v')	u'=0.2093 v'=0.4847	R6	93	R14	97
Color Rendering Index (CRI)	94.4	R7	96	R15	95
R9	79	R8	92	--	--

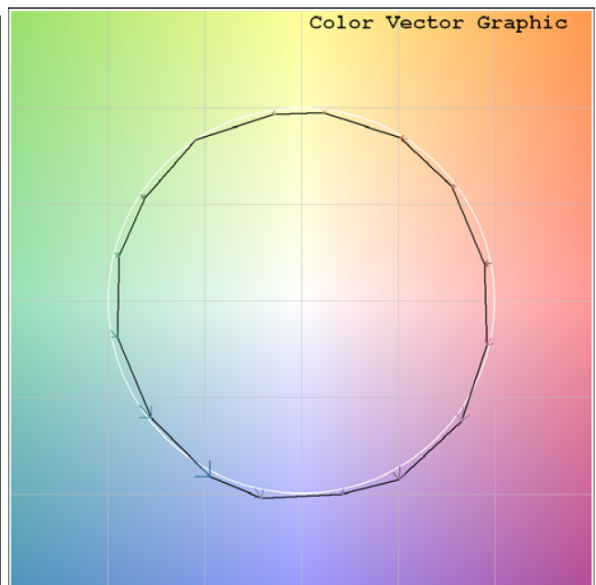
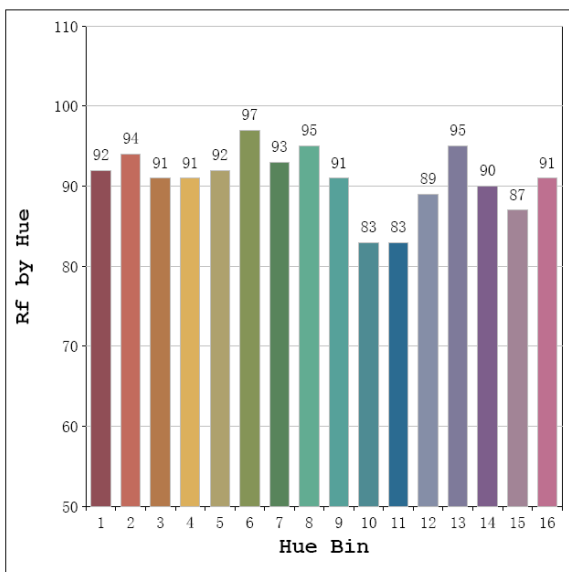
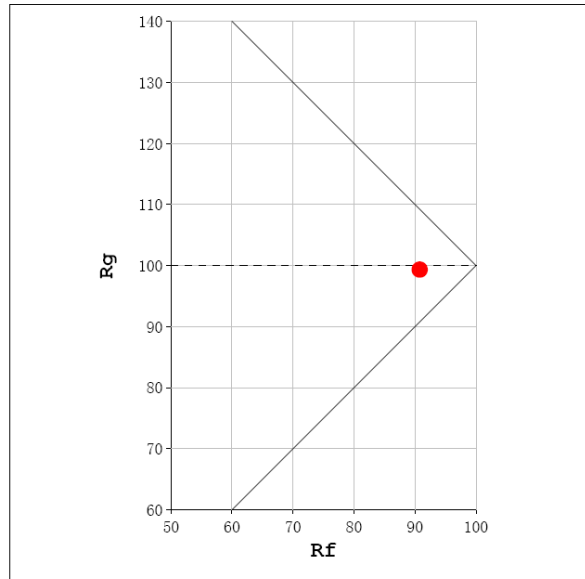
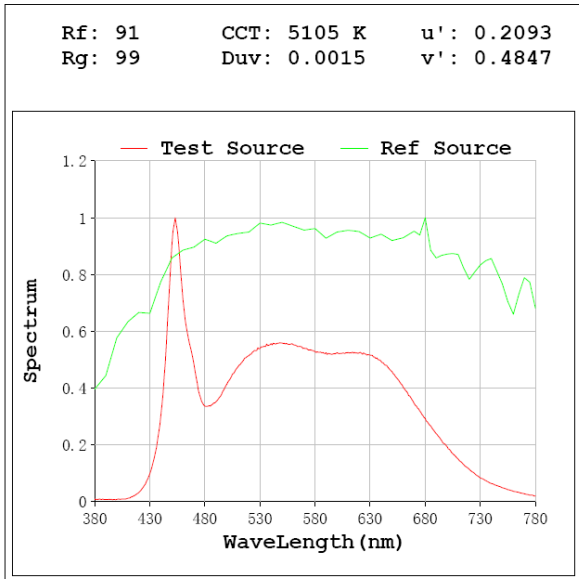
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1638.8
Luminous Efficacy (lm/W)	113.02
Beam Angle (°)	93.7
Center Beam Candle Power (cd)	780.4

