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): DLW0089(WFRL4S99FA120WB)

Report Type:	Testing and Report According to IES LM-79-2008
Type of Luminaire:	Downlights
Report Date:	2022-07-18

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	550 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	2022-07-18	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0089(WFRL4S99FA120WB)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120054	120.0	60	0.075	8.88	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

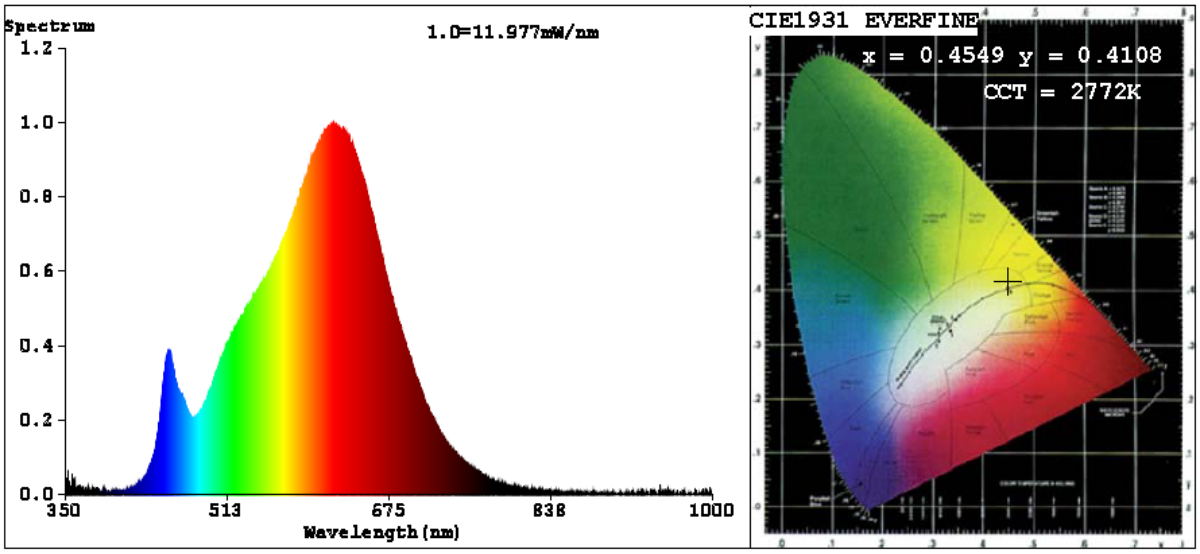
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2772
Duv	0.0005
Chromaticity (x, y)	x=0.4549 y=0.4108
Chromaticity (u', v')	u'=0.2592 v'=0.5267
Color Rendering Index (CRI)	92.1
R9	54

Special Color Rendering Indices			
R1	92	R9	54
R2	96	R10	91
R3	99	R11	93
R4	92	R12	83
R5	92	R13	93
R6	96	R14	99
R7	91	R15	87
R8	79	--	--

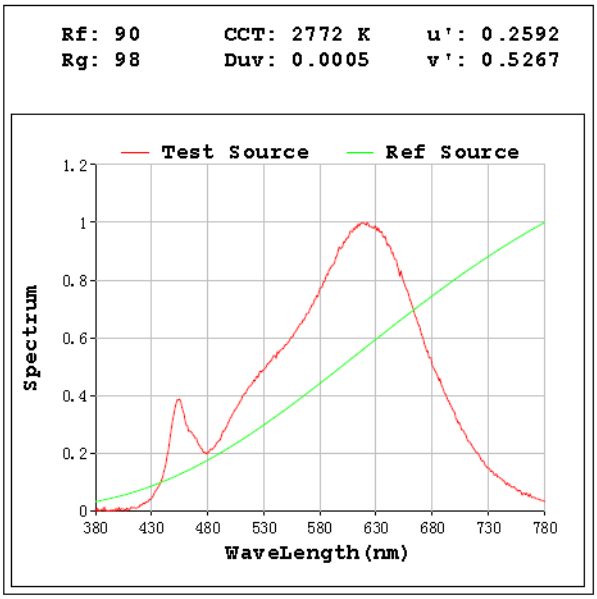
Photometric Measurement – Goniophotometer Method:

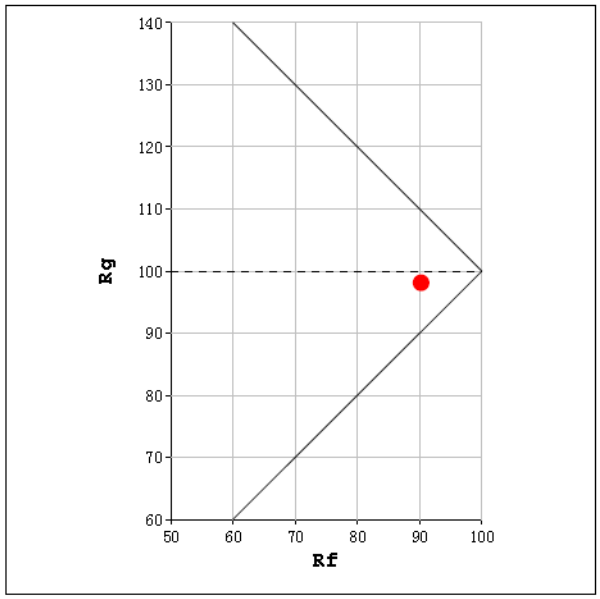
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	564.4
Luminous Efficacy (lm/W)	63.56
Beam Angle (°)	110.0
Center Beam Candle Power (cd)	207.2

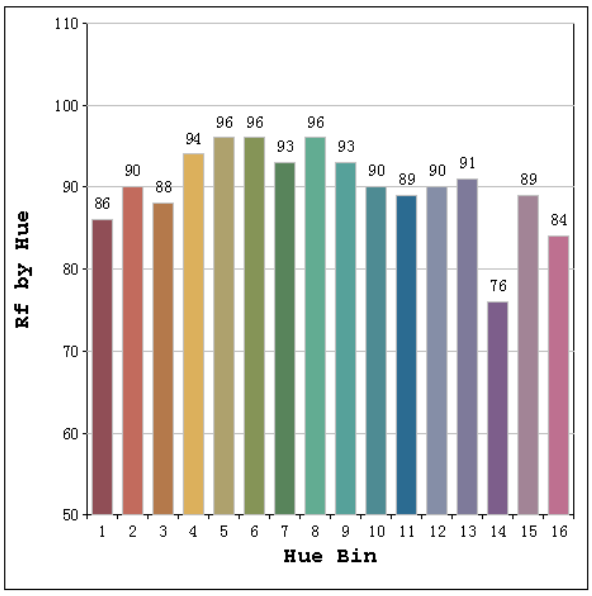
Spectral Power Distribution & Chromaticity Diagram

