

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):
DLW0101(WFD6)

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

**Type of
Luminaire:** Downlights

Report Date: 2023-03-14

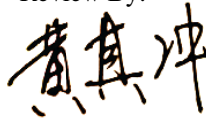
Prepared By:

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	2023-03-14	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0101(WFD6)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202303140016	120.0	60	0.119	14.10	0.989

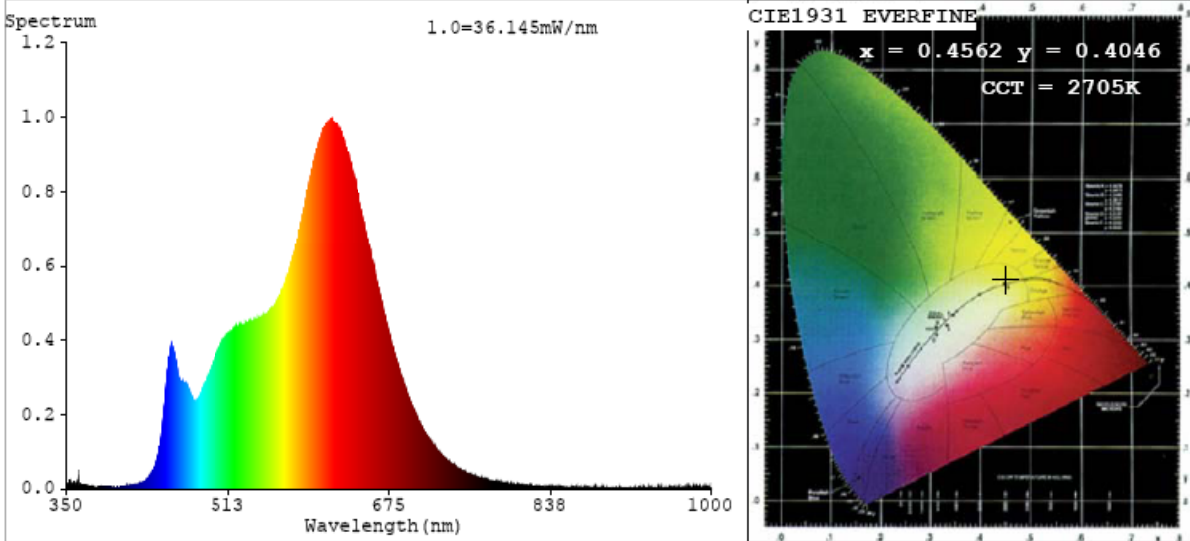
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	56
Frequency (Hz)	60	R2	96	R10	90
CCT (K)	2705	R3	91	R11	95
Duv	-0.0019	R4	97	R12	82
Chromaticity (x, y)	x=0.4562 y=0.4046	R5	98	R13	98
Chromaticity (u', v')	u'=0.2628 v'=0.5245	R6	88	R14	96
Color Rendering Index (CRI)	91.4	R7	86	R15	91
R9	56	R8	78	--	--

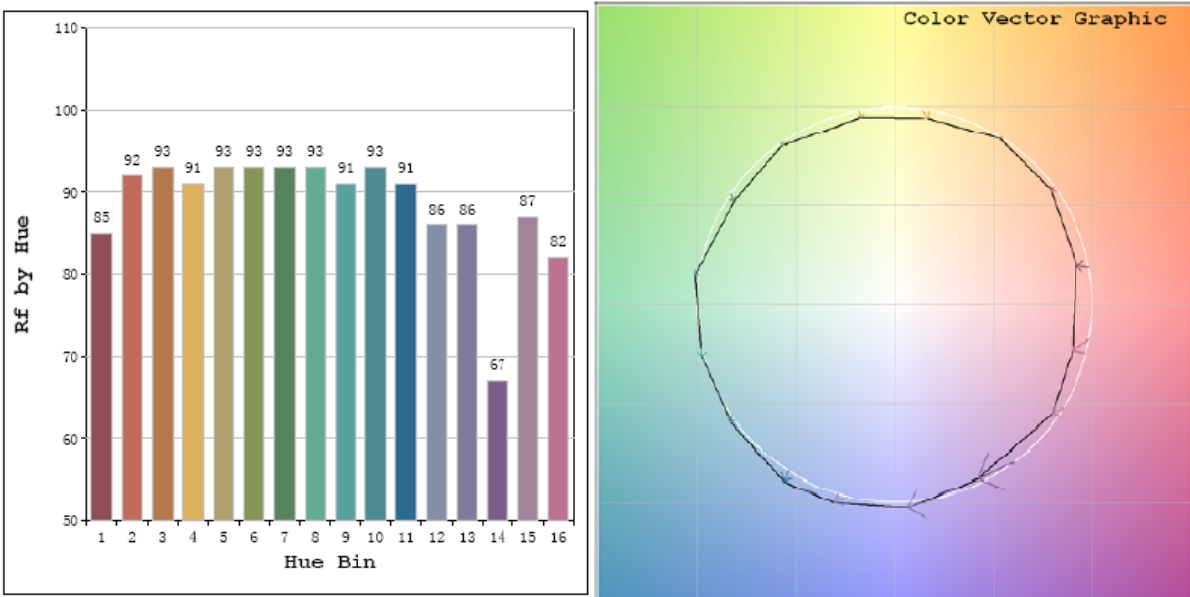
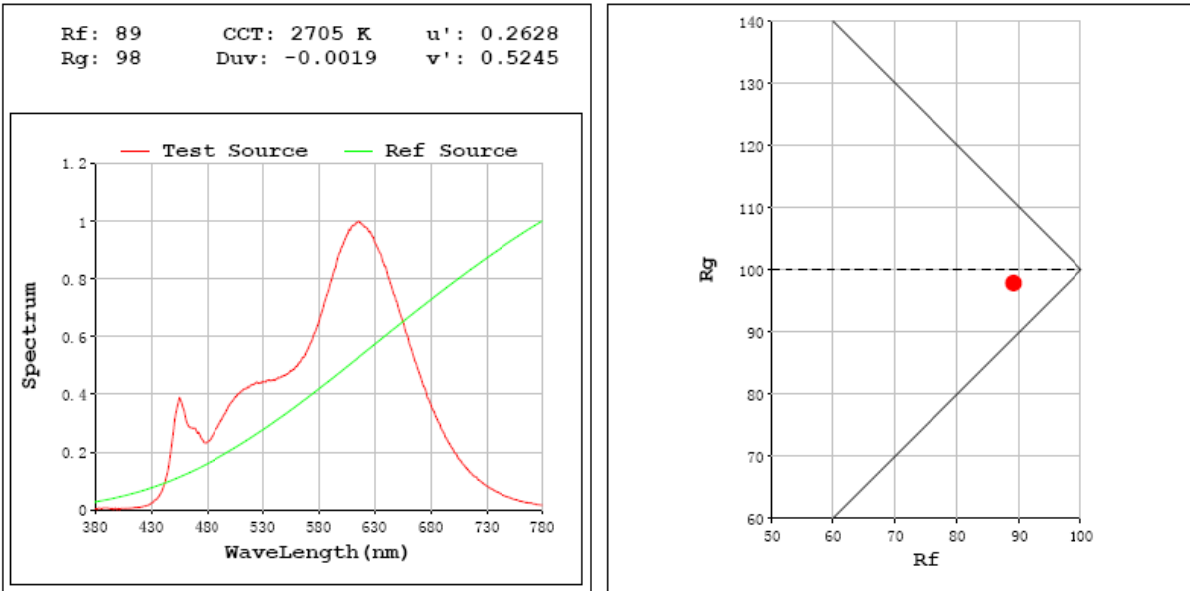
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1525.0
Luminous Efficacy (lm/W)	108.16
Beam Angle (°)	93.2
Center Beam Candle Power (cd)	727.4