Spectral Power Distribution & Chromaticity Diagram



TM30

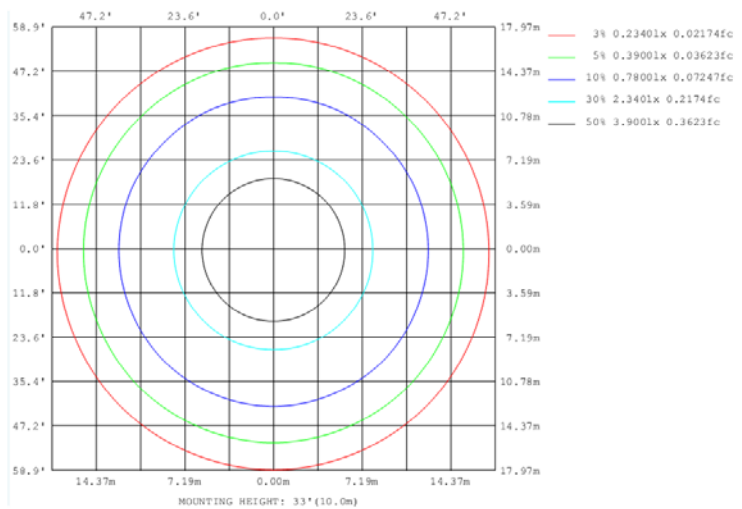
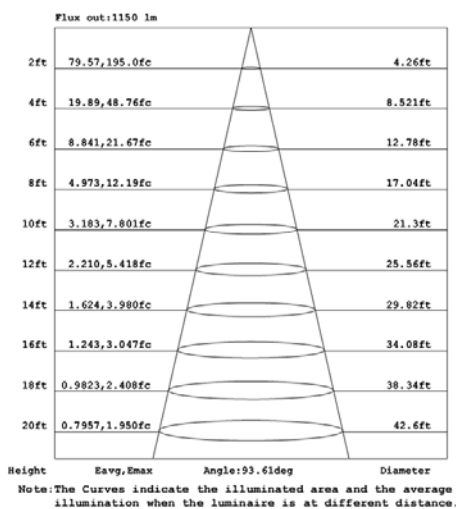
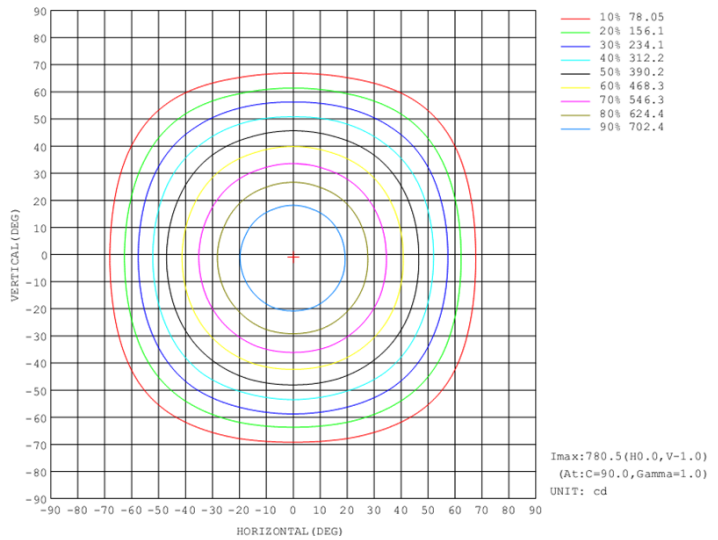
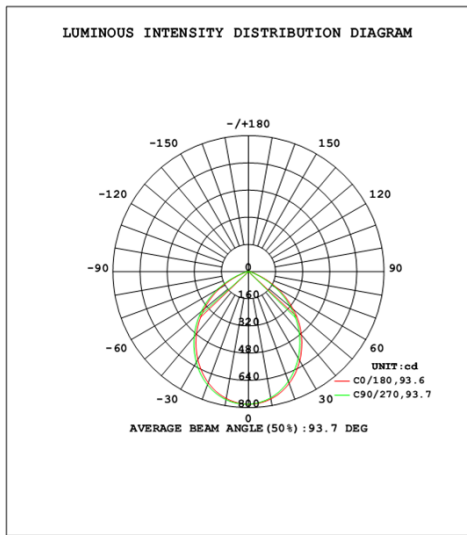