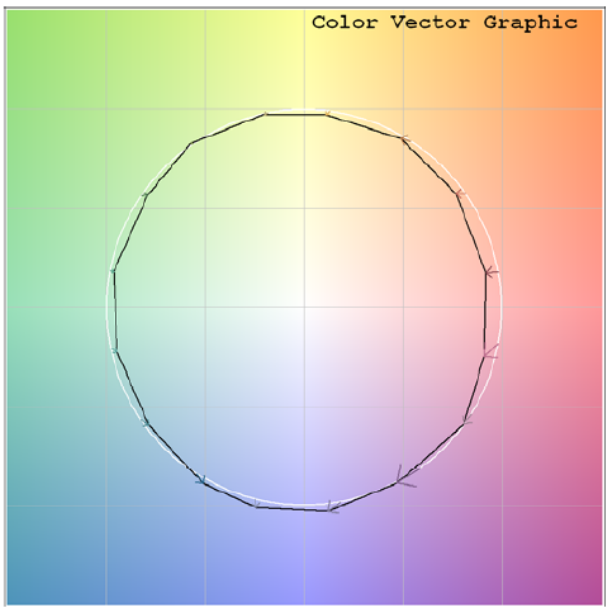


TM30







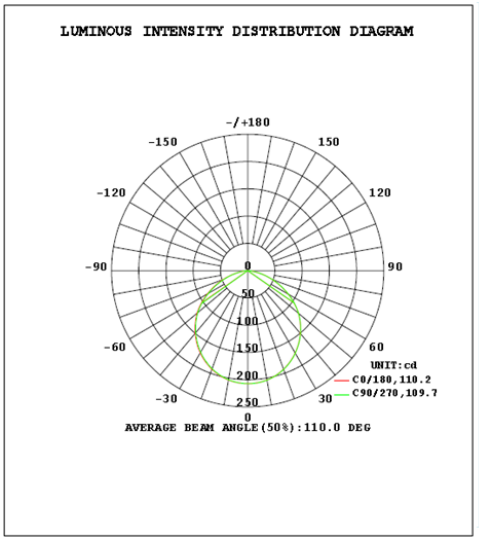


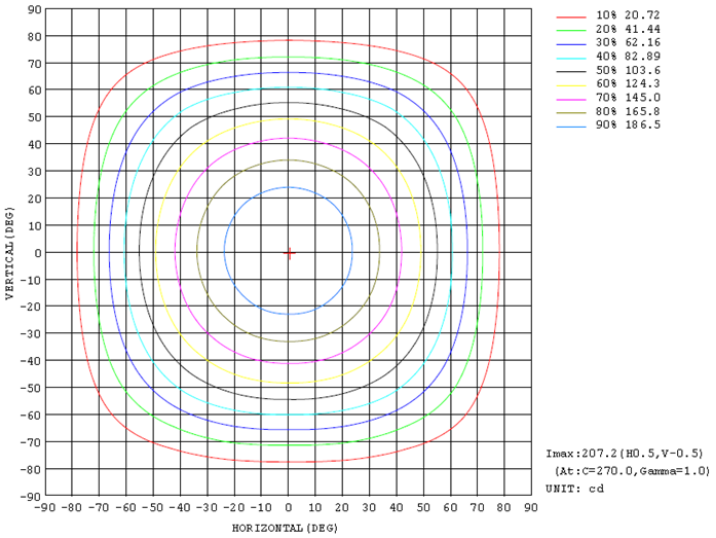
Zonal Lumen Tabulation

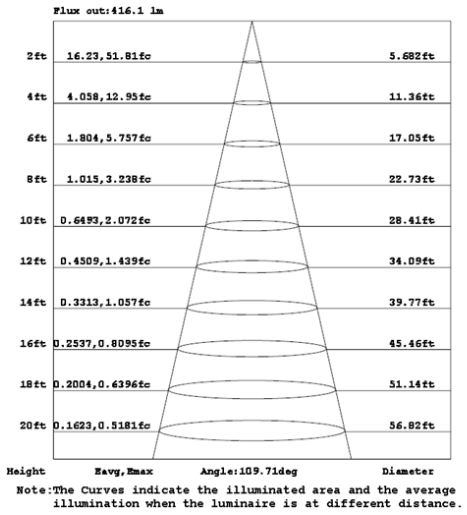
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	160.5	28.4%
0-40	262.2	46.5%
0-60	460.2	81.5%
60-90	104.2	18.5%
70-100	37.5	6.6%
90-120	0.0	0.0%
0-90	564.4	100.0%
90-180	0.0	0.0%
0-180	564.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	19.6	3.5%	90-100	0.0	0.0%
10-20	56.1	9.9%	100-110	0.0	0.0%
20-30	84.8	15.0%	110-120	0.0	0.0%
30-40	101.7	18.0%	120-130	0.0	0.0%
40-50	104.8	18.6%	130-140	0.0	0.0%
50-60	93.2	16.5%	140-150	0.0	0.0%
60-70	66.7	11.8%	150-160	0.0	0.0%
70-80	32.6	5.8%	160-170	0.0	0.0%
80-90	4.9	0.9%	170-180	0.0	0.0%

Photometric Data







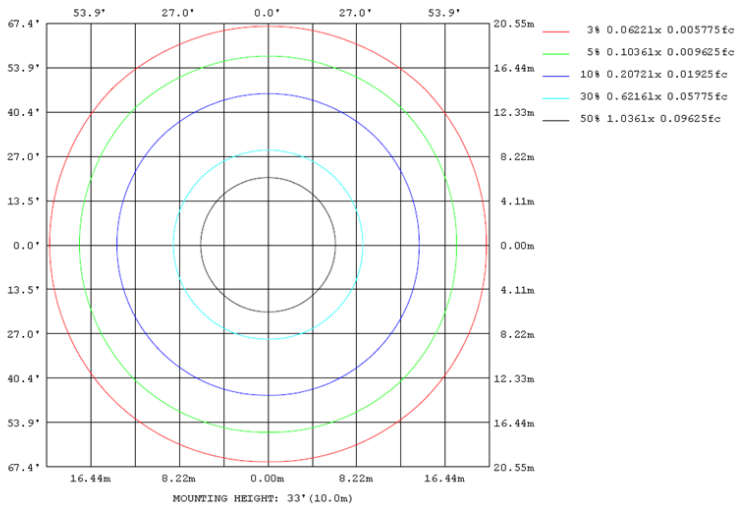


Table--1 UNIT: cd

C(DEG) / γ (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	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207			
5	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206			
10	204	204	203	203	203	203	203	203	204	204	204	204	204	204	204	204			
15	199	199	199	199	198	198	198	199	199	199	199	199	199	199	199	199			
20	192	192	192	192	191	192	192	192	192	193	193	193	193	193	193	193			
25	184	184	184	183	183	183	183	184	184	184	185	184	185	185	185	185			
30	174	174	174	173	173	173	173	174	174	174	175	174	175	175	175	175			
35	163	163	162	162	161	162	161	162	163	163	163	163	163	163	164	163			
40	150	150	149	149	148	149	148	149	150	150	151	150	151	150	151	151			
45	136	136	135	135	134	135	135	135	137	136	137	136	137	137	137	137			
50	121	121	120	120	119	120	120	121	122	121	122	121	122	122	122	122			
55	104	105	105	103	102	103	104	104	104	105	106	105	104	105	106	105			
60	85.5	86.8	87.9	85.2	83.3	84.9	87.1	85.5	85.6	86.5	89.5	86.4	85.9	86.6	89.8	87.1			
65	66.8	68.0	68.0	66.5	64.6	66.2	67.1	66.8	66.9	67.7	69.5	67.7	67.2	67.9	69.9	68.4			
70	48.2	49.6	48.0	48.1	46.2	47.9	47.1	48.5	48.4	49.2	49.4	49.2	48.7	49.5	49.9	49.9			
75	30.7	31.5	29.5	30.3	28.9	29.9	28.8	30.6	30.9	31.1	30.7	31.2	31.1	31.4	31.2	31.9			
80	14.9	15.0	13.6	14.1	13.5	13.8	13.2	14.3	15.2	14.7	14.6	14.8	15.3	15.0	15.0	15.3			
85	2.05	2.29	2.51	2.16	1.98	2.11	2.33	2.12	2.03	2.25	2.81	2.26	2.10	2.35	3.05	2.37			
90	0.21	0.21	0.22	0.22	0.21	0.21	0.22	0.21	0.20	0.21	0.20	0.21	0.20	0.22	0.20	0.23			

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2022-07-18	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0089(WFRL4S99FA120WB)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120054	120.0	60	0.074	8.80	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

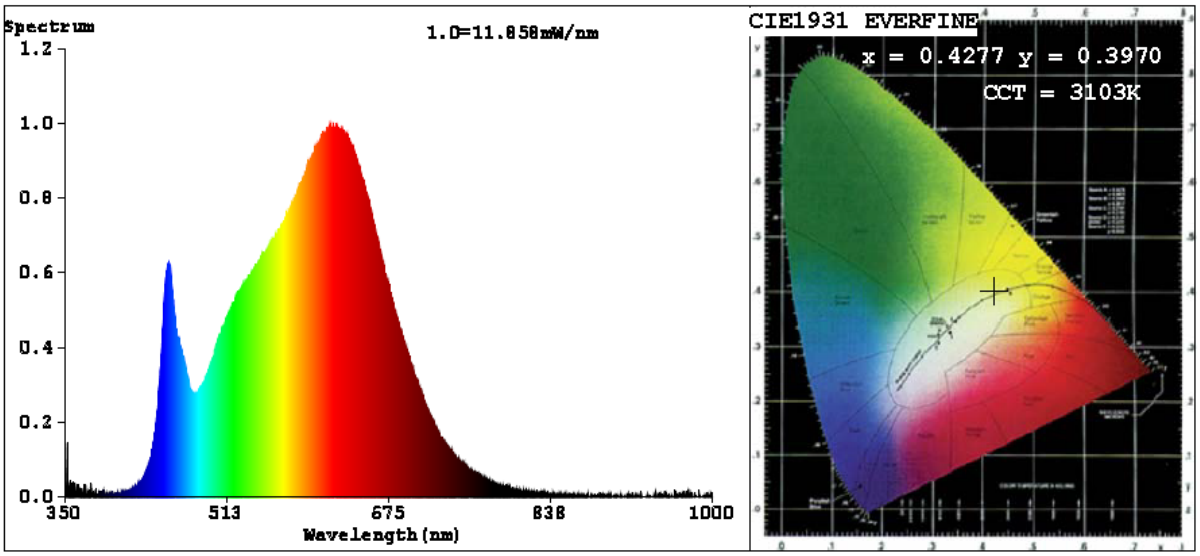
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3101
Duv	-0.0015
Chromaticity (x, y)	x=0.4277 y=0.3970
Chromaticity (u', v')	u'=0.2476 v'=0.5172
Color Rendering Index (CRI)	93.8
R9	65

Special Color Rendering Indices			
R1	95	R9	65
R2	98	R10	94
R3	99	R11	94
R4	93	R12	80
R5	94	R13	96
R6	96	R14	99
R7	92	R15	91
R8	84	--	--

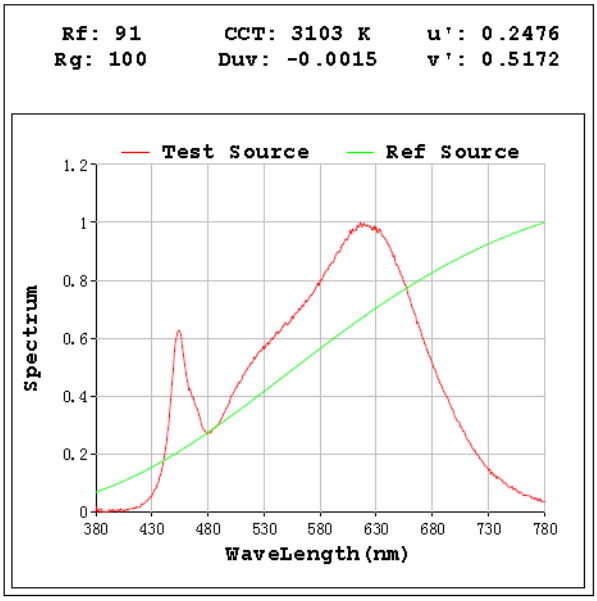
Photometric Measurement – Goniophotometer Method:

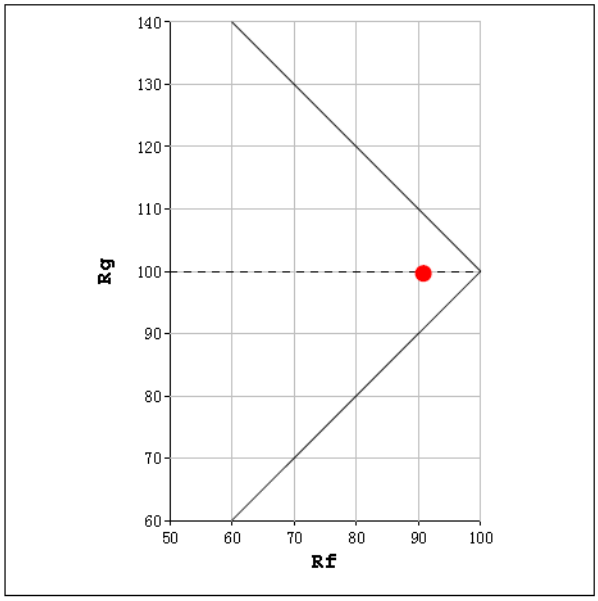
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	600.8
Luminous Efficacy (lm/W)	68.27
Beam Angle (°)	110.0
Center Beam Candle Power (cd)	220.5

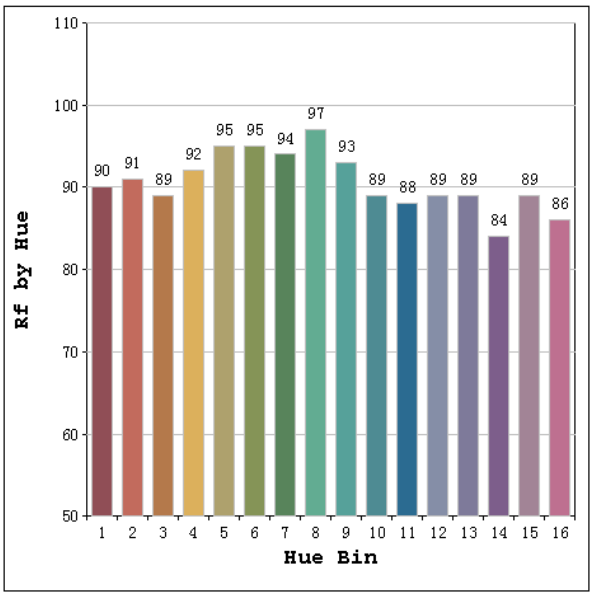
Spectral Power Distribution & Chromaticity Diagram

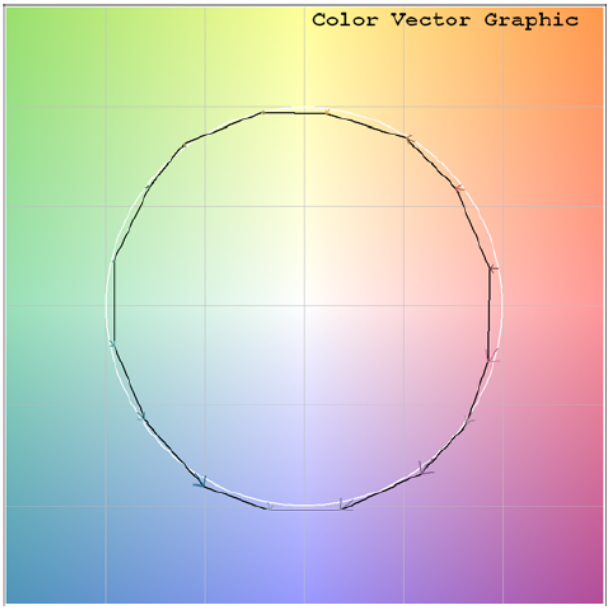


TM30







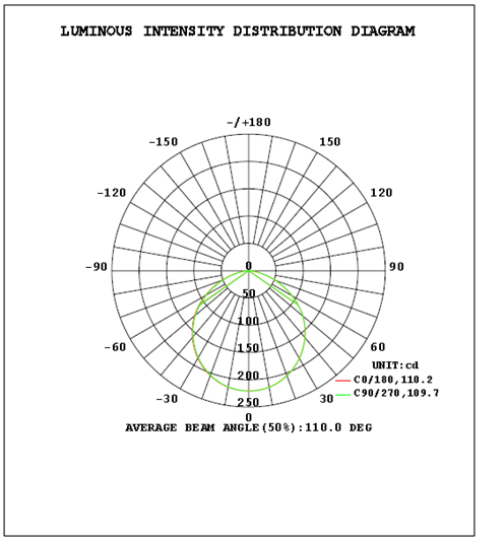


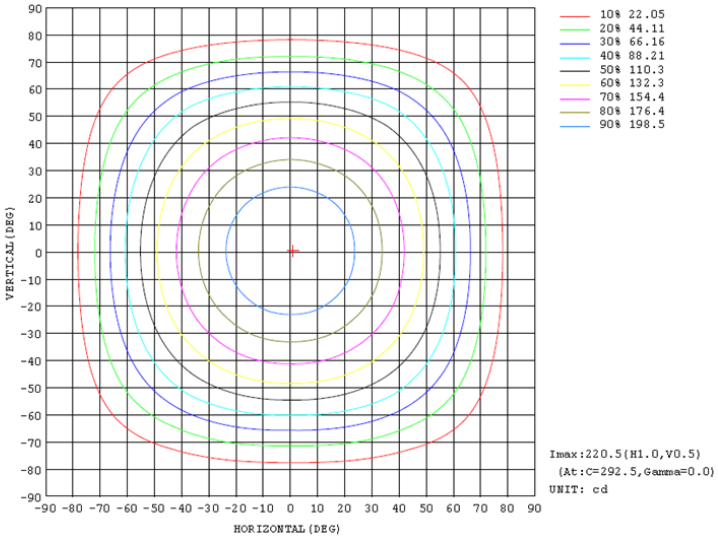
Zonal Lumen Tabulation

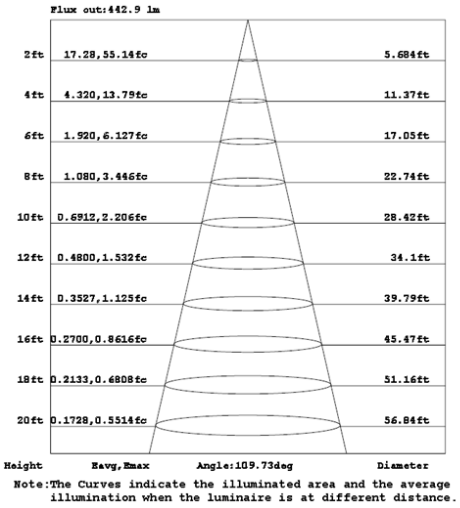
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	170.8	28.4%
0-40	279.1	46.4%
0-60	489.9	81.5%
60-90	110.9	18.5%
70-100	39.9	6.6%
90-120	0.0	0.0%
0-90	600.8	100.0%
90-180	0.0	0.0%
0-180	600.8	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	20.9	3.5%	90-100	0.0	0.0%
10-20	59.7	9.9%	100-110	0.0	0.0%
20-30	90.2	15.0%	110-120	0.0	0.0%
30-40	108.3	18.0%	120-130	0.0	0.0%
40-50	111.6	18.6%	130-140	0.0	0.0%
50-60	99.2	16.5%	140-150	0.0	0.0%
60-70	71.1	11.8%	150-160	0.0	0.0%
70-80	34.7	5.8%	160-170	0.0	0.0%
80-90	5.2	0.9%	170-180	0.0	0.0%

Photometric Data







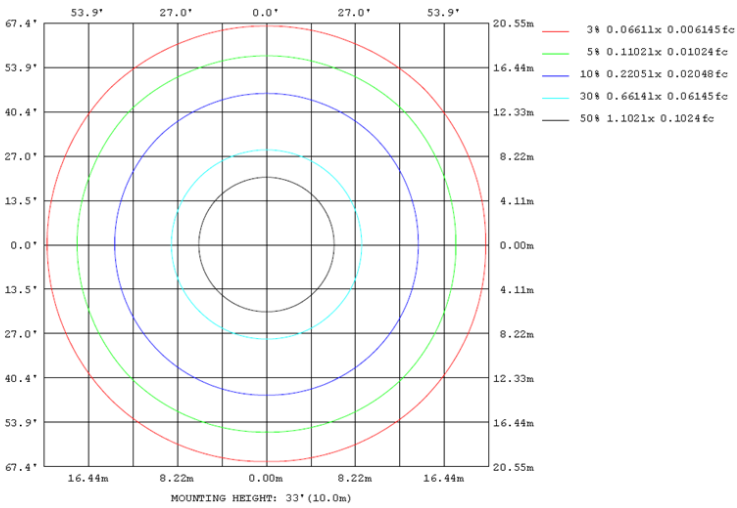


Table--1 UNIT: cd

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	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221			
5	220	220	219	219	219	219	219	219	220	220	220	220	220	220	220	220			
10	217	217	216	216	216	216	216	216	217	217	217	217	217	217	217	217			
15	212	212	211	211	211	211	211	211	212	212	212	212	212	212	212	212			
20	205	205	204	204	204	204	204	204	205	205	205	205	205	205	205	205			
25	196	196	195	195	195	195	195	195	196	196	196	196	196	196	197	197			
30	185	185	185	185	184	184	184	185	186	186	186	186	186	186	186	186			
35	173	173	172	172	172	172	172	173	173	173	174	174	174	174	174	174			
40	160	160	159	159	158	158	158	159	160	160	160	160	160	160	161	160			
45	145	145	144	144	143	143	143	144	145	145	145	145	146	145	146	146			
50	129	129	128	128	127	128	127	128	129	129	130	129	130	129	130	130			
55	111	112	111	110	108	110	111	111	111	112	113	111	111	112	113	112			
60	91.0	92.3	93.6	90.6	88.7	90.4	92.8	91.1	91.2	92.1	95.2	92.0	91.6	92.2	95.6	92.8			
65	71.1	72.4	72.4	70.7	68.8	70.5	71.5	71.2	71.2	72.1	74.0	72.1	71.5	72.3	74.4	72.8			
70	51.4	52.8	51.1	51.2	49.2	51.0	50.2	51.7	51.6	52.5	52.6	52.5	51.8	52.7	53.1	53.2			
75	32.8	33.5	31.4	32.2	30.8	31.8	30.7	32.6	32.9	33.1	32.7	33.3	33.1	33.4	33.2	33.9			
80	15.9	15.9	14.5	15.0	14.4	14.7	14.1	15.3	16.1	15.6	15.5	15.7	16.3	15.9	16.0	16.3			
85	2.18	2.45	2.68	2.31	2.10	2.24	2.50	2.27	2.16	2.40	2.98	2.41	2.23	2.52	3.24	2.53			
90	0.23	0.22	0.23	0.23	0.23	0.22	0.23	0.23	0.21	0.22	0.21	0.23	0.21	0.23	0.23	0.24			