Spectral Power Distribution & Chromaticity Diagram



TM30

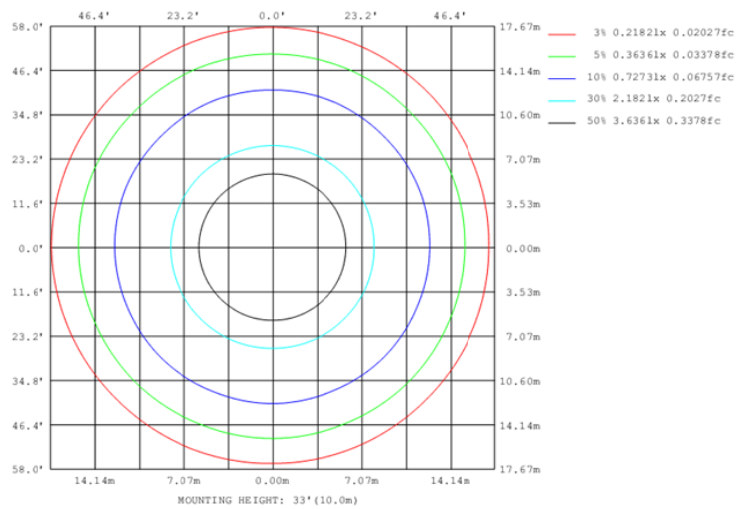
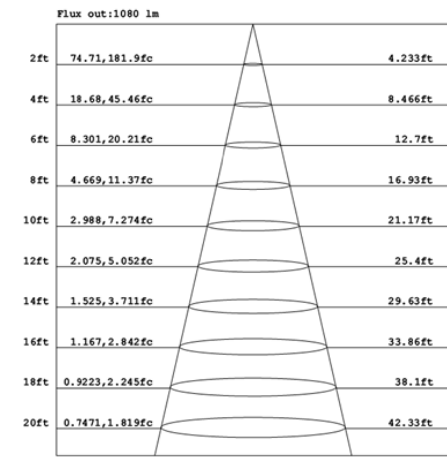
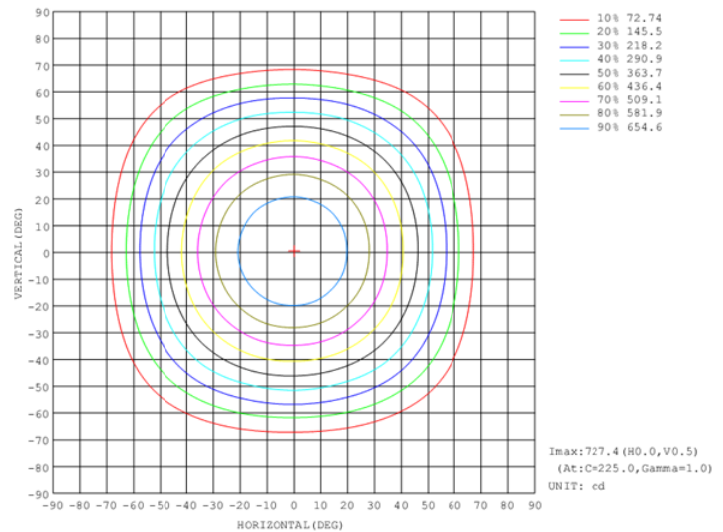
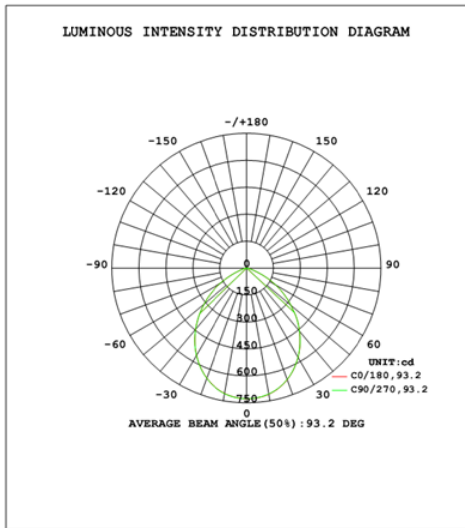


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	545.8	35.8%
0-40	865.5	56.8%
0-60	1384.7	90.8%
60-90	140.3	9.2%
70-100	32.5	2.1%
90-120	0.0	0.0%
0-90	1525.0	100.0%
90-180	0.0	0.0%
0-180	1525.0	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	68.6	4.5%	90-100	0.0	0.0%
10-20	193.9	12.7%	100-110	0.0	0.0%
20-30	283.3	18.6%	110-120	0.0	0.0%
30-40	319.7	21.0%	120-130	0.0	0.0%
40-50	297.1	19.5%	130-140	0.0	0.0%
50-60	222.0	14.6%	140-150	0.0	0.0%
60-70	107.9	7.1%	150-160	0.0	0.0%
70-80	27.4	1.8%	160-170	0.0	0.0%
80-90	5.1	0.3%	170-180	0.0	0.0%

Photometric Data



Test date	2023-03-14	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0101(WFD6)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202303140016	120.0	60	0.118	14.00	0.989

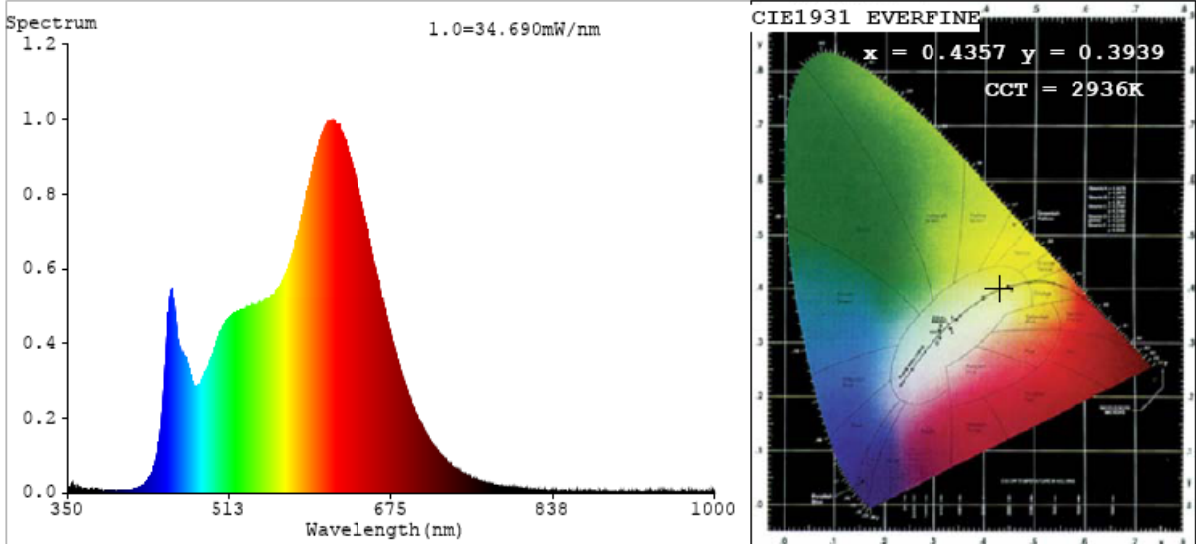
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	64
Frequency (Hz)	60	R2	95	R10	89
CCT (K)	2936	R3	91	R11	94
Duv	-0.0039	R4	98	R12	81
Chromaticity (x, y)	x=0.4357 y=0.3939	R5	96	R13	97
Chromaticity (u', v')	u'=0.2542 v'=0.5171	R6	87	R14	96
Color Rendering Index (CRI)	91.8	R7	87	R15	94
R9	64	R8	81	--	--

