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): DLW0094(WFRL4R99FA120WBS)

Report Type:	Testing and Report According to IES LM-79-2008
Type of Luminaire:	Downlights
Report Date:	2022-08-29

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	9.0 W
Rated Initial Lamp Lumen	650 lm
Declared CCT	2700K/3000K/3500K/4000K/5000K

1.2 Test Specifications:

Test item	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	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 25ºC ±1ºC. 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 25ºC ±1ºC. 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	2022-08-29	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0094(WFRL4R99FA120WBS)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290001	120.0	60	0.077	9.05	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

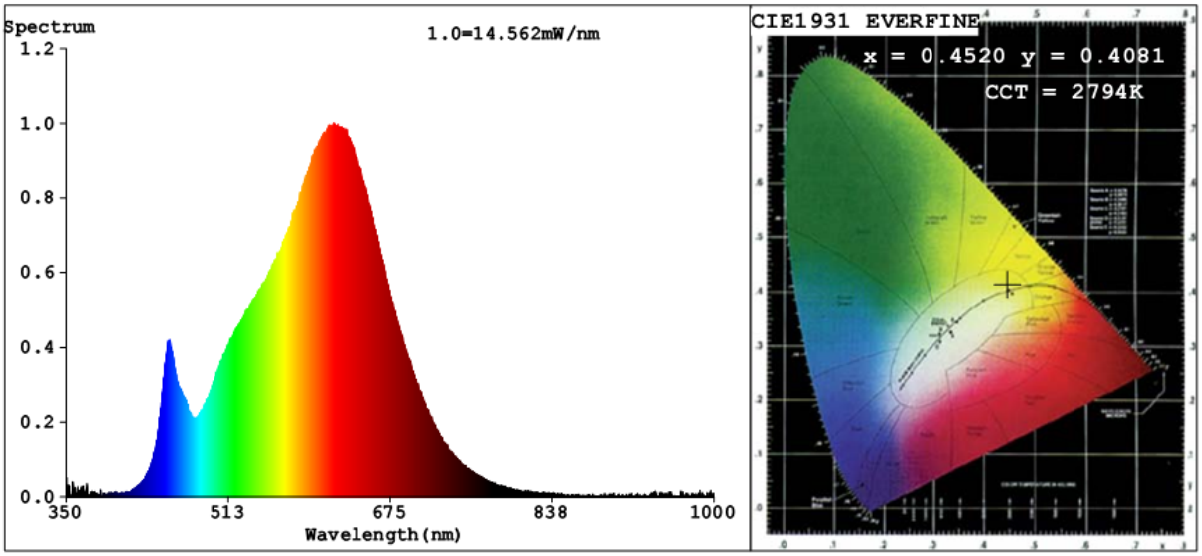
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2794
Duv	-0.0002
Chromaticity (x, y)	x=0.4520 y=0.4081
Chromaticity (u', v')	u'=0.2585 v'=0.5252
Color Rendering Index (CRI)	91.8
R9	53

Special Color Rendering Indices			
R1	92	R9	53
R2	97	R10	91
R3	99	R11	92
R4	94	R12	83
R5	92	R13	93
R6	96	R14	99
R7	90	R15	87
R8	78	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	686.54
Luminous Efficacy (lm/W)	75.86
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	245.8

Spectral Power Distribution & Chromaticity Diagram



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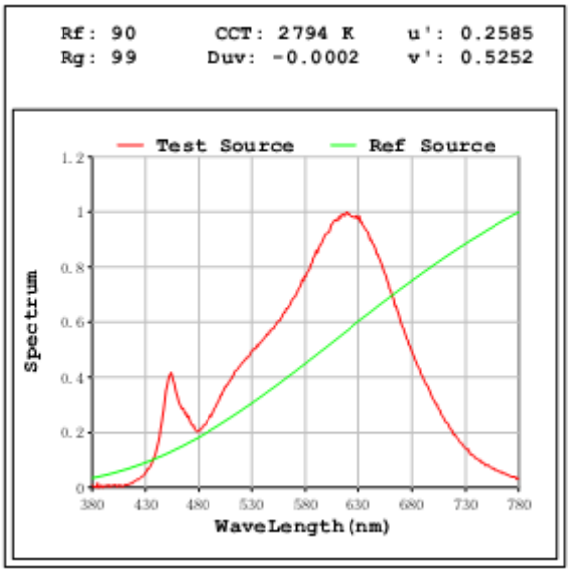
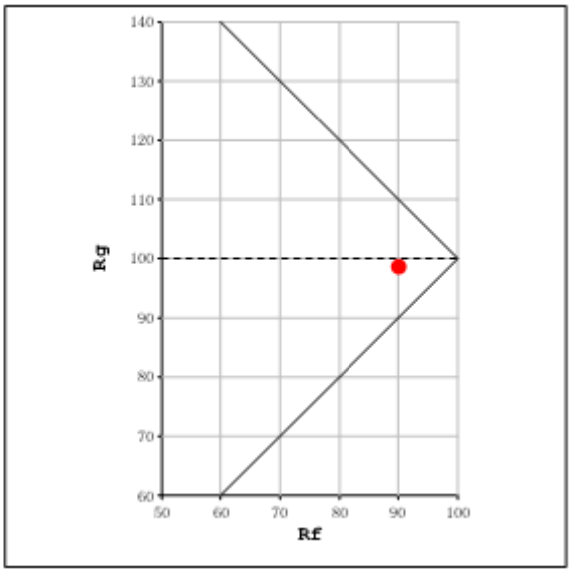
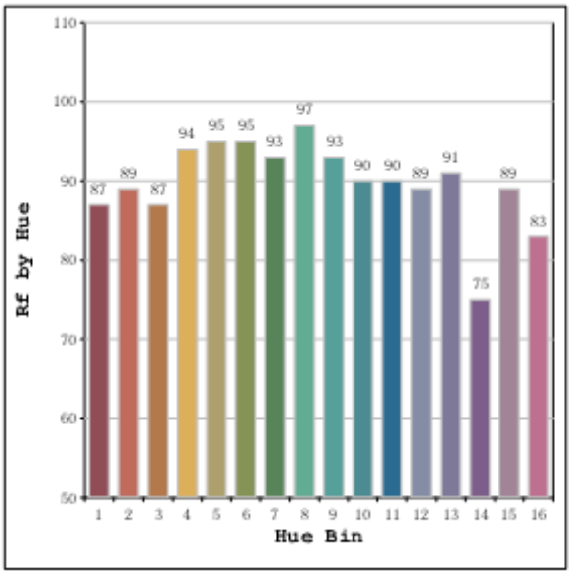
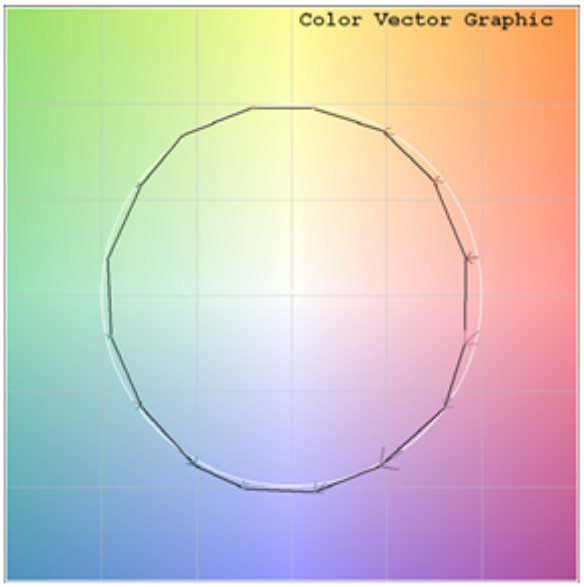