2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2022-07-18	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0089(WFRL4S99FA120WB)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120054	120.0	60	0.073	8.67	0.978

Chromaticity Measurement - Sphere-Spectroradiometer Method:

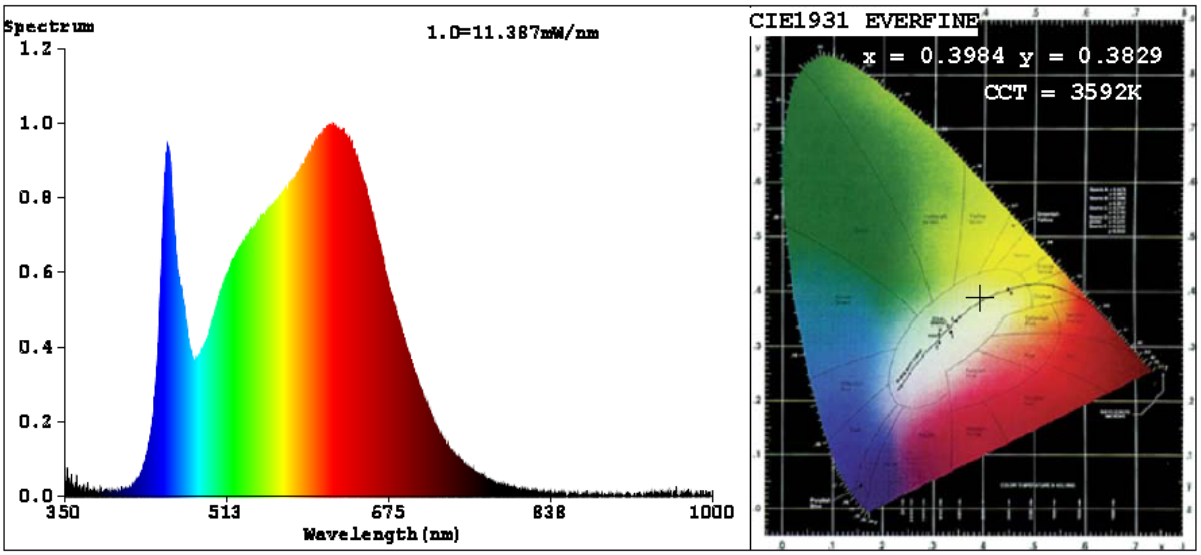
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3592
Duv	-0.0019
Chromaticity (x, y)	x=0.3984 y=0.3829
Chromaticity (u', v')	u'=0.2345 v'=0.5069
Color Rendering Index (CRI)	94.9
R9	74

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	88	--	--

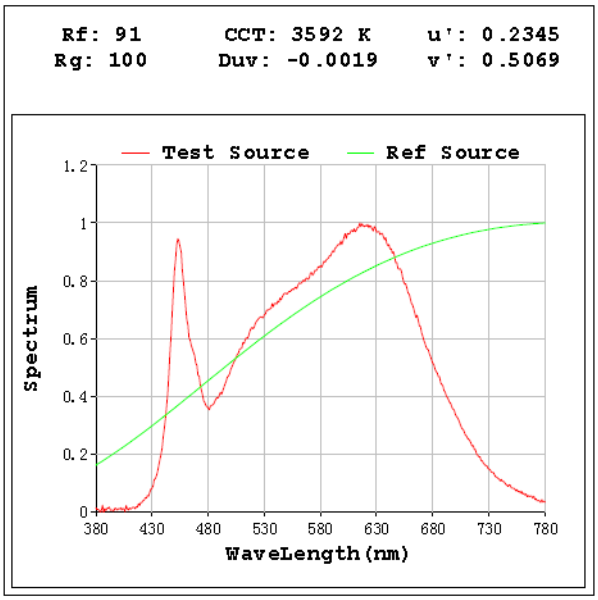
Photometric Measurement – Goniophotometer Method:

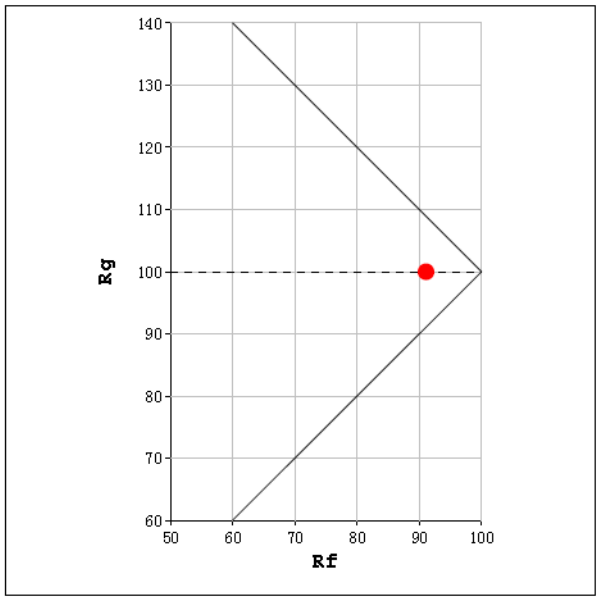
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	635.7
Luminous Efficacy (lm/W)	73.32
Beam Angle (°)	110.0
Center Beam Candle Power (cd)	233.3

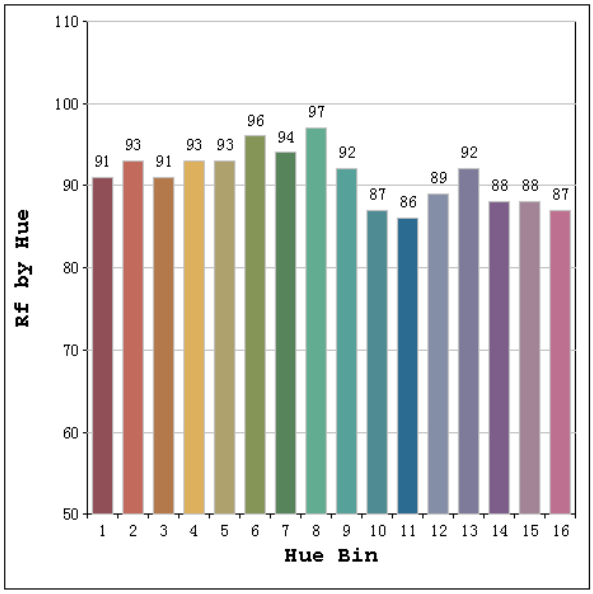
Spectral Power Distribution & Chromaticity Diagram