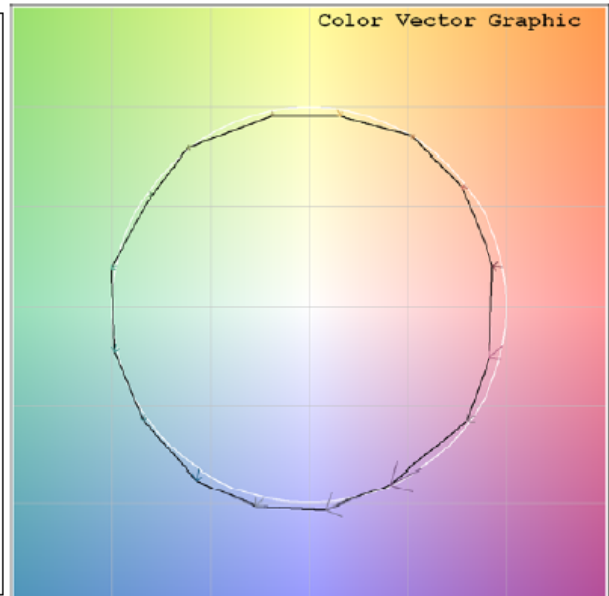
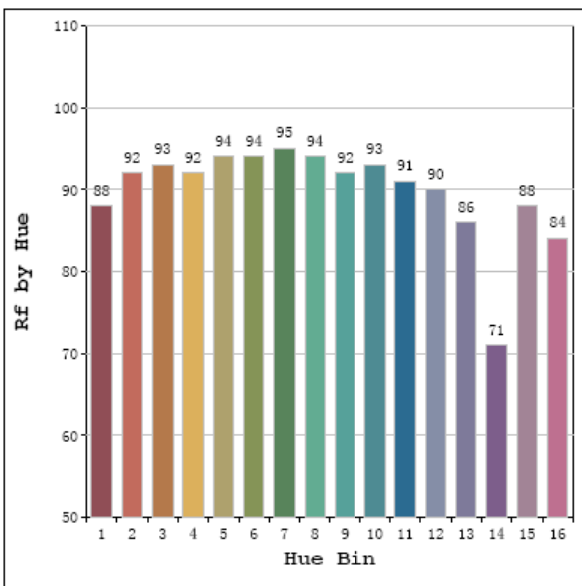
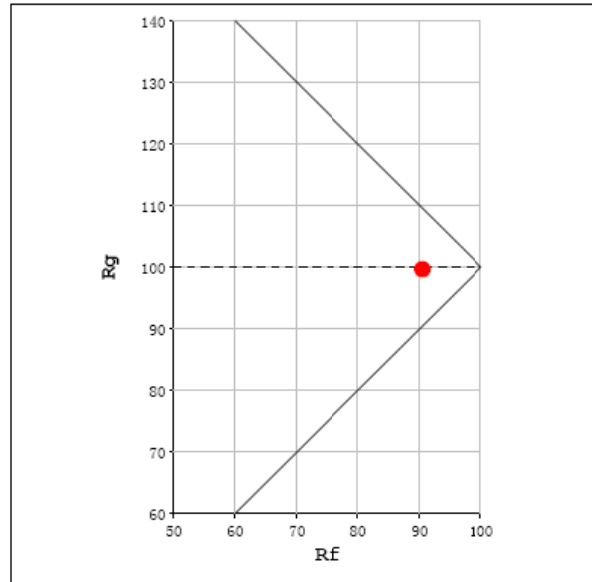
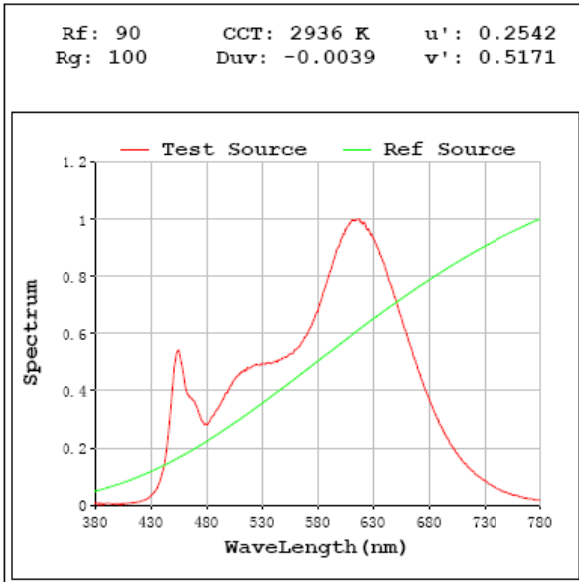
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1561.8
Luminous Efficacy (lm/W)	111.56
Beam Angle (°)	93.5
Center Beam Candle Power (cd)	744.5

Spectral Power Distribution & Chromaticity Diagram



TM30

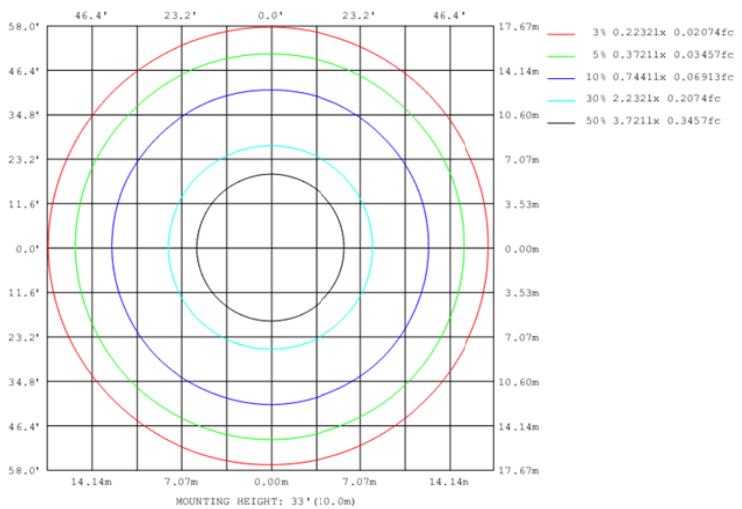
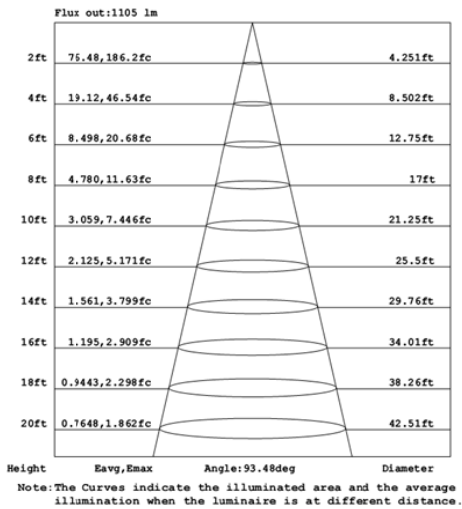
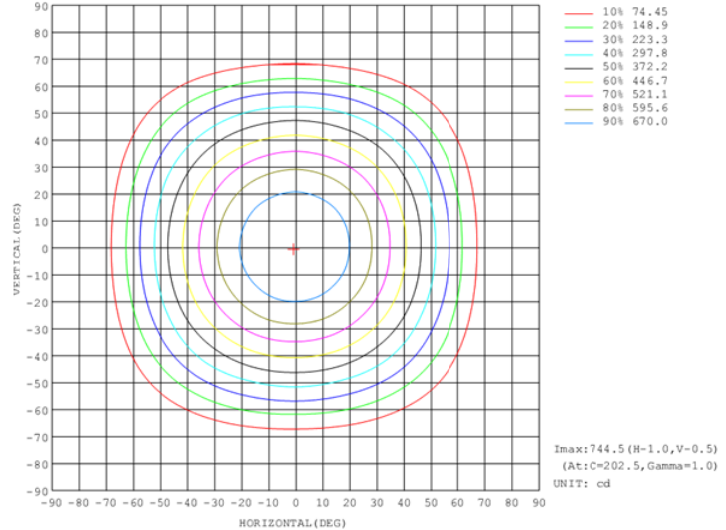
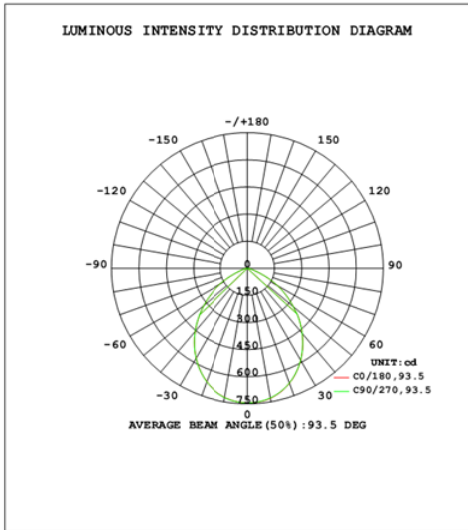


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	558.7	35.8%
0-40	886.0	56.7%
0-60	1418.0	90.8%
60-90	143.9	9.2%
70-100	33.3	2.1%
90-120	0.0	0.0%
0-90	1561.8	100.0%
90-180	0.0	0.0%
0-180	1561.8	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	70.2	4.5%	90-100	0.0	0.0%
10-20	198.4	12.7%	100-110	0.0	0.0%
20-30	290.0	18.6%	110-120	0.0	0.0%
30-40	327.3	21.0%	120-130	0.0	0.0%
40-50	304.5	19.5%	130-140	0.0	0.0%
50-60	227.5	14.6%	140-150	0.0	0.0%
60-70	110.6	7.1%	150-160	0.0	0.0%
70-80	28.1	1.8%	160-170	0.0	0.0%
80-90	5.2	0.3%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2023-03-14	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0101(WFD6)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202303140016	120.0	60	0.116	13.80	0.988