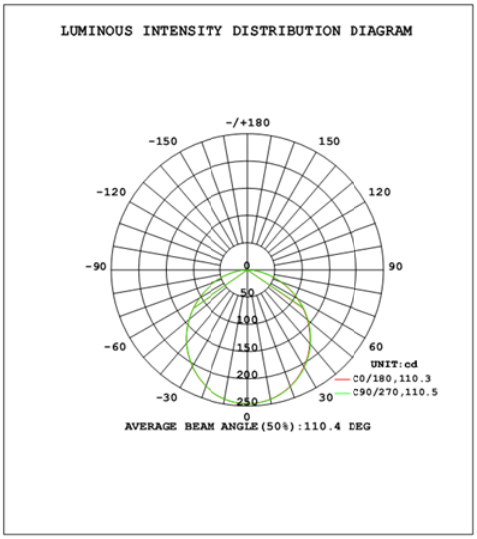


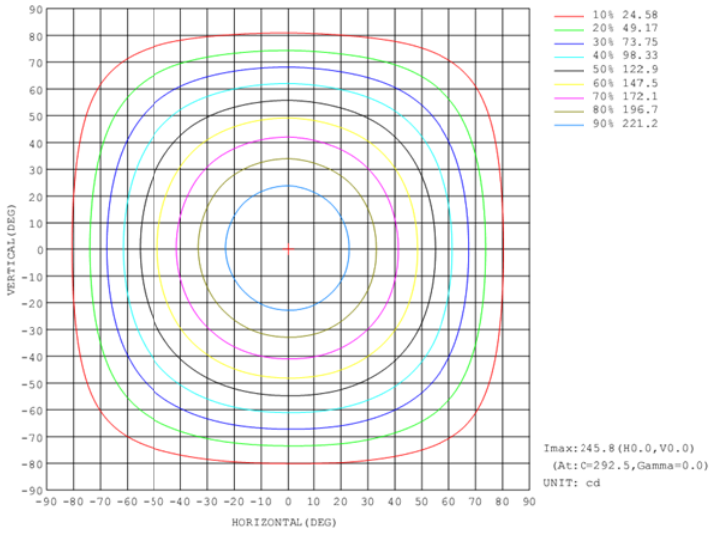
Zonal Lumen Tabulation

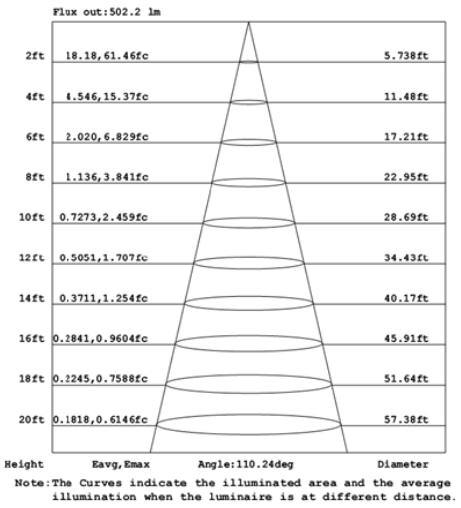
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	189.9	27.7%
0-40	309.9	45.1%
0-60	543.9	79.2%
60-90	142.7	20.8%
70-100	59.2	8.6%
90-120	0.0	0.0%
0-90	686.5	100.0%
90-180	0.0	0.0%
0-180	686.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23.2	3.4%	90-100	0.0	0.0%
10-20	66.4	9.7%	100-110	0.0	0.0%
20-30	100.2	14.6%	110-120	0.0	0.0%
30-40	120.0	17.5%	120-130	0.0	0.0%
40-50	123.5	18.0%	130-140	0.0	0.0%
50-60	110.5	16.1%	140-150	0.0	0.0%
60-70	83.4	12.2%	150-160	0.0	0.0%
70-80	47.5	6.9%	160-170	0.0	0.0%
80-90	11.7	1.7%	170-180	0.0	0.0%

Photometric Data







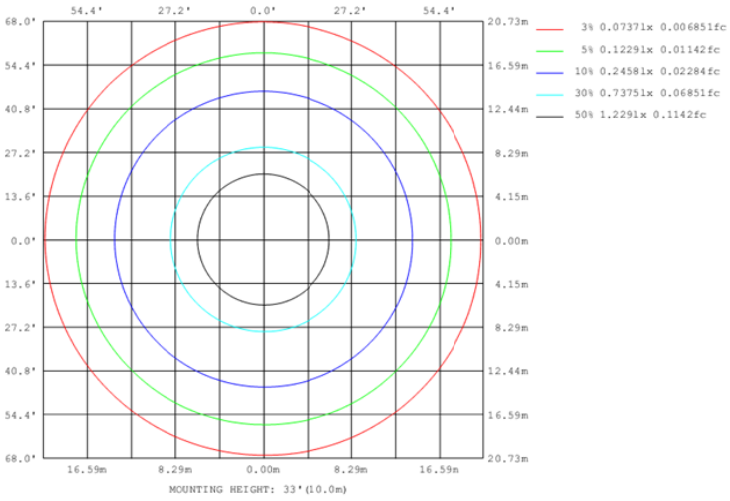


Table--1

UNIT: cd

γ (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	246	246	246	246	246	246	246	246	246	246	246	246	246	246	246	246			
5	245	245	245	245	244	244	244	245	245	245	245	245	245	245	245	245			
10	241	241	241	241	241	241	241	241	241	241	241	241	242	241	241	241			
15	235	235	235	235	235	235	235	235	235	235	236	236	236	236	236	235			
20	227	227	227	227	227	227	226	227	228	228	228	228	228	228	228	228			
25	217	217	217	217	217	217	216	217	217	218	219	219	219	218	218	218			
30	205	206	205	205	204	205	204	205	206	206	207	207	207	206	206	206			
35	191	192	191	192	191	191	190	191	192	192	194	193	194	193	193	192			
40	176	177	176	176	175	175	175	176	177	177	178	178	178	178	177	177			
45	159	160	160	160	159	159	158	159	160	161	162	162	162	161	161	160			
50	142	142	142	142	141	141	140	141	143	143	144	144	144	143	143	142			
55	123	124	123	123	122	122	122	122	124	124	126	125	126	125	124	124			
60	103	104	104	104	103	103	102	103	104	105	106	106	106	105	105	104			
65	83.6	84.3	83.8	83.9	82.7	82.7	82.2	83.1	84.5	85.0	86.4	86.1	86.3	85.2	85.1	84.2			
70	63.6	64.4	63.9	64.0	62.8	62.8	62.3	63.2	64.6	65.1	66.4	66.0	66.2	65.1	65.1	64.3			
75	44.2	45.1	44.6	44.7	43.4	43.3	42.9	43.8	45.2	45.6	46.9	46.5	46.6	45.5	45.5	44.7			
80	25.8	26.5	26.0	26.1	25.0	25.0	24.6	25.4	26.7	27.0	28.0	27.7	27.8	26.8	26.8	26.1			
85	9.42	9.85	9.38	9.43	8.73	8.90	8.70	9.31	10.2	10.3	11.0	10.8	11.0	10.4	10.3	9.84			
90	0.30	0.30	0.30	0.31	0.30	0.30	0.29	0.29	0.29	0.31	0.31	0.33	0.31	0.33	0.31	0.29			

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2022-08-29	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0094(WFRL4R99FA120WBS)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290001	120.0	60	0.076	8.95	0.978

Chromaticity Measurement - Sphere-Spectroradiometer Method:

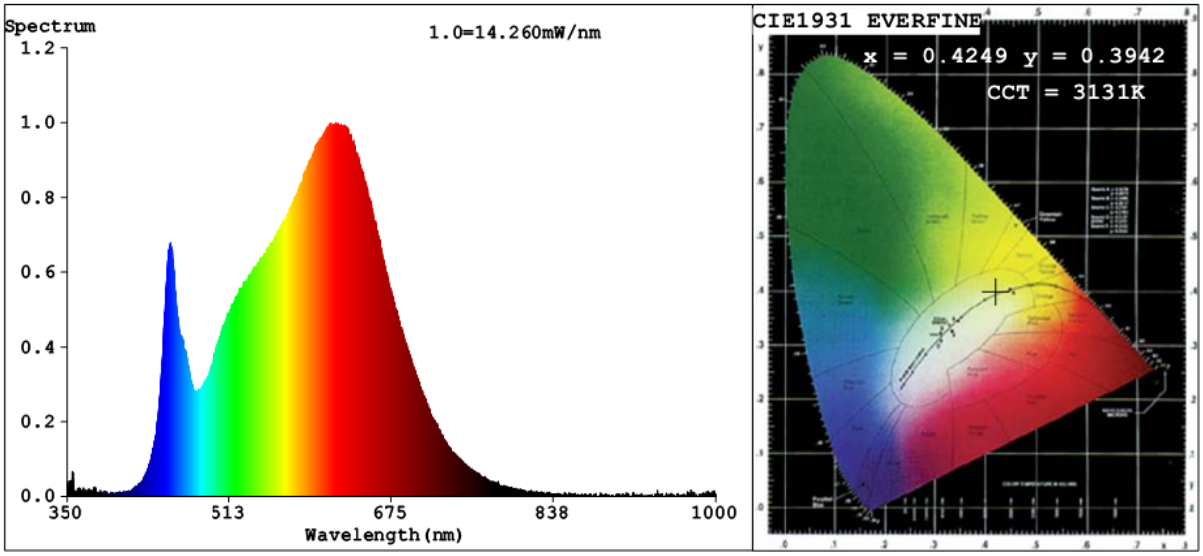
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3131
Duv	-0.0022
Chromaticity (x, y)	x=0.4249 y=0.3942
Chromaticity (u', v')	u'=0.2470 v'=0.5156
Color Rendering Index (CRI)	93.7
R9	64

Special Color Rendering Indices			
R1	95	R9	64
R2	98	R10	94
R3	98	R11	94
R4	93	R12	81
R5	94	R13	96
R6	96	R14	99
R7	92	R15	91
R8	84	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	729.01
Luminous Efficacy (lm/W)	81.45
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	261.0