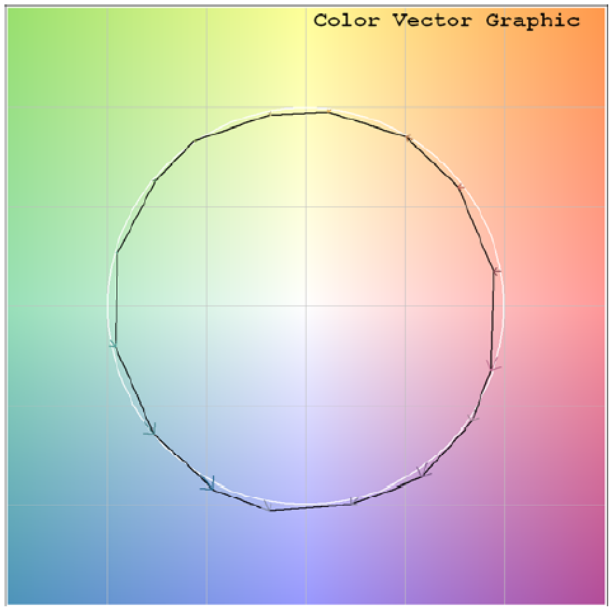


TM30







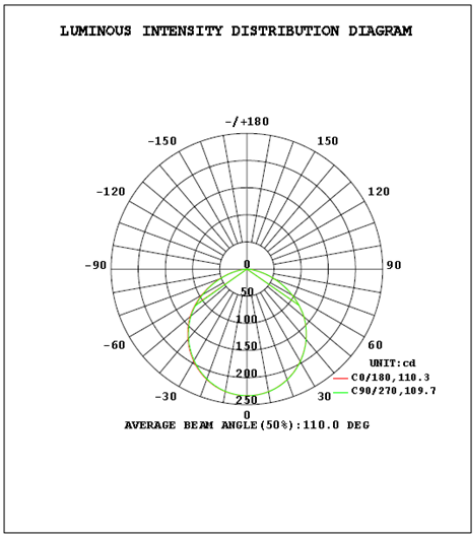


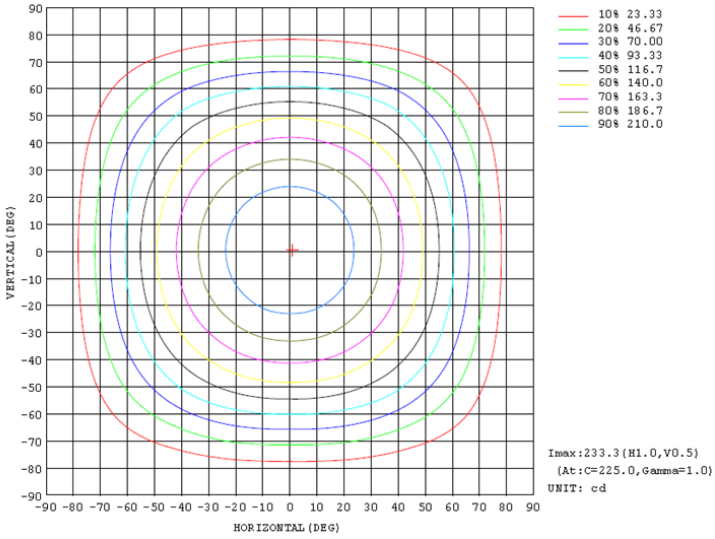
Zonal Lumen Tabulation

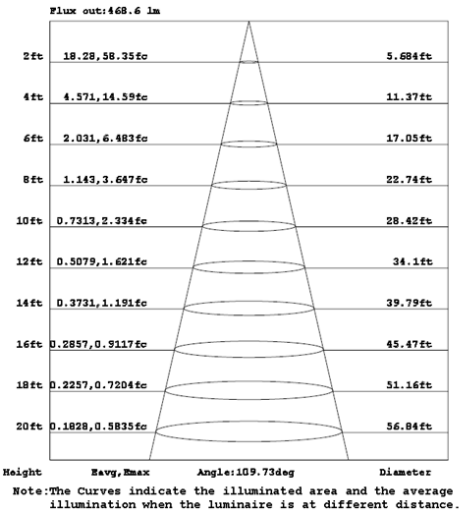
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	180.7	28.4%
0-40	295.3	46.4%
0-60	518.3	81.5%
60-90	117.4	18.5%
70-100	42.2	6.6%
90-120	0.0	0.0%
0-90	635.7	100.0%
90-180	0.0	0.0%
0-180	635.7	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.1	3.5%	90-100	0.0	0.0%
10-20	63.2	9.9%	100-110	0.0	0.0%
20-30	95.5	15.0%	110-120	0.0	0.0%
30-40	114.5	18.0%	120-130	0.0	0.0%
40-50	118.1	18.6%	130-140	0.0	0.0%
50-60	105.0	16.5%	140-150	0.0	0.0%
60-70	75.2	11.8%	150-160	0.0	0.0%
70-80	36.7	5.8%	160-170	0.0	0.0%
80-90	5.5	0.9%	170-180	0.0	0.0%

Photometric Data







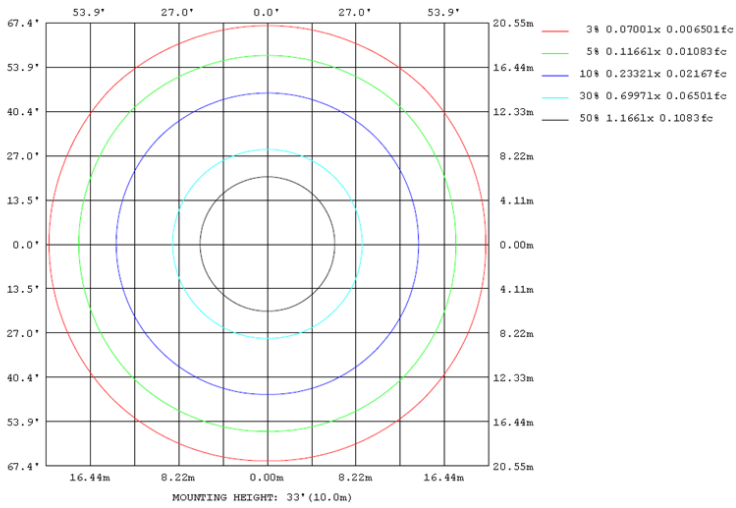


Table--1 UNIT: cd

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	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233			
5	232	232	232	232	232	232	232	232	232	232	233	232	232	232	233	232			
10	229	229	229	229	229	229	229	229	229	229	230	229	230	230	230	229			
15	224	224	224	224	223	223	223	224	224	224	225	224	224	224	225	224			
20	217	217	216	216	215	216	216	216	217	217	217	217	217	217	217	217			
25	207	207	207	206	206	206	206	207	207	208	208	208	208	208	208	208			
30	196	196	195	195	194	195	195	196	196	196	197	197	197	197	197	197			
35	183	183	182	182	181	182	182	183	184	184	184	184	184	184	184	184			
40	169	169	168	168	167	168	167	168	169	169	170	169	170	169	170	170			
45	153	153	152	152	151	152	152	153	154	154	154	154	154	154	154	154			
50	137	137	135	135	134	135	135	136	137	137	137	137	137	137	137	137			
55	117	118	118	116	115	116	117	117	117	118	120	118	118	118	120	119			
60	96.2	97.7	99.0	95.9	93.8	95.7	98.1	96.5	96.5	97.6	101	97.4	96.9	97.6	101	98.1			
65	75.1	76.6	76.6	74.8	72.7	74.6	75.7	75.3	75.4	76.4	78.3	76.3	75.8	76.6	78.8	77.0			
70	54.3	55.8	54.0	54.1	52.0	53.9	53.2	54.7	54.6	55.6	55.7	55.5	54.9	55.8	56.2	56.2			
75	34.6	35.4	33.1	34.1	32.5	33.7	32.5	34.6	34.9	35.1	34.7	35.2	35.1	35.4	35.2	35.8			
80	16.7	16.8	15.3	15.9	15.2	15.6	14.8	16.2	17.1	16.5	16.5	16.7	17.3	16.9	17.0	17.2			
85	2.29	2.59	2.81	2.44	2.22	2.38	2.62	2.41	2.30	2.54	3.17	2.55	2.38	2.67	3.45	2.68			
90	0.26	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.22	0.23	0.23	0.24	0.22	0.24	0.23	0.26			

2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2022-07-18	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0089(WFRL4S99FA120WB)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120054	120.0	60	0.074	8.72	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

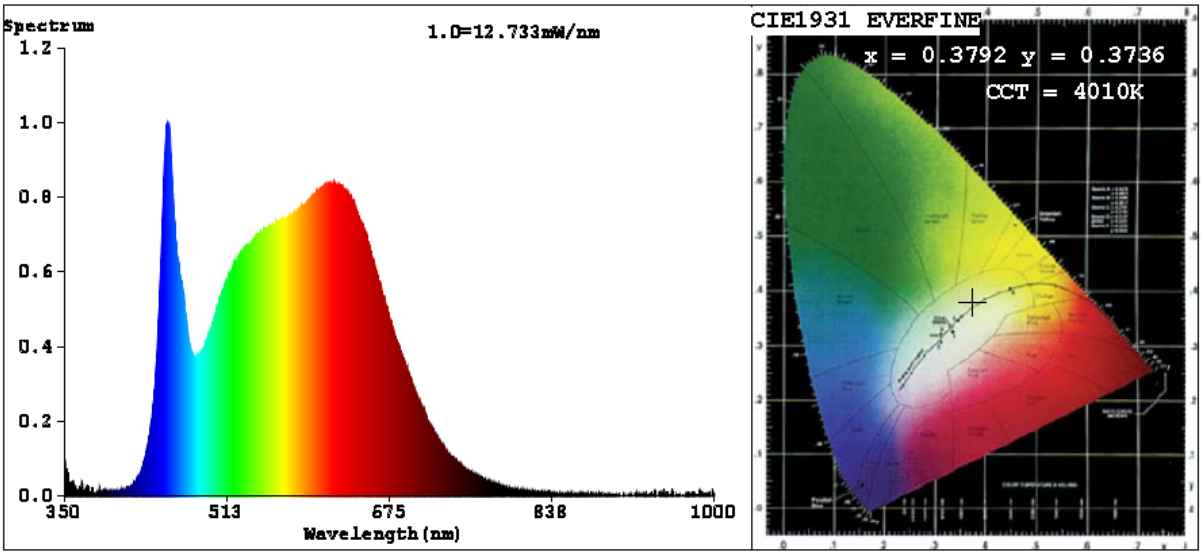
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4010
Duv	-0.0011
Chromaticity (x, y)	x=0.3792 y=0.3736
Chromaticity (u', v')	u'=0.2256 v'=0.5000
Color Rendering Index (CRI)	94.9
R9	77

Special Color Rendering Indices			
R1	96	R9	77
R2	98	R10	93
R3	97	R11	94
R4	94	R12	72
R5	94	R13	97
R6	94	R14	98
R7	95	R15	94
R8	90	--	--