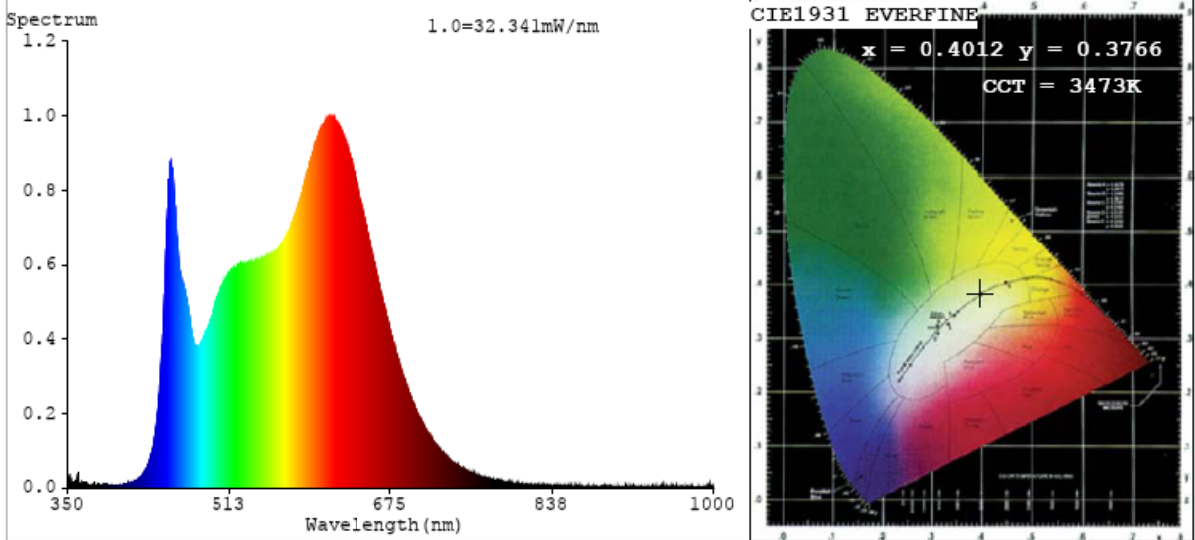
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	76
Frequency (Hz)	60	R2	95	R10	90
CCT (K)	3473	R3	94	R11	95
Duv	-0.0054	R4	98	R12	80
Chromaticity (x, y)	x=0.4012 y=0.3766	R5	96	R13	95
Chromaticity (u', v')	u'=0.2389 v'=0.5046	R6	90	R14	98
Color Rendering Index (CRI)	93.3	R7	90	R15	97
R9	76	R8	87	--	--

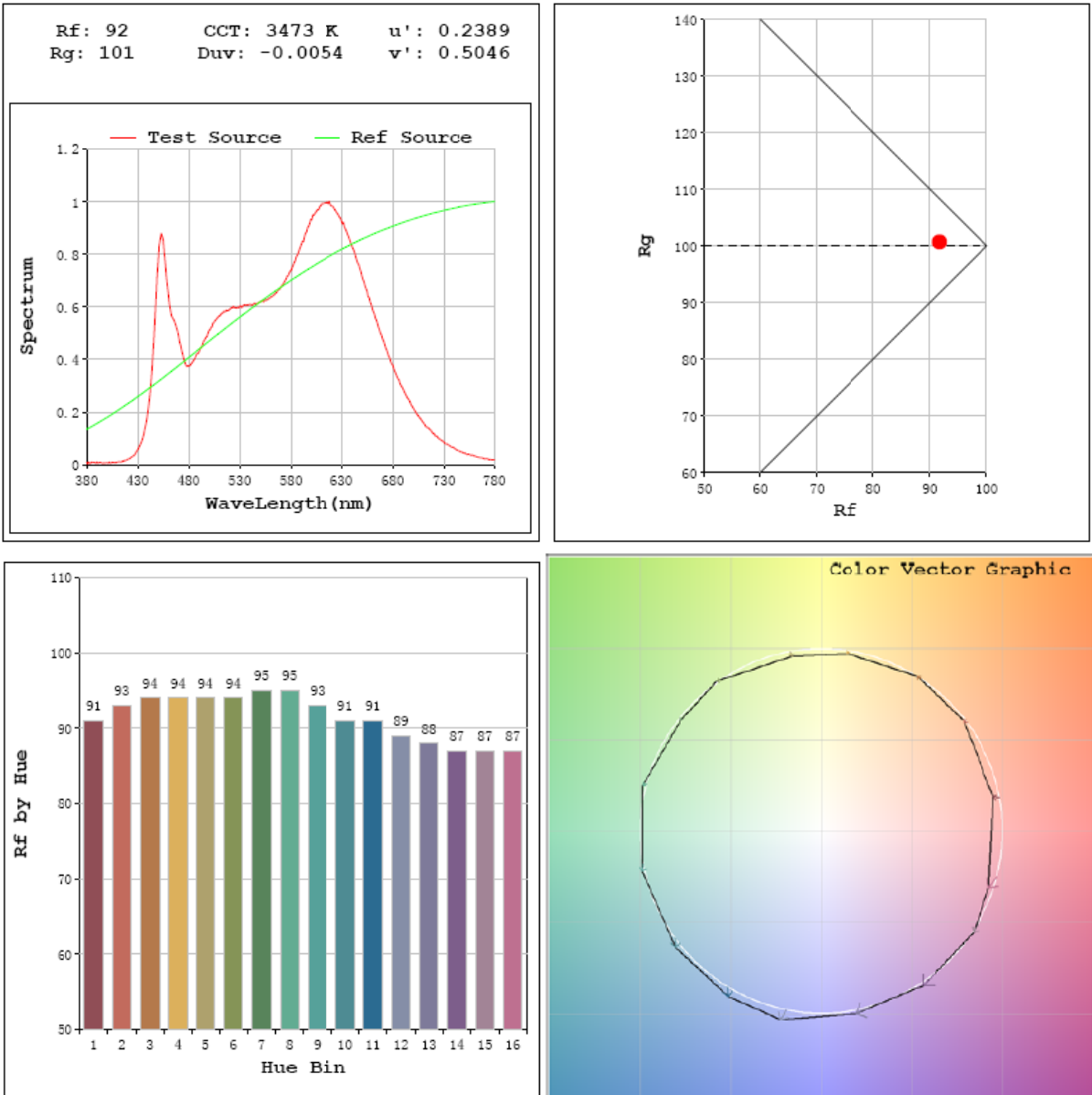
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1627.0
Luminous Efficacy (lm/W)	117.90
Beam Angle (°)	93.6
Center Beam Candle Power (cd)	774.6