Spectral Power Distribution & Chromaticity Diagram



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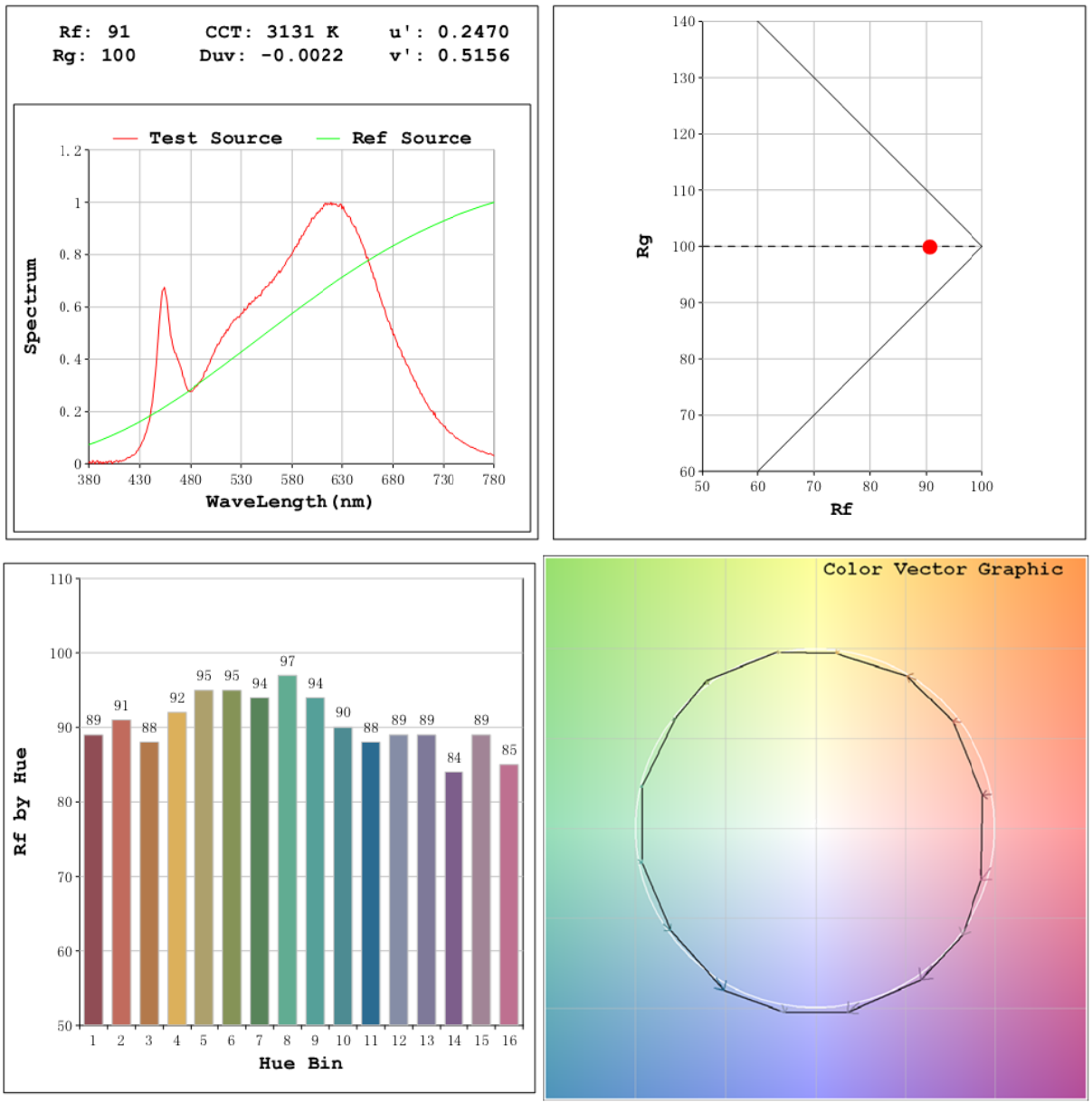
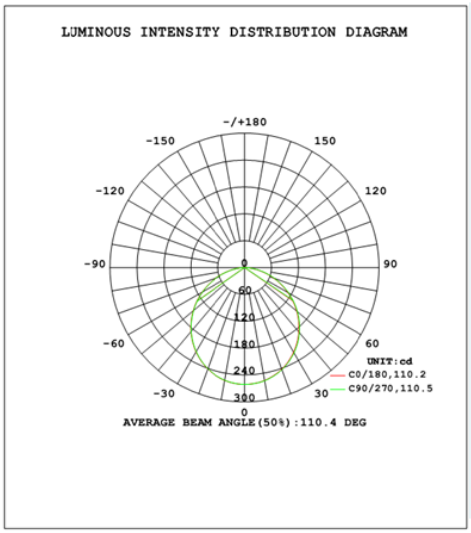


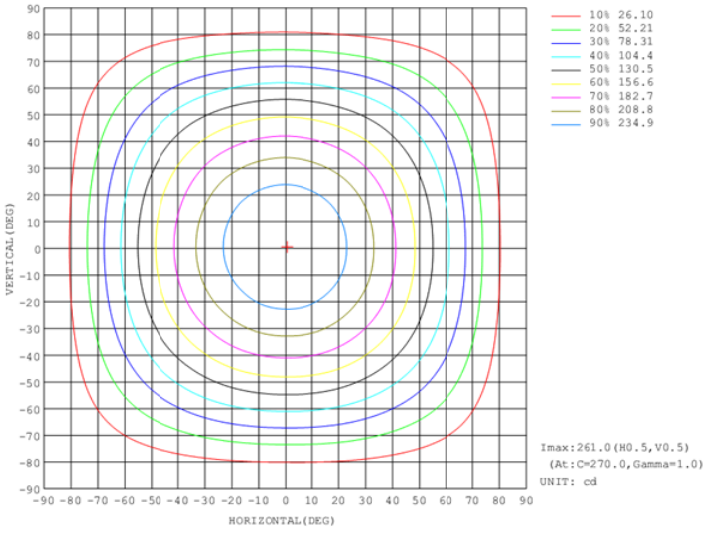
Zonal Lumen Tabulation

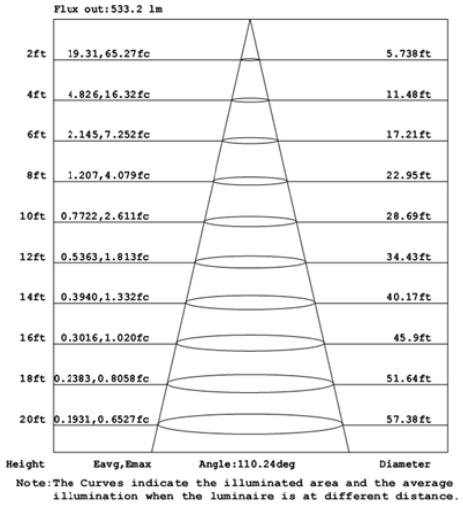
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	201.6	27.6%
0-40	329.0	45.1%
0-60	577.5	79.2%
60-90	151.5	20.8%
70-100	62.9	8.6%
90-120	0.0	0.0%
0-90	729.0	100.0%
90-180	0.0	0.0%
0-180	729.0	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	24.7	3.4%	90-100	0.0	0.0%
10-20	70.5	9.7%	100-110	0.0	0.0%
20-30	106.4	14.6%	110-120	0.0	0.0%
30-40	127.4	17.5%	120-130	0.0	0.0%
40-50	131.1	18.0%	130-140	0.0	0.0%
50-60	117.4	16.1%	140-150	0.0	0.0%
60-70	88.6	12.2%	150-160	0.0	0.0%
70-80	50.4	6.9%	160-170	0.0	0.0%
80-90	12.5	1.7%	170-180	0.0	0.0%

Photometric Data







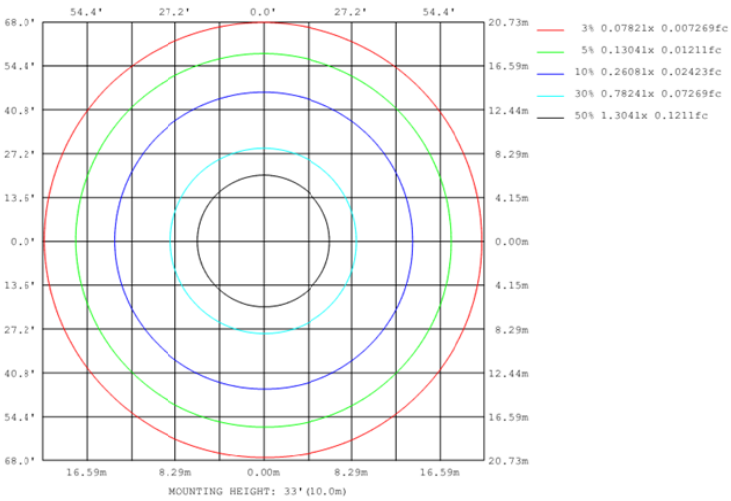


Table--1 UNIT: cd

γ (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	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261			
5	260	260	260	260	259	259	259	260	260	260	260	260	260	260	260	260			
10	256	256	256	256	256	256	255	256	256	256	257	257	257	256	256	256			
15	250	250	250	250	249	249	249	249	250	250	251	251	251	250	250	250			
20	241	241	241	241	241	241	240	241	242	242	243	243	243	242	242	242			
25	230	231	230	231	230	230	229	230	231	231	232	232	232	232	232	231			
30	218	218	218	218	217	217	217	217	218	219	220	220	220	219	219	218			
35	203	204	203	203	202	202	202	203	204	204	206	206	206	205	204	204			
40	187	187	187	187	186	186	186	186	188	188	190	190	190	189	188	187			
45	169	170	169	170	168	168	168	169	170	171	172	172	172	171	171	170			
50	150	151	151	151	149	149	149	150	151	152	154	153	153	152	152	151			
55	130	131	131	131	130	130	129	130	132	132	134	133	134	132	132	131			
60	110	110	110	110	109	109	108	109	111	112	113	113	113	112	111	110			
65	88.7	89.4	88.9	89.0	87.7	87.8	87.4	88.3	89.9	90.5	92.0	91.6	91.7	90.5	90.4	89.3			
70	67.5	68.3	67.6	67.9	66.5	66.7	66.2	67.2	68.7	69.3	70.7	70.3	70.4	69.2	69.1	68.1			
75	46.9	47.7	47.2	47.3	46.0	46.0	45.6	46.7	48.1	48.6	50.0	49.5	49.6	48.4	48.2	47.3			
80	27.3	28.0	27.4	27.6	26.5	26.5	26.2	27.1	28.4	28.9	30.0	29.6	29.7	28.5	28.4	27.7			
85	9.96	10.3	9.82	9.90	9.23	9.46	9.29	9.97	10.9	11.1	11.8	11.5	11.7	11.0	10.9	10.4			
90	0.31	0.31	0.32	0.31	0.31	0.31	0.31	0.30	0.30	0.33	0.32	0.35	0.33	0.34	0.31	0.31			