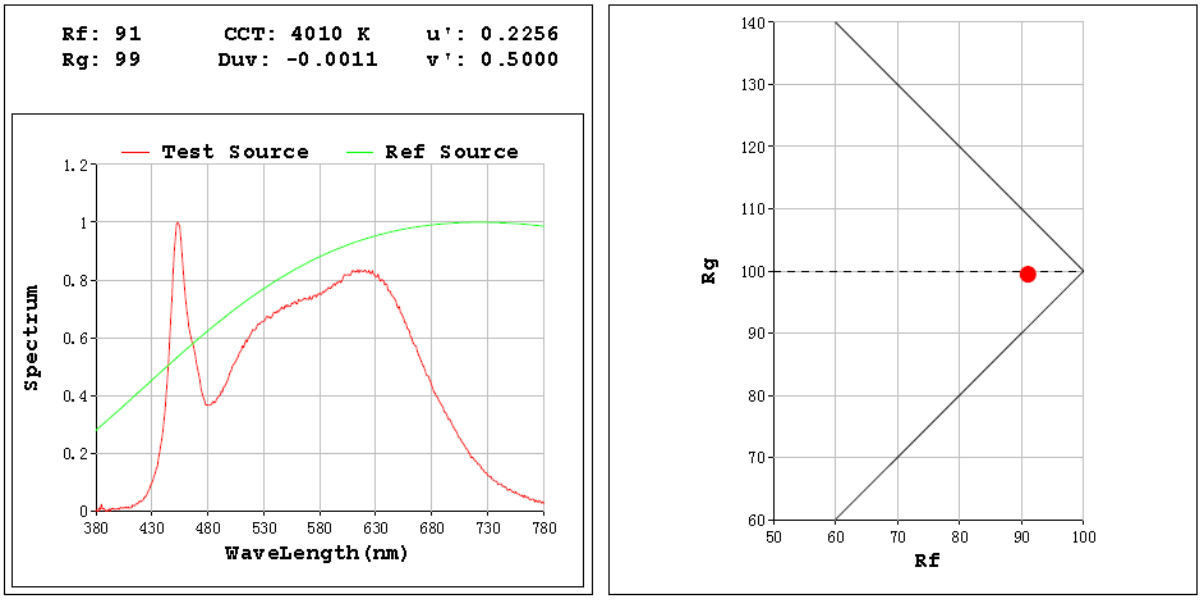
Photometric Measurement – Goniophotometer Method:

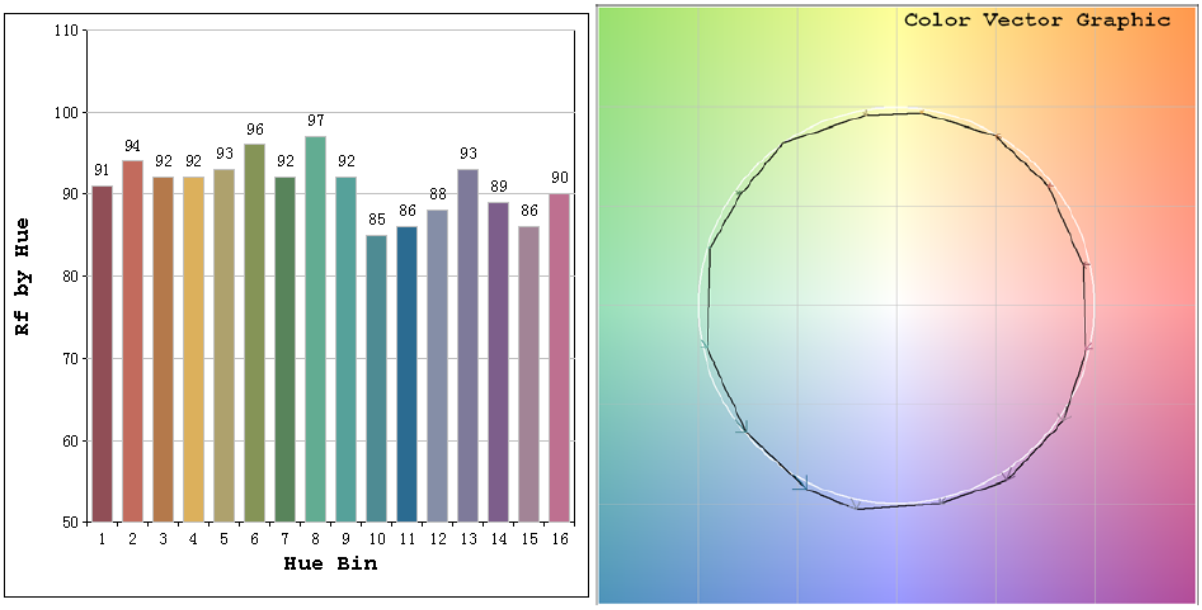
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	648.4
Luminous Efficacy (lm/W)	74.35
Beam Angle (°)	110.0
Center Beam Candle Power (cd)	238.0

Spectral Power Distribution & Chromaticity Diagram



TM30



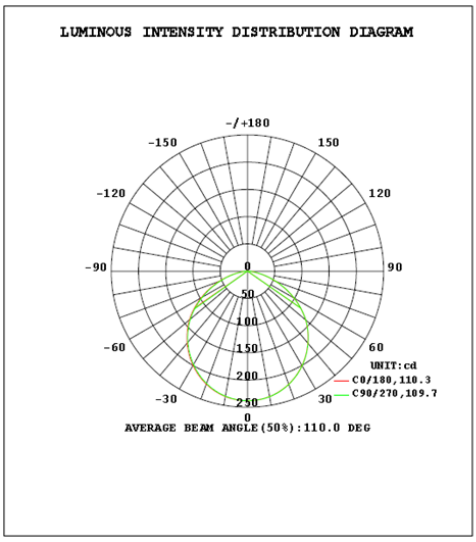


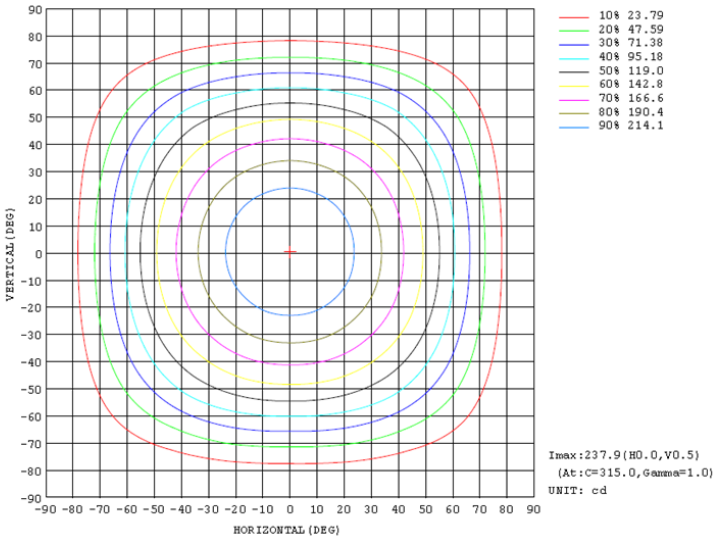
Zonal Lumen Tabulation

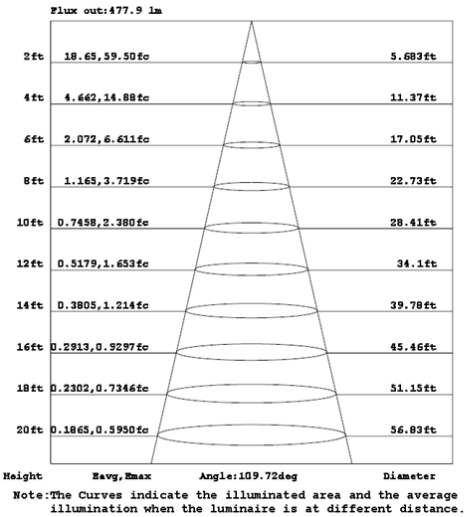
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	184.3	28.4%
0-40	301.1	46.4%
0-60	528.6	81.5%
60-90	119.7	18.5%
70-100	43.0	6.6%
90-120	0.0	0.0%
0-90	648.4	100.0%
90-180	0.0	0.0%
0-180	648.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.5	3.5%	90-100	0.0	0.0%
10-20	64.4	9.9%	100-110	0.0	0.0%
20-30	97.4	15.0%	110-120	0.0	0.0%
30-40	116.8	18.0%	120-130	0.0	0.0%
40-50	120.4	18.6%	130-140	0.0	0.0%
50-60	107.1	16.5%	140-150	0.0	0.0%
60-70	76.7	11.8%	150-160	0.0	0.0%
70-80	37.5	5.8%	160-170	0.0	0.0%
80-90	5.6	0.9%	170-180	0.0	0.0%