Spectral Power Distribution & Chromaticity Diagram



TM30

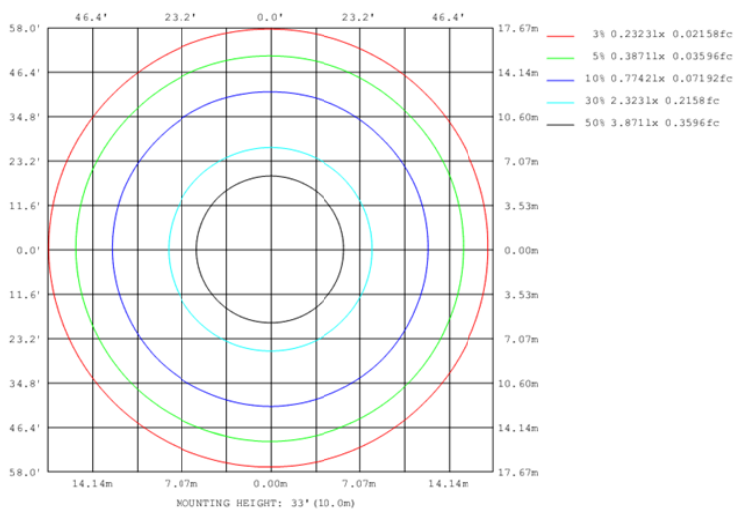
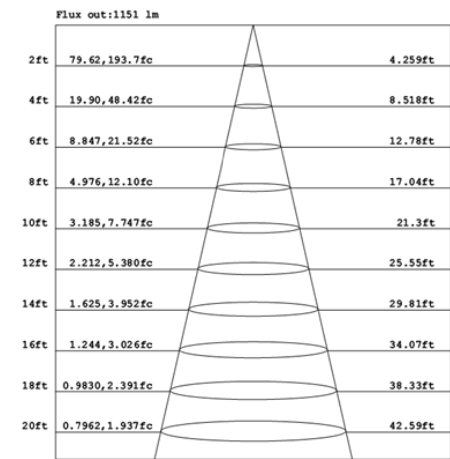
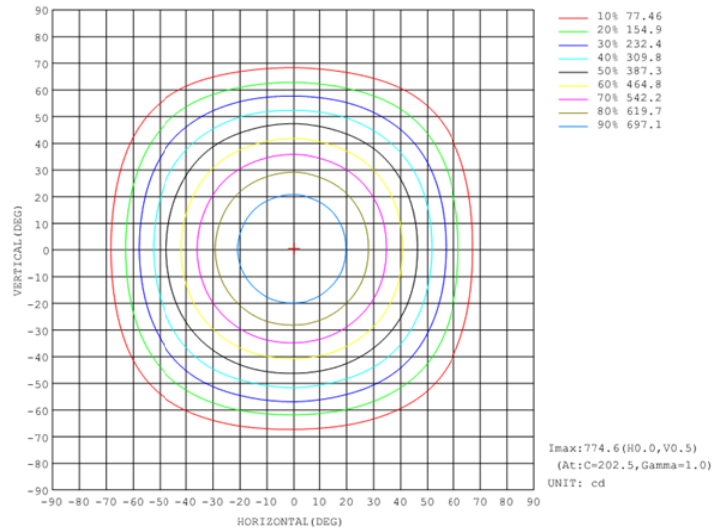
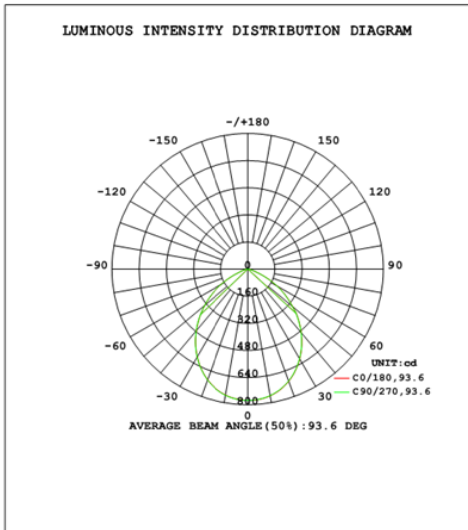


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	581.4	35.7%
0-40	922.2	56.7%
0-60	1476.8	90.8%
60-90	150.2	9.2%
70-100	34.8	2.1%
90-120	0.0	0.0%
0-90	1627.0	100.0%
90-180	0.0	0.0%
0-180	1627.0	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	206.5	12.7%	100-110	0.0	0.0%
20-30	301.8	18.6%	110-120	0.0	0.0%
30-40	340.8	20.9%	120-130	0.0	0.0%
40-50	317.5	19.5%	130-140	0.0	0.0%
50-60	237.2	14.6%	140-150	0.0	0.0%
60-70	115.4	7.1%	150-160	0.0	0.0%
70-80	29.3	1.8%	160-170	0.0	0.0%
80-90	5.5	0.3%	170-180	0.0	0.0%

Photometric Data



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2023-03-14	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0101(WFD6)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202303140016	120.0	60	0.118	14.00	0.989

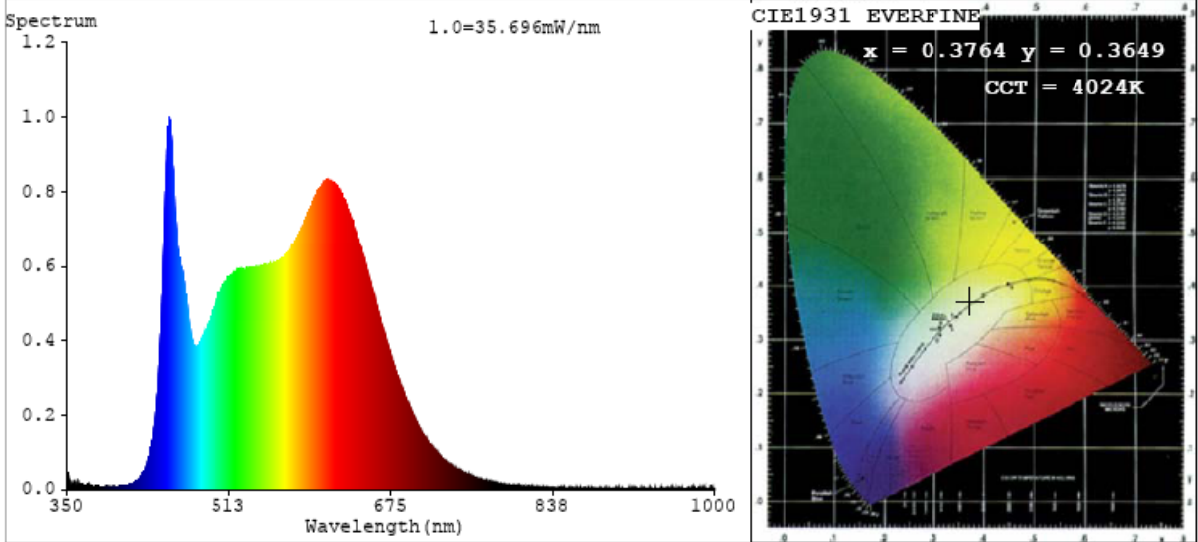
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	80
Frequency (Hz)	60	R2	96	R10	94
CCT (K)	4024	R3	97	R11	97
Duv	-0.0045	R4	98	R12	78
Chromaticity (x, y)	x=0.3764 y=0.3649	R5	97	R13	96
Chromaticity (u', v')	u'=0.2272 v'=0.4956	R6	92	R14	99
Color Rendering Index (CRI)	94.9	R7	92	R15	97
R9	80	R8	90	--	--

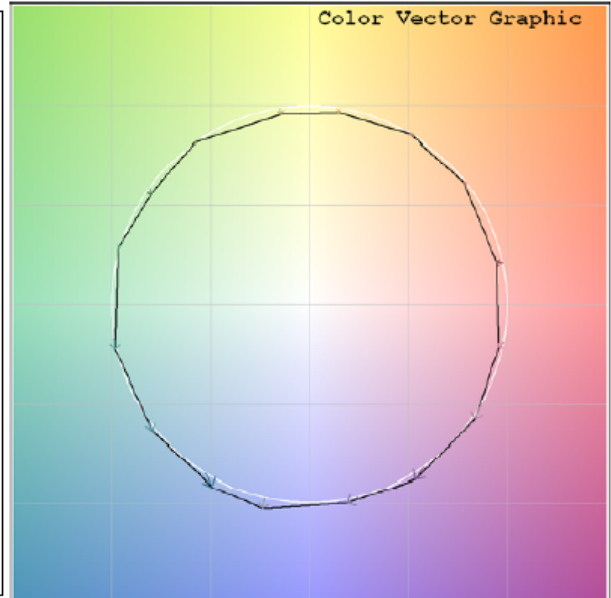
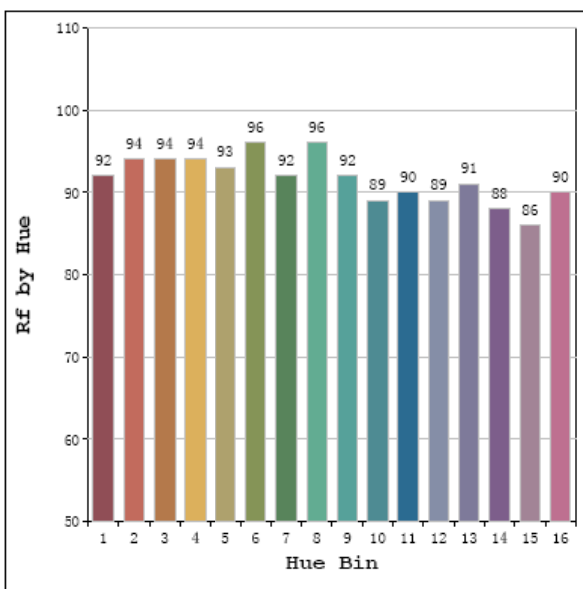
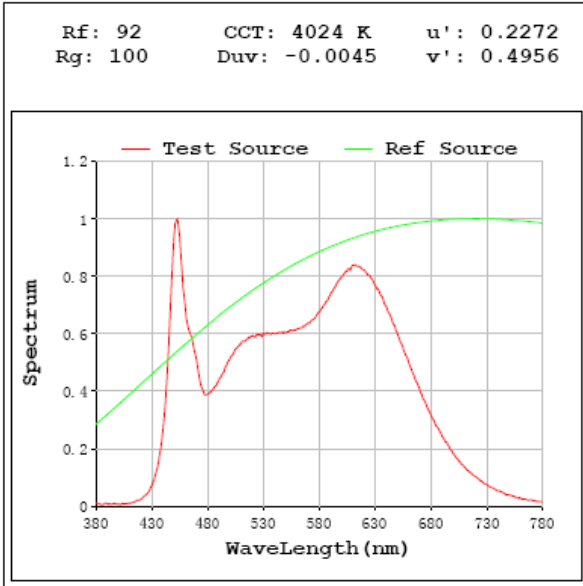
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1661.9
Luminous Efficacy (lm/W)	118.71
Beam Angle (°)	93.7
Center Beam Candle Power (cd)	790.5