2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2022-08-29	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0094(WFRL4R99FA120WBS)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290001	120.0	60	0.075	8.81	0.978

Chromaticity Measurement - Sphere-Spectroradiometer Method:

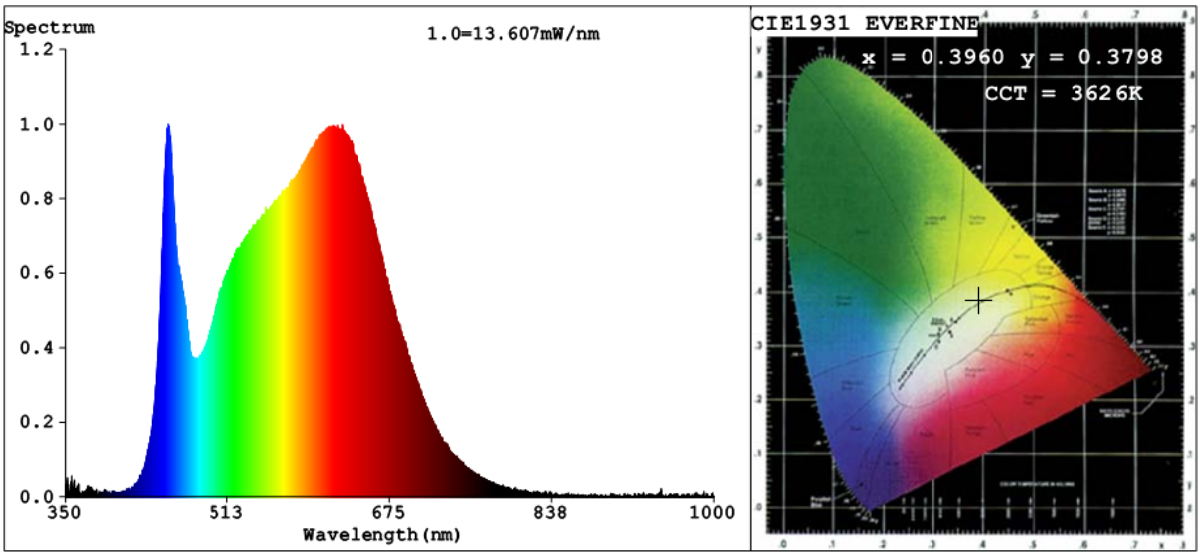
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3626
Duv	-0.0027
Chromaticity (x, y)	x=0.3960 y=0.3798
Chromaticity (u', v')	u'=0.2341 v'=0.5052
Color Rendering Index (CRI)	95.0
R9	74

Special Color Rendering Indices			
R1	96	R9	74
R2	98	R10	94
R3	98	R11	95
R4	95	R12	76
R5	95	R13	97
R6	95	R14	98
R7	94	R15	94
R8	89	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	765.9
Luminous Efficacy (lm/W)	86.93
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	274.2

Spectral Power Distribution & Chromaticity Diagram



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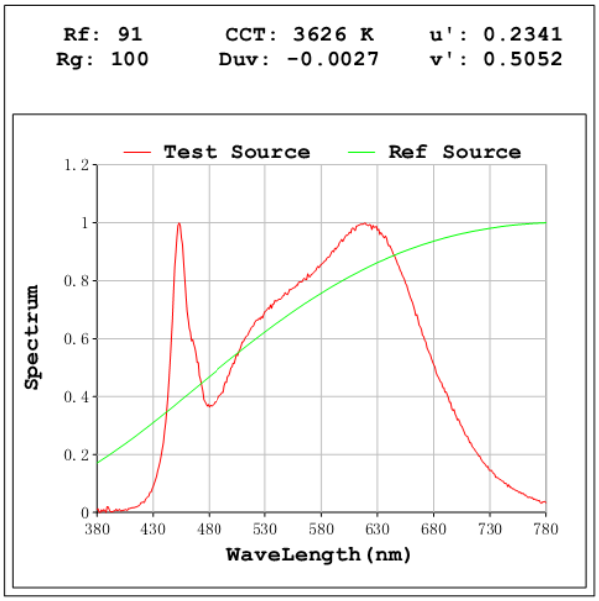
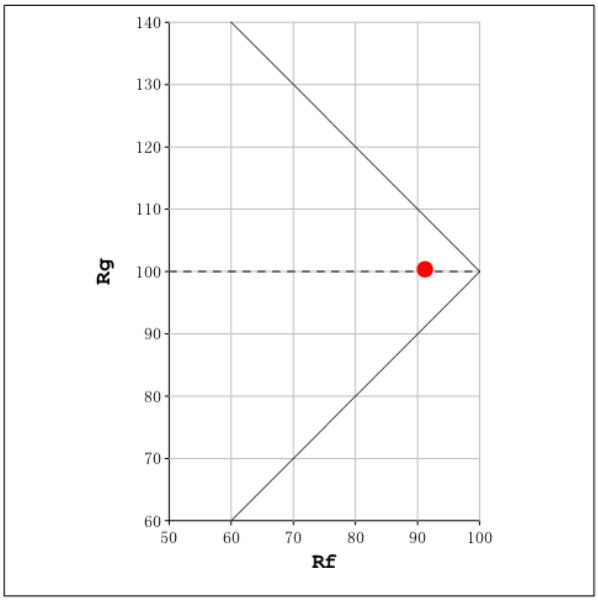
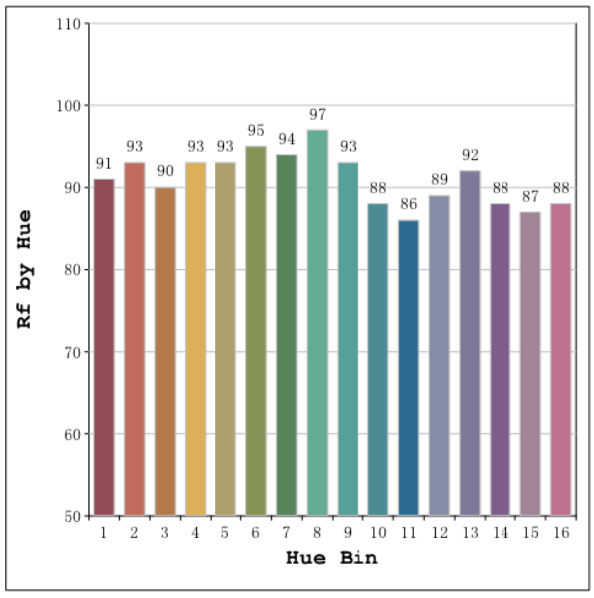
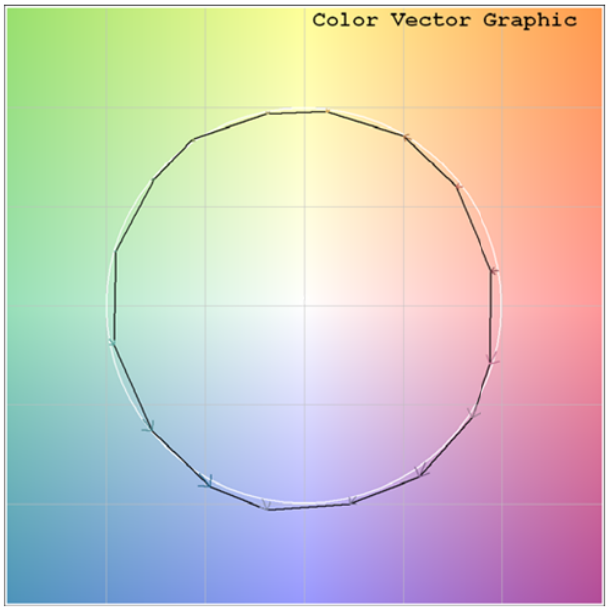