Photometric Data







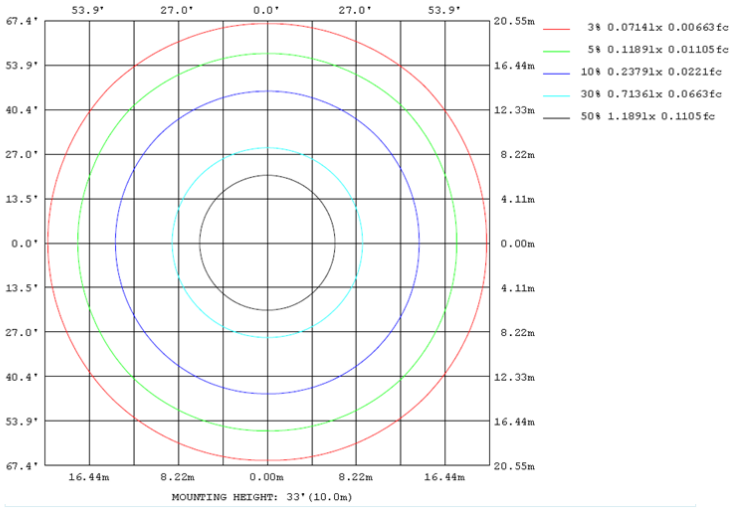


Table--1 UNIT: cd

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	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238			
5	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237	237			
10	234	234	233	233	233	233	233	234	234	234	234	234	234	234	234	234			
15	228	228	228	228	227	228	228	228	229	229	229	229	229	229	229	229			
20	221	221	220	220	220	220	220	221	221	221	222	221	221	221	222	221			
25	211	211	211	211	210	210	210	211	212	212	212	212	212	212	212	212			
30	200	200	199	199	198	199	199	200	200	200	201	201	201	201	201	201			
35	187	187	186	186	185	185	185	186	187	187	188	187	188	187	188	188			
40	172	172	171	171	170	171	171	172	173	173	173	173	173	173	173	173			
45	157	156	155	155	154	155	155	156	157	157	157	157	157	157	157	157			
50	139	139	138	138	137	138	137	139	140	140	140	140	140	140	140	140			
55	119	121	120	119	117	118	119	119	120	120	122	120	120	120	122	121			
60	98.1	99.6	101	97.8	95.7	97.5	100	98.4	98.6	99.5	103	99.3	98.8	99.5	103	100			
65	76.6	78.1	78.1	76.3	74.2	76.1	77.2	77.0	77.0	78.0	79.9	77.9	77.3	78.1	80.4	78.6			
70	55.4	56.9	55.1	55.2	53.0	55.0	54.2	55.8	55.8	56.7	56.8	56.7	56.0	56.9	57.3	57.3			
75	35.3	36.1	33.8	34.8	33.2	34.4	33.1	35.3	35.6	35.8	35.4	36.0	35.8	36.1	35.9	36.5			
80	17.0	17.1	15.6	16.2	15.5	15.9	15.2	16.5	17.4	16.9	16.8	17.0	17.6	17.2	17.3	17.6			
85	2.34	2.64	2.85	2.48	2.28	2.43	2.67	2.46	2.34	2.58	3.23	2.60	2.42	2.71	3.51	2.73			
90	0.25	0.24	0.26	0.24	0.25	0.24	0.26	0.25	0.22	0.24	0.23	0.24	0.23	0.24	0.24	0.26			

2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2022-07-18	Test Ambient:	25.3 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0089(WFRL4S99FA120WB)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120054	120.0	60	0.075	8.90	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

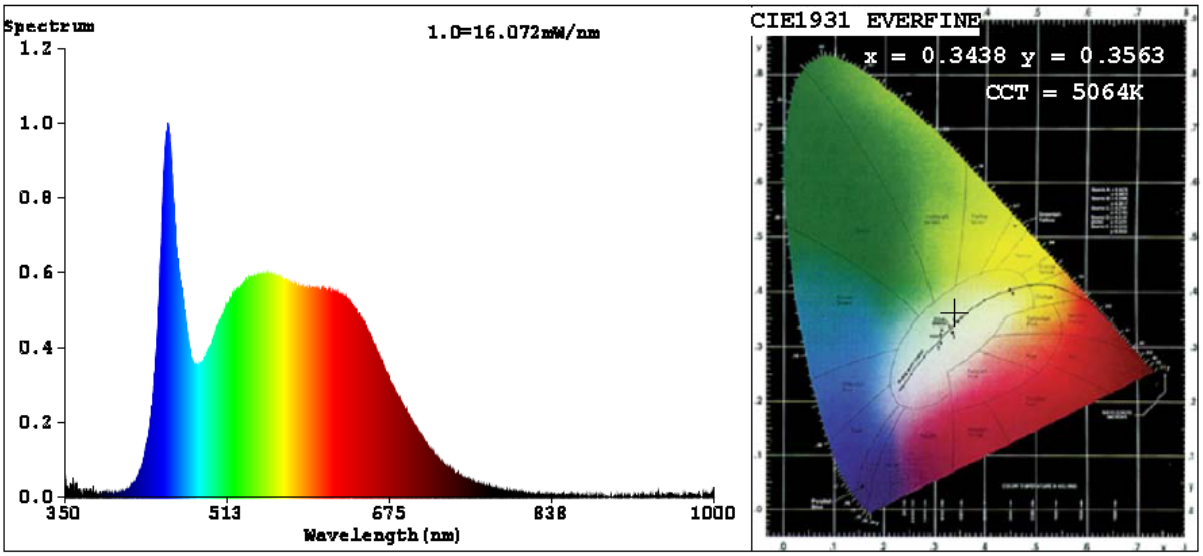
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5064
Duv	0.0028
Chromaticity (x, y)	x=0.3438 y=0.3563
Chromaticity (u', v')	u'=0.2088 v'=0.4867
Color Rendering Index (CRI)	92.9
R9	70

Special Color Rendering Indices			
R1	93	R9	70
R2	95	R10	87
R3	95	R11	92
R4	92	R12	70
R5	92	R13	94
R6	92	R14	97
R7	95	R15	92
R8	89	--	--

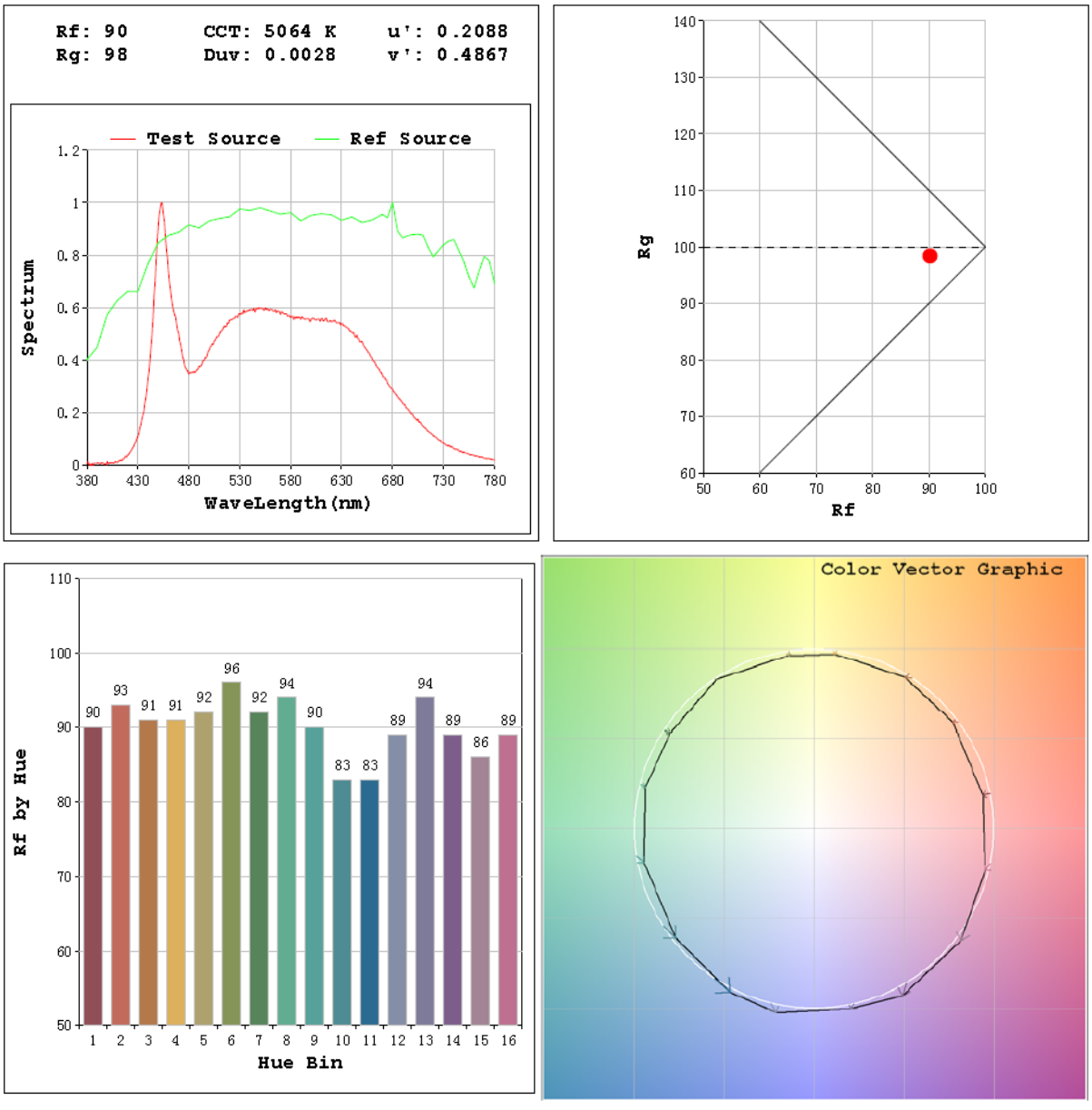
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	639.5
Luminous Efficacy (lm/W)	71.85
Beam Angle (°)	110.0
Center Beam Candle Power (cd)	234.7