Spectral Power Distribution & Chromaticity Diagram



TM30

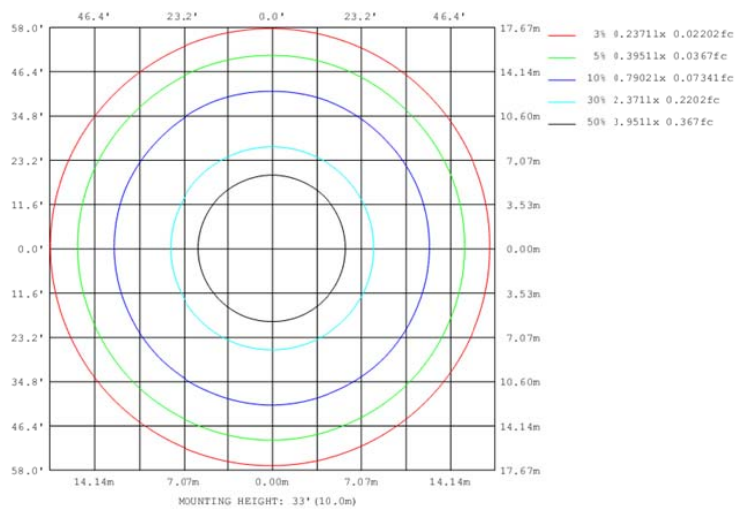
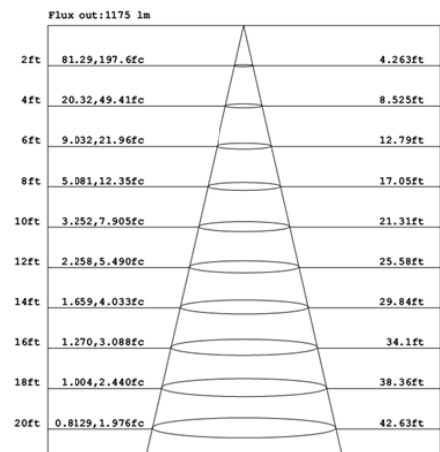
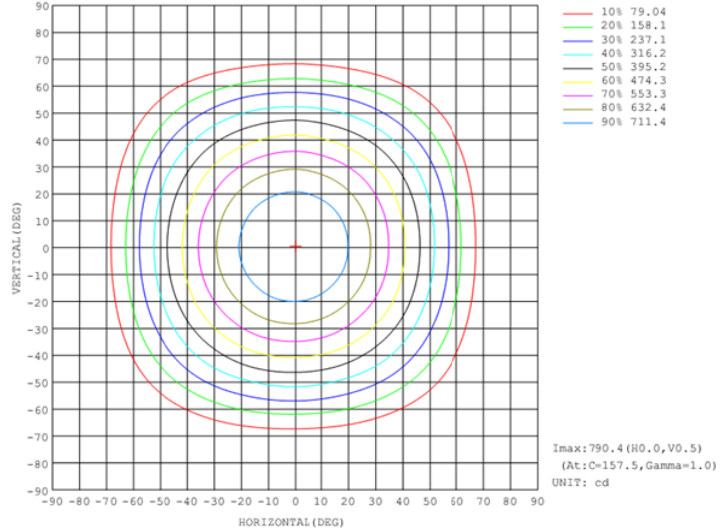
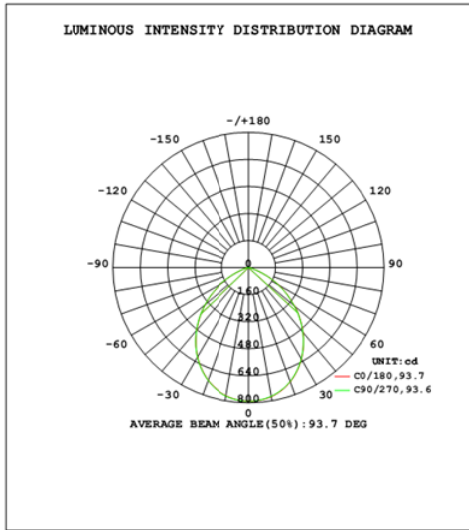


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	593.4	35.7%
0-40	941.4	56.6%
0-60	1508.2	90.8%
60-90	153.7	9.2%
70-100	35.5	2.1%
90-120	0.0	0.0%
0-90	1661.9	100.0%
90-180	0.0	0.0%
0-180	1661.9	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	74.6	4.5%	90-100	0.0	0.0%
10-20	210.8	12.7%	100-110	0.0	0.0%
20-30	308.1	18.5%	110-120	0.0	0.0%
30-40	348.0	20.9%	120-130	0.0	0.0%
40-50	324.4	19.5%	130-140	0.0	0.0%
50-60	242.4	14.6%	140-150	0.0	0.0%
60-70	118.1	7.1%	150-160	0.0	0.0%
70-80	30.0	1.8%	160-170	0.0	0.0%
80-90	5.6	0.3%	170-180	0.0	0.0%

Photometric Data



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2023-03-14	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0101(WFD6)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202303140016	120.0	60	0.121	14.30	0.989

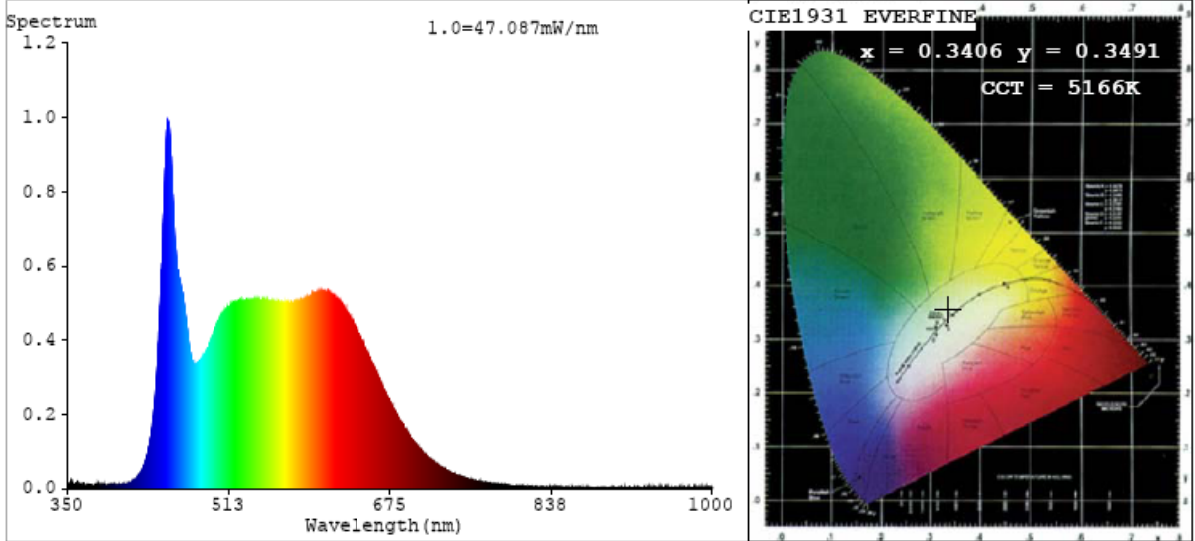
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	71
Frequency (Hz)	60	R2	98	R10	95
CCT (K)	5166	R3	98	R11	97
Duv	0.0005	R4	96	R12	76
Chromaticity (x, y)	x=0.3406 y=0.3491	R5	96	R13	98
Chromaticity (u', v')	u'=0.2094 v'=0.4828	R6	95	R14	99
Color Rendering Index (CRI)	95.2	R7	94	R15	94
R9	71	R8	89	--	--