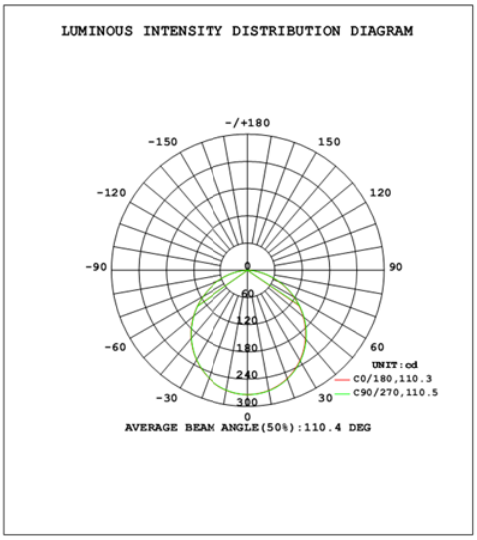


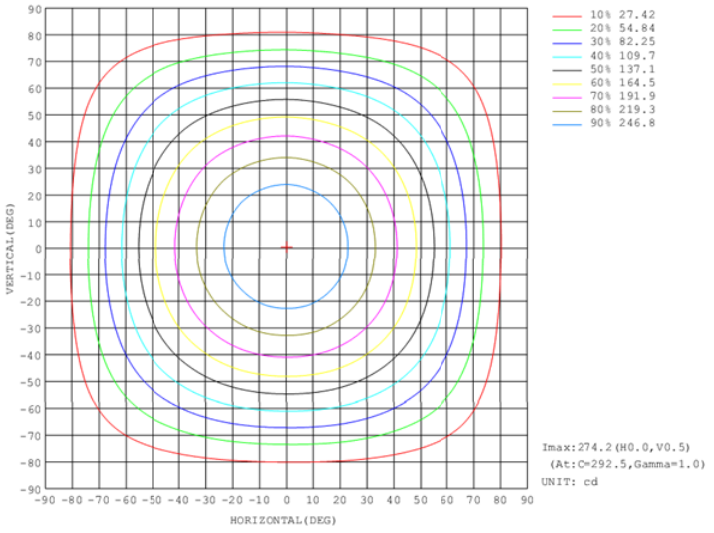
Zonal Lumen Tabulation

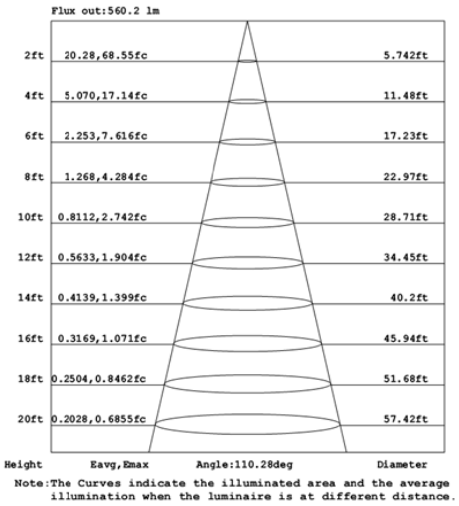
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	211.7	27.6%
0-40	345.6	45.1%
0-60	606.7	79.2%
60-90	159.2	20.8%
70-100	66.1	8.6%
90-120	0.0	0.0%
0-90	765.9	100.0%
90-180	0.0	0.0%
0-180	765.9	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	25.9	3.4%	90-100	0.0	0.0%
10-20	74.1	9.7%	100-110	0.0	0.0%
20-30	111.7	14.6%	110-120	0.0	0.0%
30-40	133.9	17.5%	120-130	0.0	0.0%
40-50	137.7	18.0%	130-140	0.0	0.0%
50-60	123.3	16.1%	140-150	0.0	0.0%
60-70	93.1	12.2%	150-160	0.0	0.0%
70-80	53.0	6.9%	160-170	0.0	0.0%
80-90	13.1	1.7%	170-180	0.0	0.0%

Photometric Data







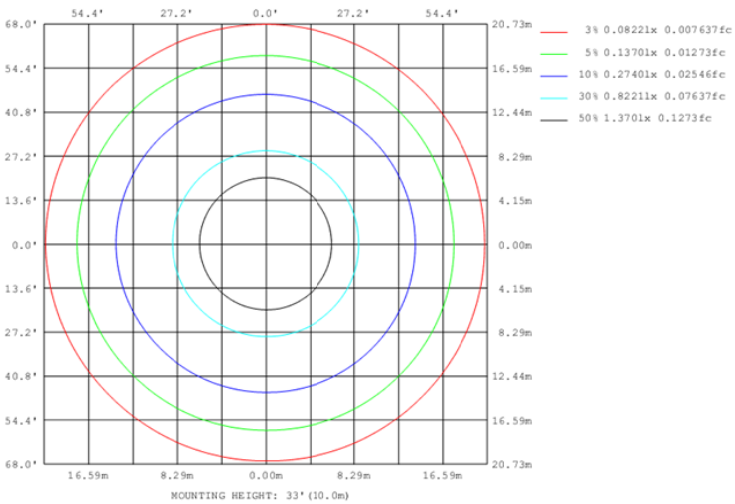


Table--1

UNIT: cd

γ (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	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274			
5	273	273	273	273	272	273	272	273	273	273	273	273	273	273	273	273			
10	269	269	269	269	268	268	268	269	269	269	270	269	270	269	269	269			
15	262	262	262	262	262	262	262	262	263	263	263	263	264	263	263	263			
20	253	253	253	253	253	253	252	253	254	254	255	255	255	255	254	254			
25	242	242	242	242	241	241	241	242	243	243	244	244	244	244	243	243			
30	228	229	228	229	228	228	227	228	229	230	231	231	231	230	230	229			
35	213	214	213	213	212	212	212	213	214	215	216	216	216	215	215	214			
40	196	197	196	196	195	195	195	196	197	198	200	199	199	198	198	197			
45	178	178	178	178	177	177	176	177	179	180	181	181	181	180	179	178			
50	158	158	158	158	157	157	157	158	159	160	162	161	161	160	160	158			
55	137	138	137	137	136	136	136	137	138	139	141	140	140	139	139	138			
60	115	116	115	115	114	114	114	115	117	118	119	119	119	117	117	116			
65	93.0	93.7	93.2	93.3	92.1	92.2	91.9	93.0	94.6	95.4	96.9	96.4	96.5	95.2	94.9	93.7			
70	70.7	71.5	71.0	71.2	69.9	70.1	69.7	70.7	72.4	73.0	74.5	74.0	74.1	72.7	72.5	71.4			
75	49.1	49.9	49.4	49.5	48.3	48.4	48.0	49.2	50.7	51.3	52.7	52.2	52.1	50.9	50.6	49.7			
80	28.5	29.2	28.7	28.9	27.8	27.9	27.6	28.6	30.0	30.5	31.6	31.2	31.2	29.9	29.7	28.9			
85	10.3	10.7	10.2	10.3	9.68	9.97	9.85	10.6	11.6	11.8	12.6	12.2	12.4	11.6	11.4	10.8			
90	0.33	0.33	0.33	0.33	0.33	0.32	0.33	0.32	0.33	0.35	0.35	0.37	0.34	0.36	0.32	0.33			

2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2022-08-29	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0094(WFRL4R99FA120WBS)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290001	120.0	60	0.075	8.86	0.978

Chromaticity Measurement - Sphere-Spectroradiometer Method:

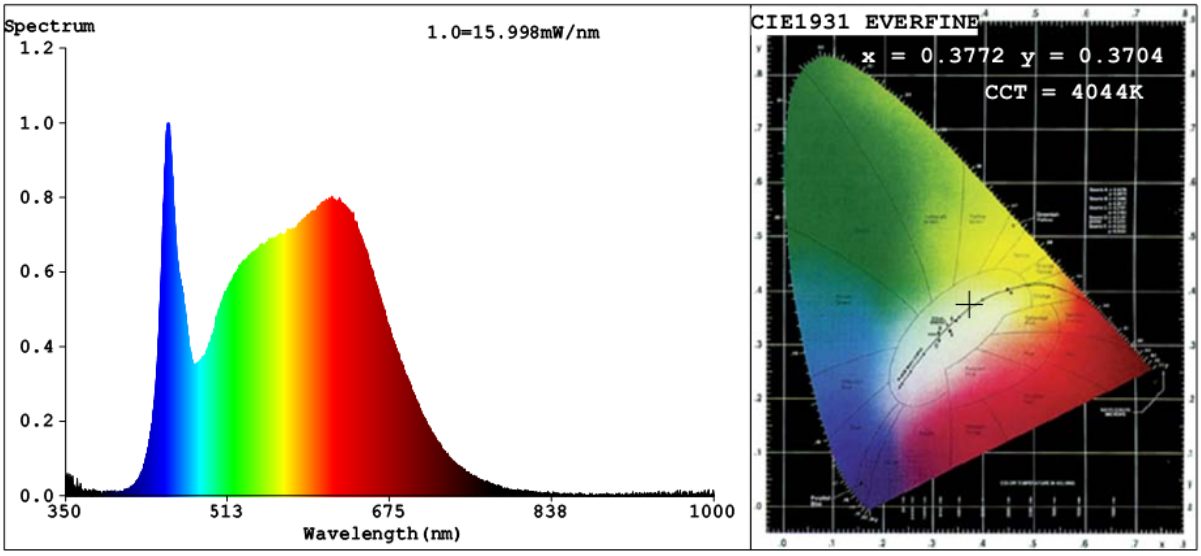
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4044
Duv	-0.0020
Chromaticity (x, y)	x=0.3772 y=0.3704
Chromaticity (u', v')	u'=0.2255 v'=0.4983
Color Rendering Index (CRI)	95.0
R9	77