Spectral Power Distribution & Chromaticity Diagram



TM30

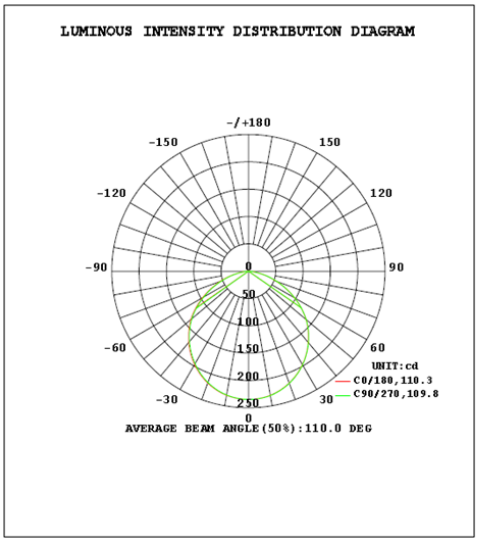


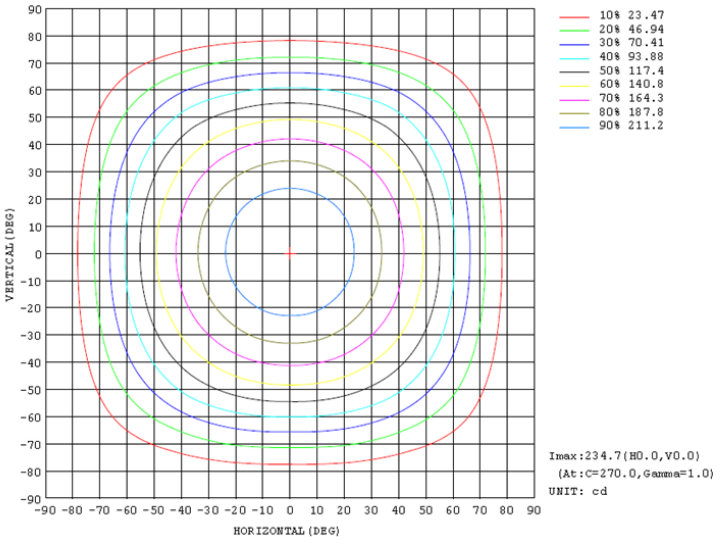
Zonal Lumen Tabulation

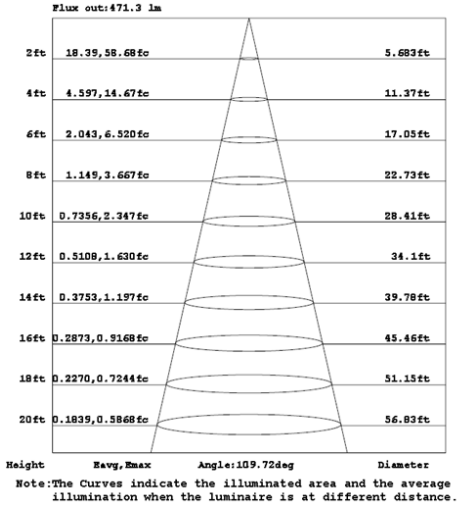
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	181.8	28.4%
0-40	297.0	46.4%
0-60	521.3	81.5%
60-90	118.1	18.5%
70-100	42.5	6.6%
90-120	0.0	0.0%
0-90	639.5	100.0%
90-180	0.0	0.0%
0-180	639.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.2	3.5%	90-100	0.0	0.0%
10-20	63.6	9.9%	100-110	0.0	0.0%
20-30	96.0	15.0%	110-120	0.0	0.0%
30-40	115.2	18.0%	120-130	0.0	0.0%
40-50	118.8	18.6%	130-140	0.0	0.0%
50-60	105.6	16.5%	140-150	0.0	0.0%
60-70	75.7	11.8%	150-160	0.0	0.0%
70-80	36.9	5.8%	160-170	0.0	0.0%
80-90	5.5	0.9%	170-180	0.0	0.0%

Photometric Data







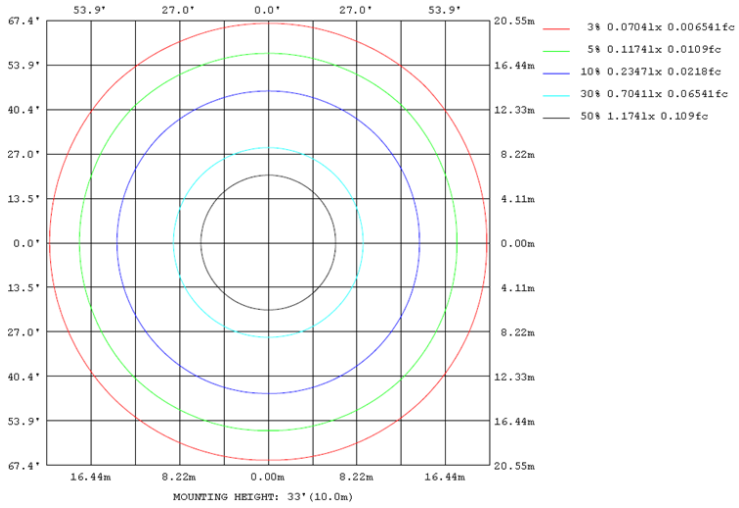
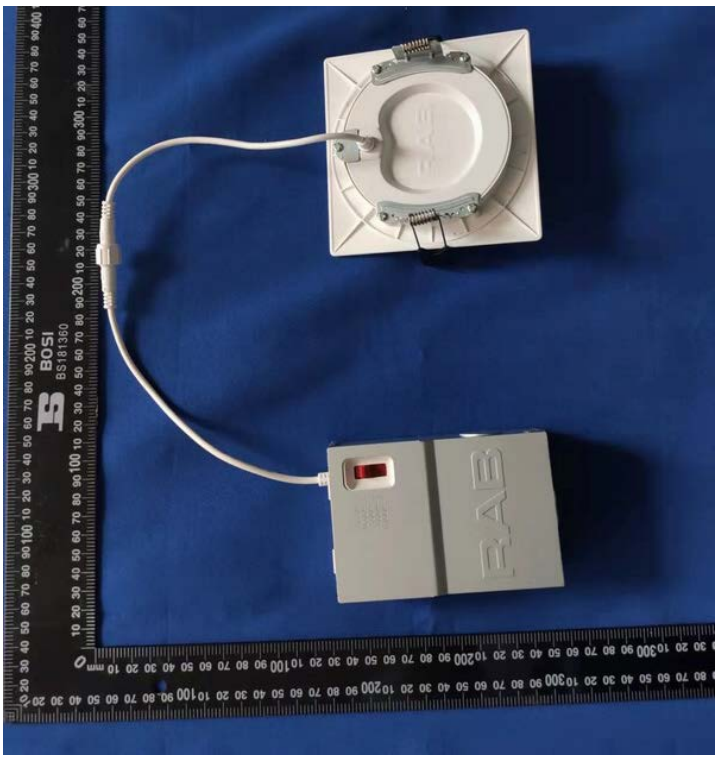
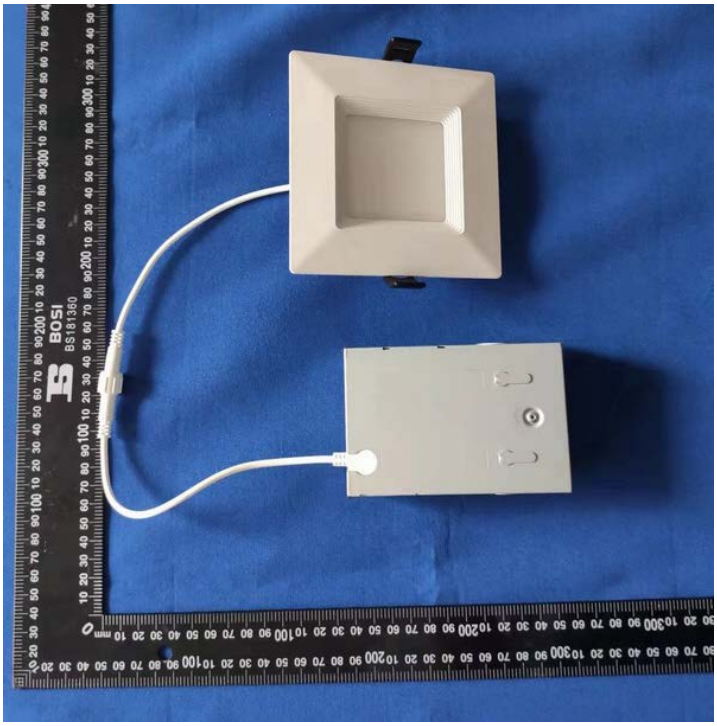


Table--1 UNIT: cd

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	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235			
5	234	234	233	233	233	233	233	233	234	234	234	234	234	234	234	234			
10	231	230	230	230	230	230	230	230	231	231	231	231	231	231	231	231			
15	225	225	225	225	224	225	225	225	225	225	226	226	226	226	226	226			
20	218	218	217	217	217	217	217	217	218	218	219	218	218	218	219	218			
25	208	208	208	208	207	207	207	208	209	209	209	209	209	209	209	209			
30	197	197	196	196	195	196	196	197	197	198	198	198	198	198	198	198			
35	184	184	183	183	182	183	183	184	185	185	185	185	185	185	185	185			
40	170	170	169	169	168	168	168	169	170	170	171	170	171	170	171	171			
45	154	154	153	153	152	153	152	154	155	155	155	155	155	155	155	155			
50	137	138	136	136	135	136	136	137	138	138	138	138	138	138	138	138			
55	118	119	119	117	115	117	118	118	118	119	120	119	118	119	121	119			
60	96.8	98.3	99.6	96.5	94.4	96.2	98.7	97.0	97.3	98.2	101	98.0	97.4	98.2	102	98.7			
65	75.5	77.0	77.1	75.3	73.2	75.0	76.2	75.9	76.0	76.9	78.9	76.8	76.3	77.0	79.3	77.5			
70	54.6	56.2	54.3	54.4	52.4	54.2	53.6	55.1	55.0	56.0	56.1	55.9	55.2	56.1	56.5	56.5			
75	34.8	35.6	33.3	34.3	32.8	33.9	32.7	34.8	35.2	35.3	34.9	35.5	35.3	35.6	35.4	36.0			
80	16.8	16.9	15.3	16.0	15.3	15.7	15.0	16.3	17.2	16.7	16.6	16.8	17.4	17.0	17.0	17.3			
85	2.30	2.60	2.82	2.45	2.24	2.39	2.64	2.43	2.30	2.56	3.19	2.58	2.38	2.68	3.46	2.69			
90	0.24	0.24	0.26	0.24	0.24	0.23	0.24	0.24	0.23	0.24	0.22	0.24	0.23	0.24	0.23	0.25			

3. Product Photo





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