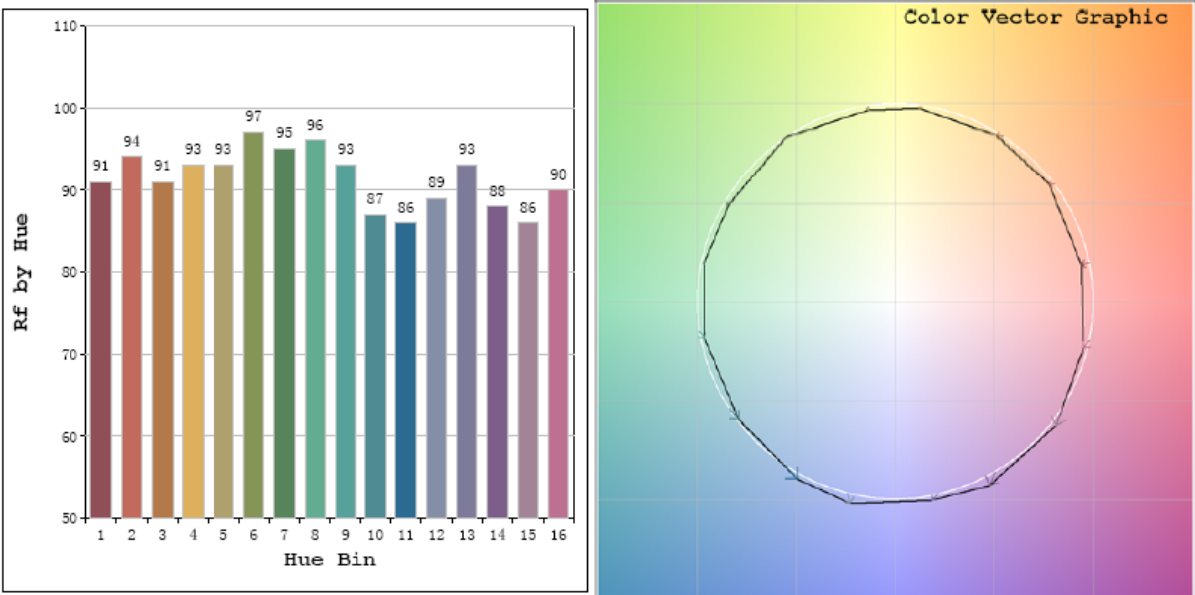
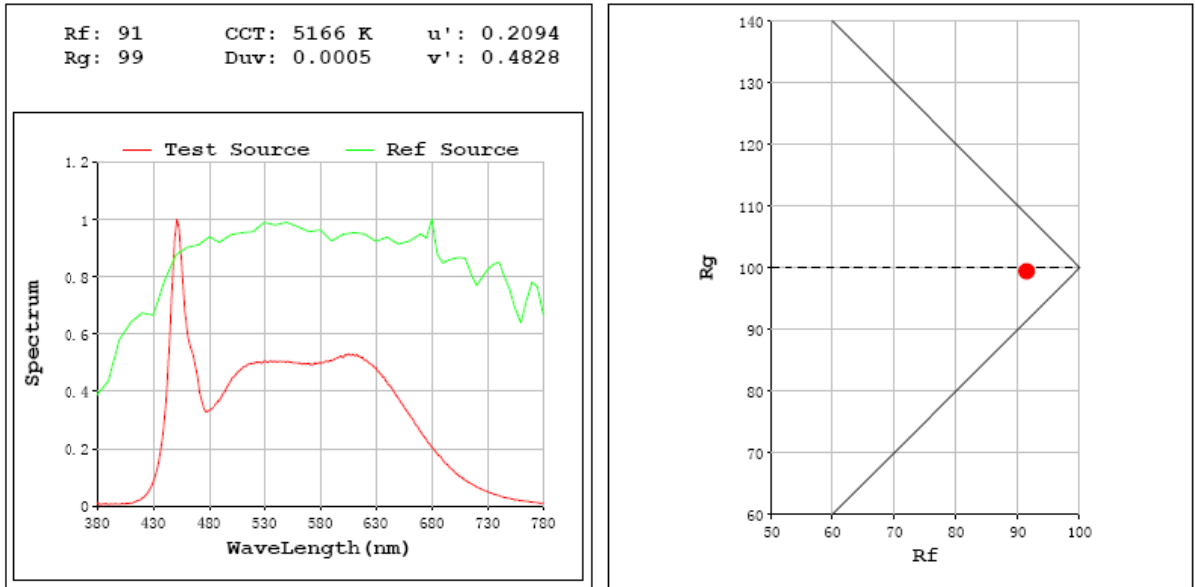
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1684.6
Luminous Efficacy (lm/W)	117.80
Beam Angle (°)	93.8
Center Beam Candle Power (cd)	800.1

Spectral Power Distribution & Chromaticity Diagram



TM30



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	600.9	35.7%
0-40	953.5	56.6%
0-60	1528.5	90.7%
60-90	156.1	9.3%
70-100	36.1	2.1%
90-120	0.0	0.0%
0-90	1684.6	100.0%
90-180	0.0	0.0%
0-180	1684.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	75.5	4.5%	90-100	0.0	0.0%
10-20	213.4	12.7%	100-110	0.0	0.0%
20-30	312.0	18.5%	110-120	0.0	0.0%
30-40	352.6	20.9%	120-130	0.0	0.0%
40-50	329.0	19.5%	130-140	0.0	0.0%
50-60	246.0	14.6%	140-150	0.0	0.0%
60-70	120.0	7.1%	150-160	0.0	0.0%
70-80	30.5	1.8%	160-170	0.0	0.0%
80-90	5.7	0.3%	170-180	0.0	0.0%