Special Color Rendering Indices			
R1	96	R9	77
R2	98	R10	93
R3	97	R11	95
R4	95	R12	73
R5	95	R13	97
R6	94	R14	98
R7	95	R15	95
R8	90	--	--

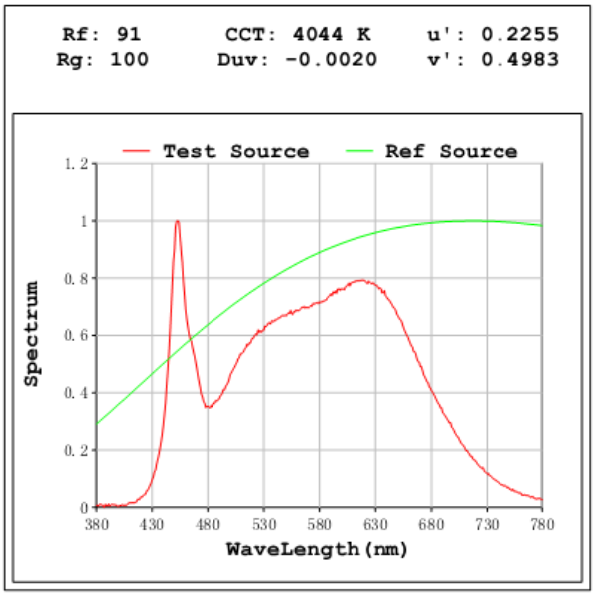
Photometric Measurement – Goniophotometer Method:

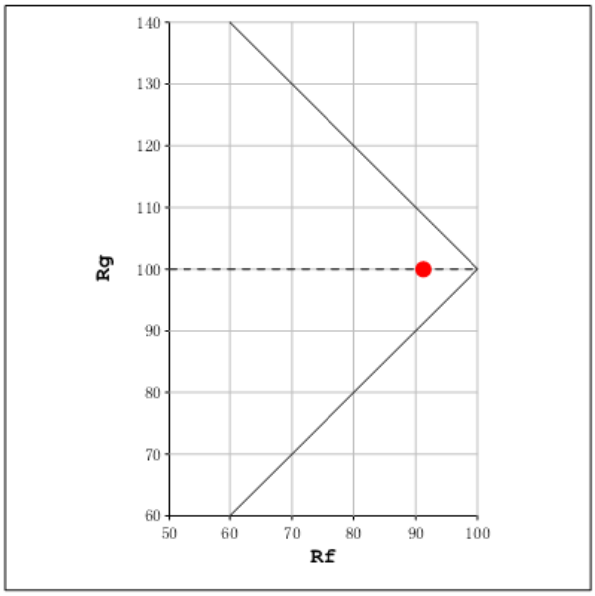
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	776.56
Luminous Efficacy (lm/W)	87.65
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	277.9

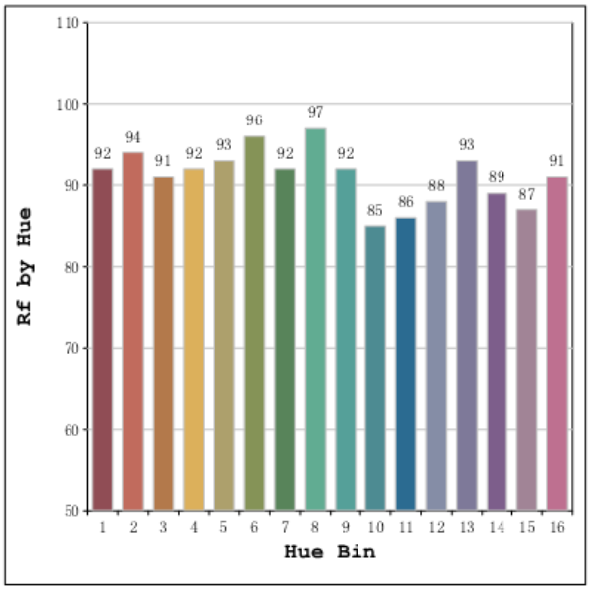
Spectral Power Distribution & Chromaticity Diagram

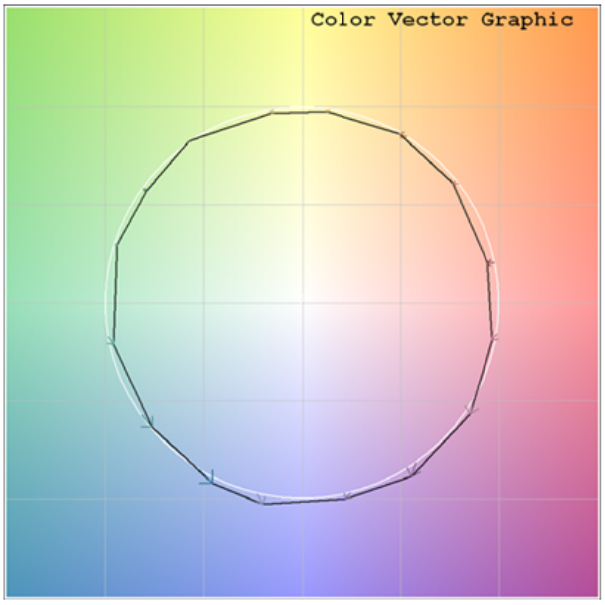


TM30







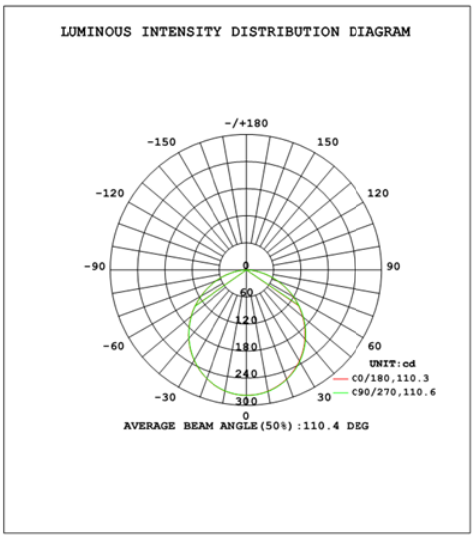


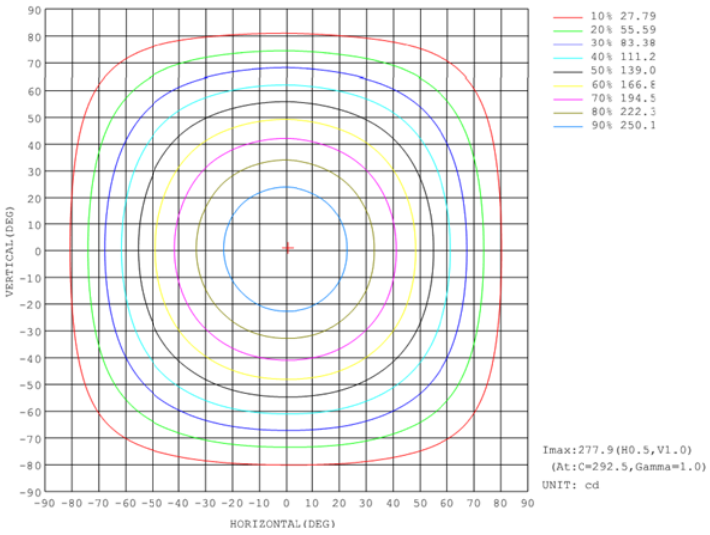
Zonal Lumen Tabulation

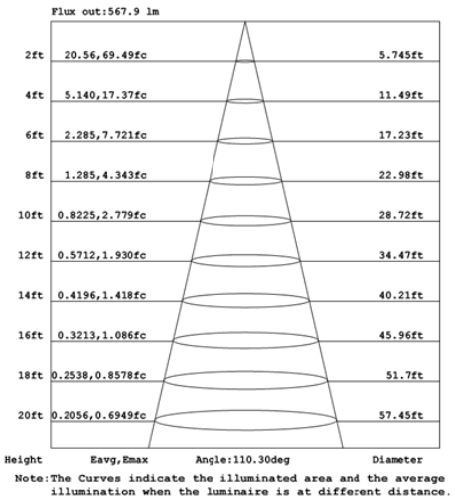
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	214.6	27.6%
0-40	350.4	45.1%
0-60	615.1	79.2%
60-90	161.5	20.8%
70-100	67.1	8.6%
90-120	0.0	0.0%
0-90	776.6	100.0%
90-180	0.0	0.0%
0-180	776.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26.3	3.4%	90-100	0.0	0.0%
10-20	75.1	9.7%	100-110	0.0	0.0%
20-30	113.3	14.6%	110-120	0.0	0.0%
30-40	135.7	17.5%	120-130	0.0	0.0%
40-50	139.7	18.0%	130-140	0.0	0.0%
50-60	125.1	16.1%	140-150	0.0	0.0%
60-70	94.4	12.2%	150-160	0.0	0.0%
70-80	53.8	6.9%	160-170	0.0	0.0%
80-90	13.3	1.7%	170-180	0.0	0.0%