Zonal Lumen Tabulation

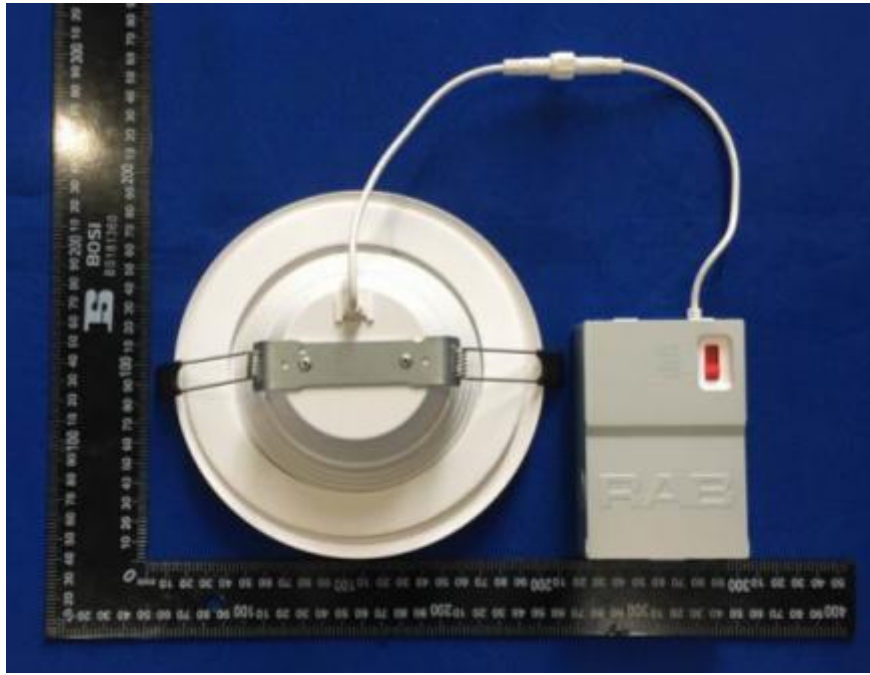
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	580.6	35.4%
0-40	920.3	56.2%
0-60	1481.0	90.4%
60-90	157.9	9.6%
70-100	38.8	2.4%
90-120	0.0	0.0%
0-90	1638.9	100.0%
90-180	0.0	0.0%
0-180	1638.9	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	73.5	4.5%	90-100	0.0	0.0%
10-20	206.5	12.6%	100-110	0.0	0.0%
20-30	300.6	18.3%	110-120	0.0	0.0%
30-40	339.7	20.7%	120-130	0.0	0.0%
40-50	319.6	19.5%	130-140	0.0	0.0%
50-60	241.1	14.7%	140-150	0.0	0.0%
60-70	119.1	7.3%	150-160	0.0	0.0%
70-80	32.2	2.0%	160-170	0.0	0.0%
80-90	6.6	0.4%	170-180	0.0	0.0%

Photometric Data



3. Product Photo



***** END OF REPORT *****