Photometric Data

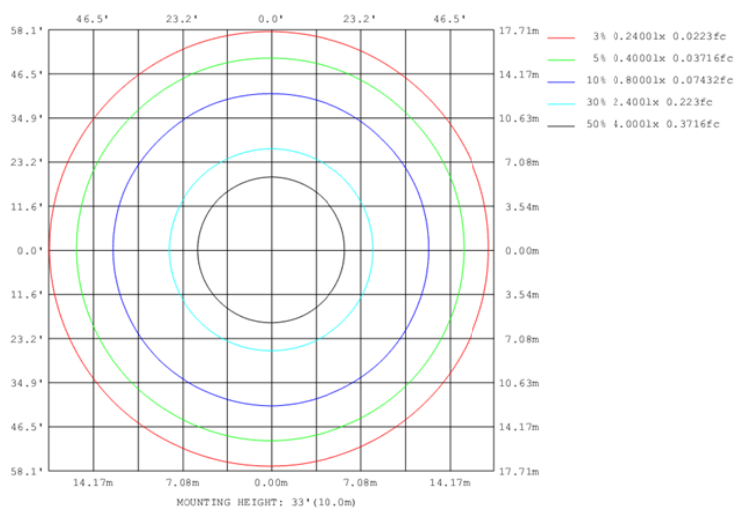
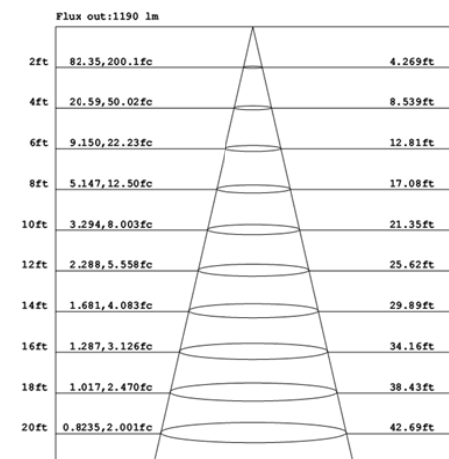
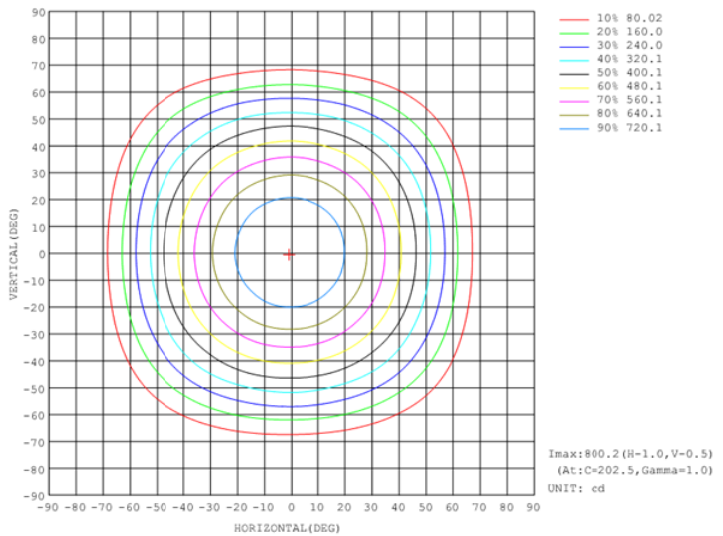
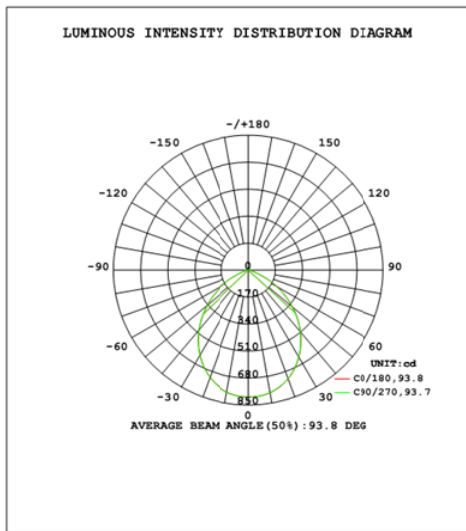


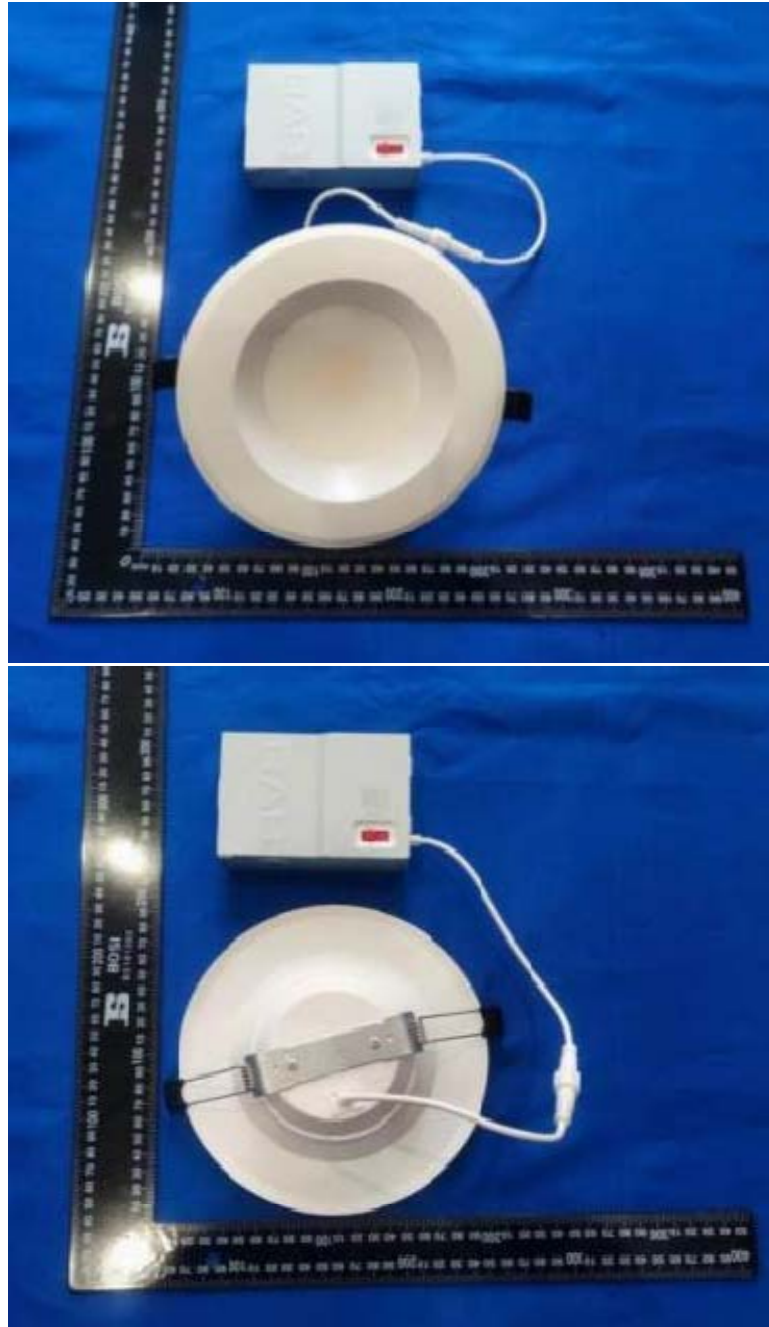
Table--1

UNIT: cd

y (DEG)	C (DEG)															
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
5	794	795	795	795	795	796	796	796	797	796	797	796	796	795	795	795
10	779	780	780	781	781	782	782	783	784	784	784	783	783	781	781	780
15	754	755	754	756	756	758	758	760	762	761	761	760	759	758	757	756
20	718	719	718	720	720	723	723	725	728	727	728	726	726	724	723	721
25	673	673	672	674	674	678	679	682	685	684	684	683	683	680	679	676
30	619	619	617	620	620	625	625	629	633	631	633	630	631	627	627	623
35	557	558	555	559	559	564	565	569	573	571	573	570	571	567	566	562
40	490	491	489	492	492	497	498	503	507	506	507	504	505	501	500	495
45	418	419	417	421	421	426	427	433	437	435	437	434	434	429	428	424
50	345	339	343	341	347	346	354	356	361	362	361	360	357	355	348	350
55	269	265	268	267	272	272	278	279	284	287	284	285	280	280	274	274
60	189	188	188	190	192	196	201	203	208	210	208	208	203	202	197	196
65	109	110	109	112	113	118	119	124	129	128	129	126	126	121	120	115
70	50.4	50.8	50.0	52.2	52.7	55.6	56.0	58.7	61.6	61.2	62.8	60.9	60.9	57.7	56.6	53.5
75	24.3	24.5	24.1	24.9	25.1	26.4	26.7	27.9	29.3	29.1	29.6	28.7	28.6	27.2	26.9	25.6
80	10.3	10.4	10.2	10.5	10.5	11.1	11.3	11.9	12.6	12.5	12.9	12.4	12.4	11.7	11.5	10.9
85	4.31	4.30	4.22	4.40	4.44	4.76	4.85	5.20	5.47	5.46	5.73	5.59	5.59	5.30	5.17	4.81
90	0.35	0.35	0.36	0.34	0.34	0.33	0.33	0.32	0.40	0.50	0.54	0.55	0.43	0.34	0.30	0.29

Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLW0101(WFD6)	2700K setting	120.0	1525.0	14.10	108.16
	3000K setting	120.0	1561.8	14.00	111.56
	3500K setting	120.0	1627.0	13.80	117.90
	4000K setting	120.0	1661.9	14.00	118.71
	5000K setting	120.0	1684.6	14.30	117.80

3. Product Photo



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