Photometric Data







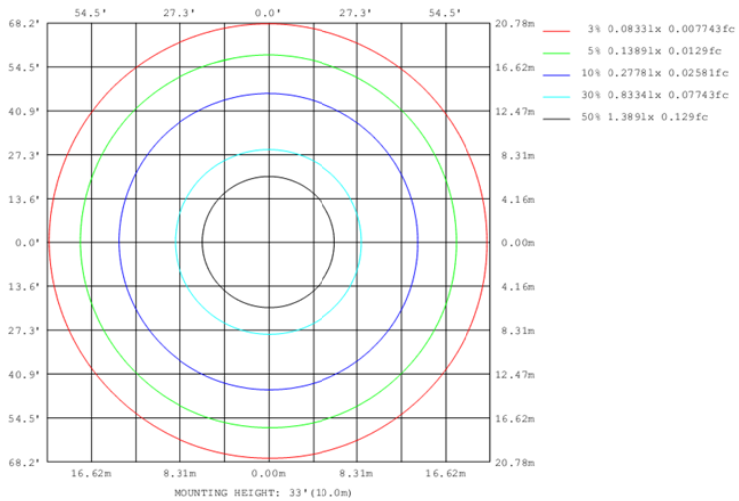


Table--1 UNIT: cd

γ (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	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278			
5	276	277	276	276	276	276	276	276	277	277	277	277	277	277	277	277			
10	272	272	272	272	272	272	272	272	273	273	273	273	273	273	273	273			
15	266	266	265	266	265	265	265	266	266	267	267	267	267	267	267	266			
20	256	257	256	256	256	256	256	257	257	258	259	259	259	258	258	257			
25	245	245	245	245	245	245	244	245	246	247	248	248	248	247	247	246			
30	231	232	231	232	231	231	231	232	233	233	235	234	235	233	233	232			
35	216	216	216	216	215	215	215	216	217	218	219	219	219	218	218	217			
40	199	199	199	199	198	198	198	199	200	201	202	202	202	201	201	200			
45	180	180	180	180	179	179	179	180	182	182	184	184	184	182	182	181			
50	160	160	160	160	159	159	159	160	162	162	164	164	164	162	162	161			
55	139	139	139	139	138	138	138	139	141	141	143	142	143	141	141	139			
60	117	117	117	117	116	116	116	117	119	119	121	120	121	119	119	118			
65	94.1	94.8	94.3	94.5	93.3	93.5	93.3	94.4	96.1	96.8	98.4	97.9	97.9	96.5	96.2	95.0			
70	71.5	72.4	71.8	72.0	70.8	71.0	70.6	71.9	73.5	74.2	75.7	75.2	75.2	73.8	73.5	72.4			
75	49.6	50.5	50.0	50.1	48.9	49.0	48.7	50.0	51.6	52.2	53.5	53.1	52.9	51.6	51.3	50.3			
80	28.8	29.5	29.0	29.2	28.2	28.3	28.1	29.1	30.5	31.0	32.2	31.7	31.7	30.4	30.1	29.3			
85	10.4	10.8	10.2	10.4	9.79	10.1	10.0	10.8	11.9	12.1	12.9	12.5	12.6	11.7	11.5	10.9			
90	0.33	0.33	0.33	0.33	0.33	0.32	0.33	0.32	0.33	0.36	0.36	0.37	0.35	0.37	0.33	0.33			

2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2022-08-29	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0094(WFRL4R99FA120WBS)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290001	120.0	60	0.077	9.05	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

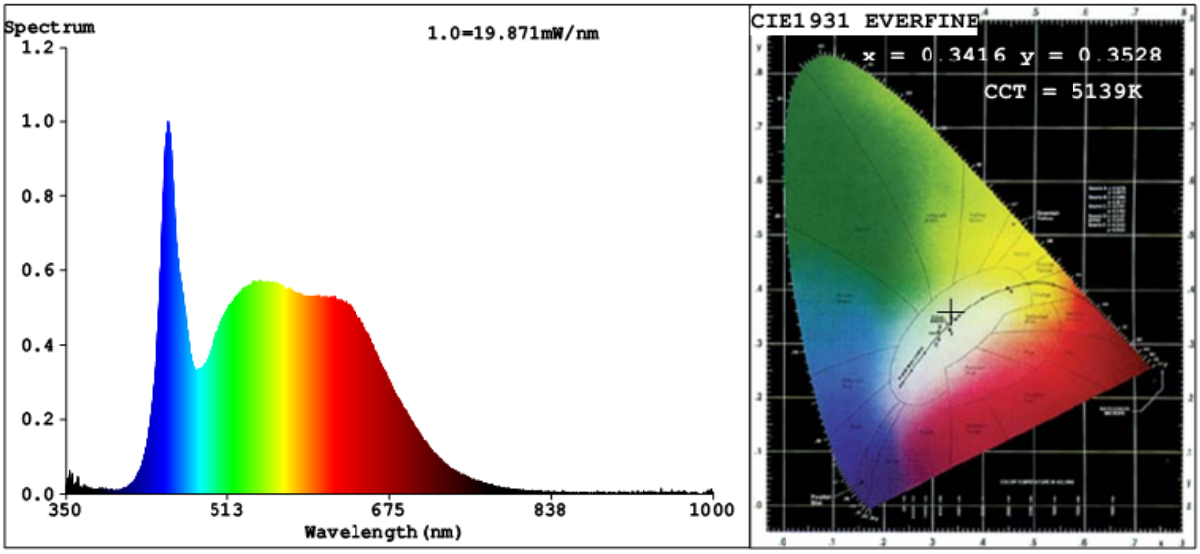
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5139
Duv	0.0021
Chromaticity (x, y)	x=0.3416 y=0.3528
Chromaticity (u', v')	u'=0.2086 v'=0.4847
Color Rendering Index (CRI)	93.2
R9	72

Special Color Rendering Indices			
R1	93	R9	72
R2	95	R10	87
R3	94	R11	93
R4	93	R12	71
R5	93	R13	94
R6	92	R14	97
R7	96	R15	93
R8	90	--	--

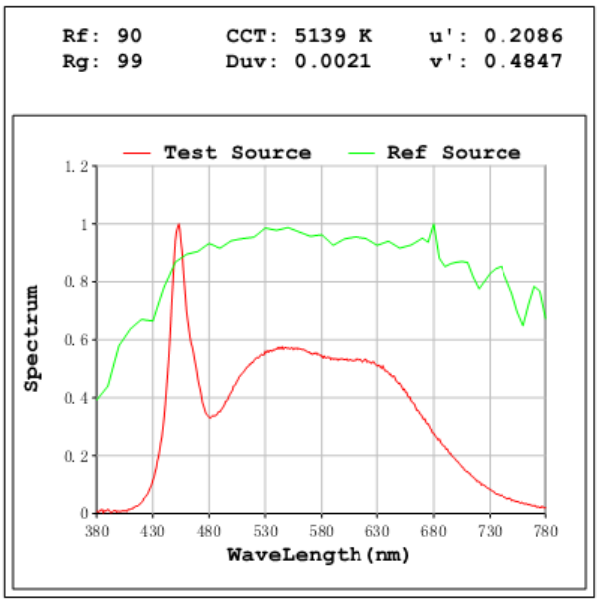
Photometric Measurement – Goniophotometer Method:

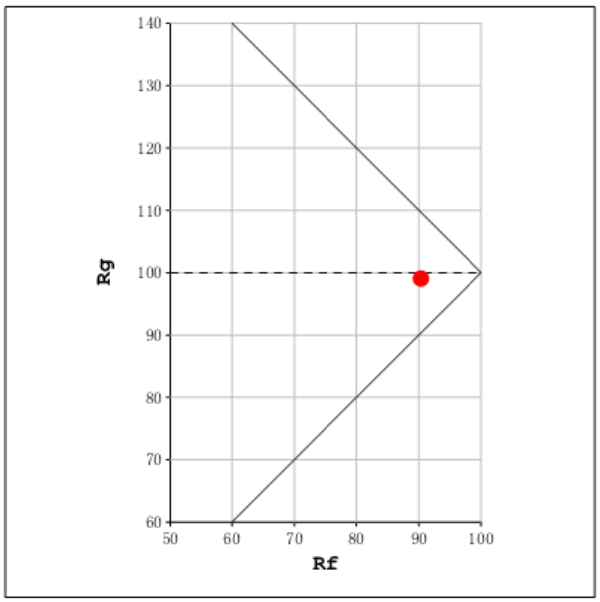
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	758.12
Luminous Efficacy (lm/W)	83.77
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	271.3

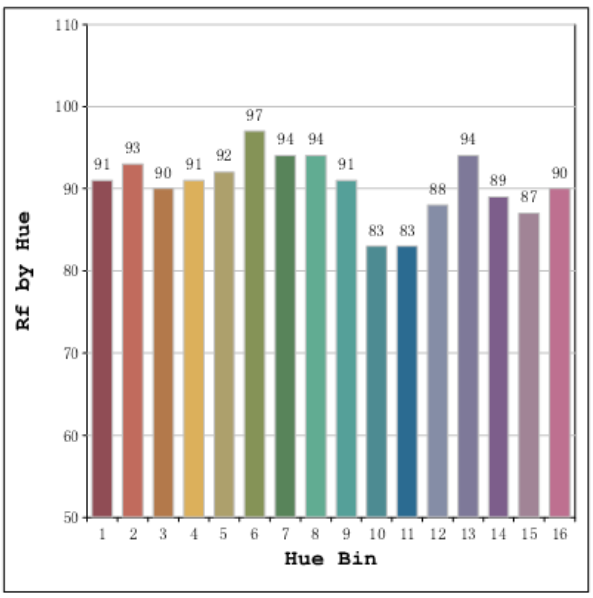
Spectral Power Distribution & Chromaticity Diagram

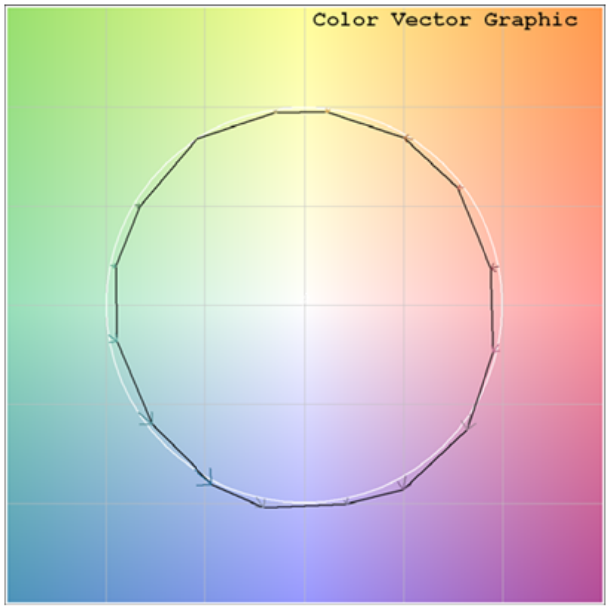


TM30







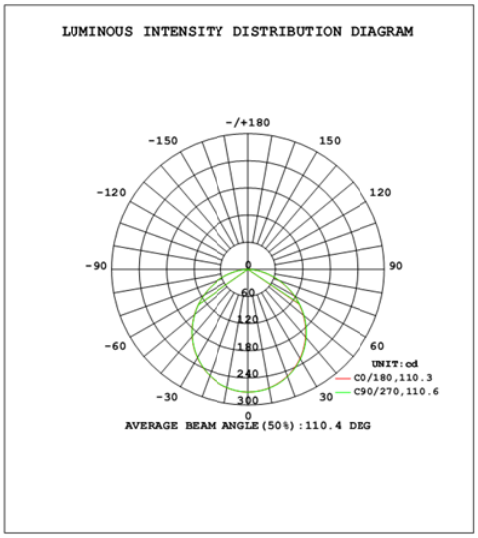


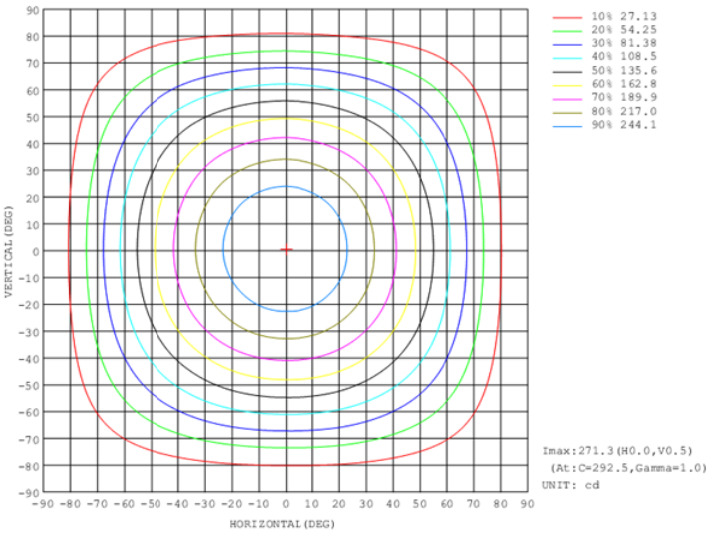
Zonal Lumen Tabulation

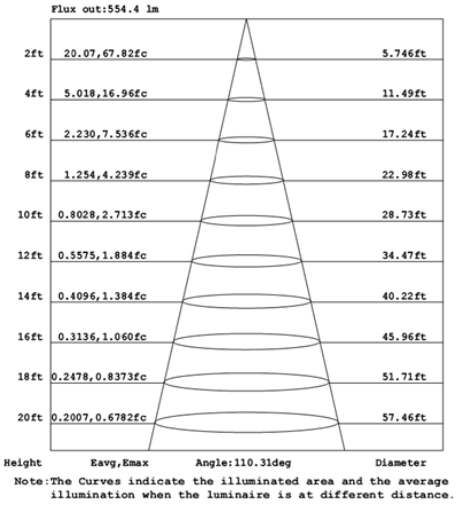
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	209.5	27.6%
0-40	342.0	45.1%
0-60	600.4	79.2%
60-90	157.7	20.8%
70-100	65.5	8.6%
90-120	0.0	0.0%
0-90	758.1	100.0%
90-180	0.0	0.0%
0-180	758.1	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	25.7	3.4%	90-100	0.0	0.0%
10-20	73.3	9.7%	100-110	0.0	0.0%
20-30	110.6	14.6%	110-120	0.0	0.0%
30-40	132.5	17.5%	120-130	0.0	0.0%
40-50	136.3	18.0%	130-140	0.0	0.0%
50-60	122.1	16.1%	140-150	0.0	0.0%
60-70	92.2	12.2%	150-160	0.0	0.0%
70-80	52.5	6.9%	160-170	0.0	0.0%
80-90	13.0	1.7%	170-180	0.0	0.0%

Photometric Data







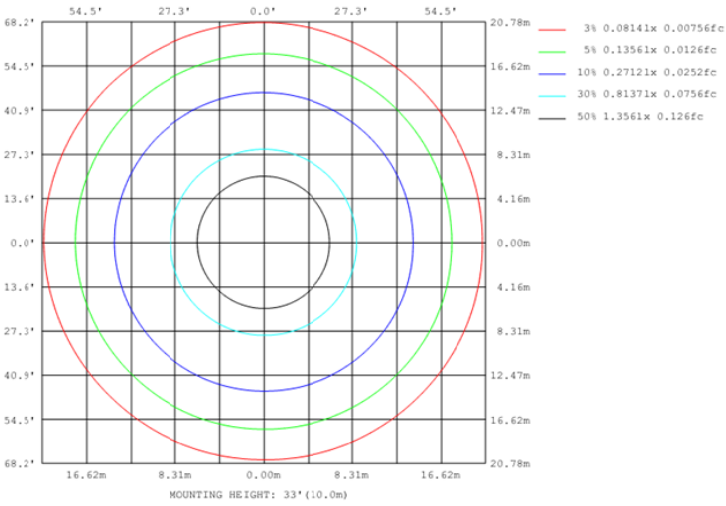


Table--1

UNIT: cd

γ (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	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271			
5	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270			
10	266	266	266	266	265	266	265	266	266	266	267	267	267	267	266	266			
15	259	259	259	259	259	259	259	259	260	260	261	261	261	260	260	260			
20	250	250	250	250	250	250	250	250	251	252	252	252	252	252	252	251			
25	239	239	239	239	239	239	239	239	240	241	242	242	242	241	241	240			
30	226	226	226	226	225	225	225	226	227	228	229	229	229	228	228	227			
35	211	211	211	211	210	210	210	211	212	213	214	214	214	213	212	211			
40	194	194	194	194	193	193	193	194	196	196	198	198	197	196	196	195			
45	175	176	176	176	175	175	175	176	177	178	180	179	179	178	177	176			
50	156	156	156	156	155	155	155	156	158	159	160	160	160	158	158	157			
55	135	136	135	136	135	135	134	136	137	138	140	139	139	138	137	136			
60	114	114	114	114	113	113	113	114	116	117	118	118	118	116	116	115			
65	91.8	92.5	92.1	92.2	91.1	91.3	91.0	92.2	94.0	94.7	96.2	95.7	95.6	94.3	93.9	92.7			
70	69.8	70.5	70.0	70.3	69.1	69.4	69.0	70.2	71.9	72.6	74.0	73.6	73.4	72.1	71.7	70.6			
75	48.4	49.2	48.7	48.9	47.8	47.9	47.7	48.8	50.4	51.1	52.4	51.9	51.7	50.4	50.0	49.1			
80	28.1	28.7	28.3	28.4	27.5	27.6	27.5	28.4	29.9	30.5	31.5	31.0	30.9	29.7	29.4	28.6			
85	10.1	10.4	9.99	10.1	9.57	9.85	9.84	10.6	11.7	11.9	12.6	12.2	12.3	11.4	11.2	10.6			
90	0.33	0.32	0.33	0.33	0.33	0.32	0.32	0.31	0.33	0.36	0.36	0.37	0.35	0.36	0.32	0.31			

3. Product Photo

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