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): DLW0087(WFRLA6R129FA120WS)

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	12.0 W
Rated Initial Lamp Lumen	950 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	DLW0087(WFRLA6R129FA120WS)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120055	120.0	60	0.096	11.40	0.985

Chromaticity Measurement - Sphere-Spectroradiometer Method:

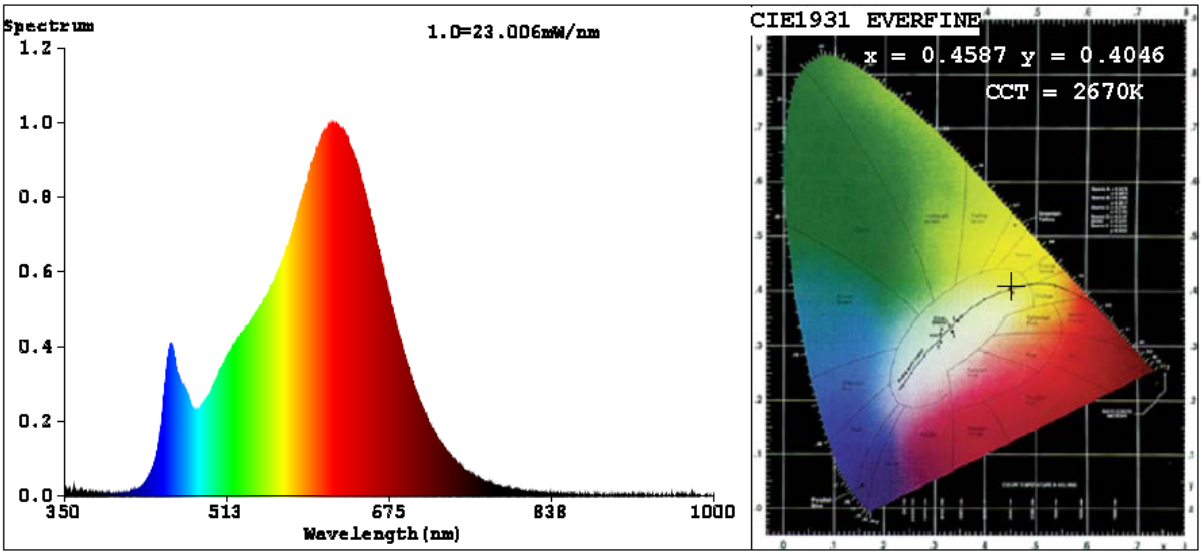
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2670
Duv	-0.0021
Chromaticity (x, y)	x=0.4587 y=0.4046
Chromaticity (u', v')	u'=0.2644 v'=0.5249
Color Rendering Index (CRI)	91.9
R9	55

Special Color Rendering Indices			
R1	94	R9	55
R2	99	R10	98
R3	95	R11	94
R4	92	R12	85
R5	94	R13	96
R6	95	R14	98
R7	88	R15	89
R8	77	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1027.6
Luminous Efficacy (lm/W)	90.14
Beam Angle (°)	113.2
Center Beam Candle Power (cd)	356.6

Spectral Power Distribution & Chromaticity Diagram



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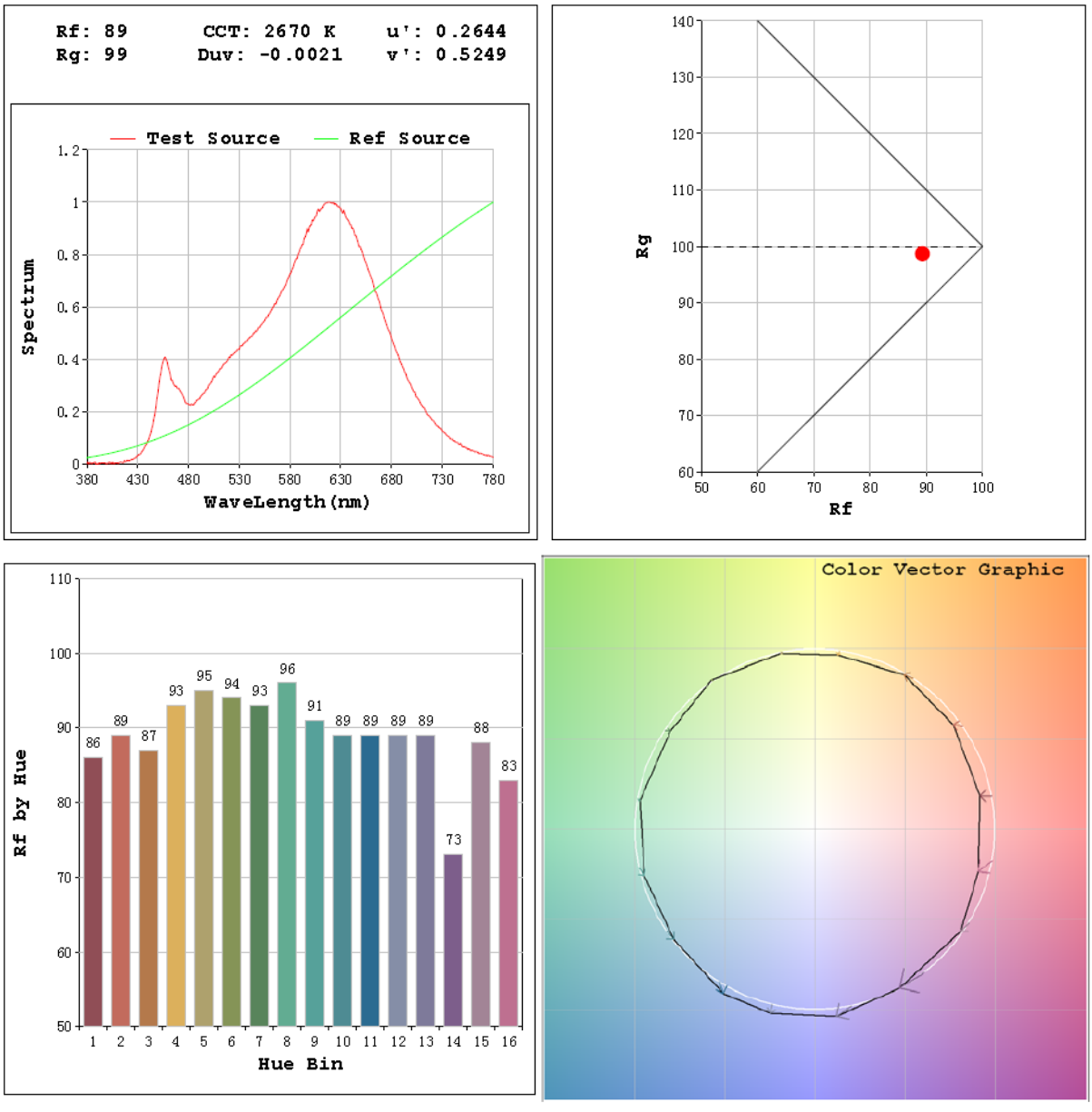
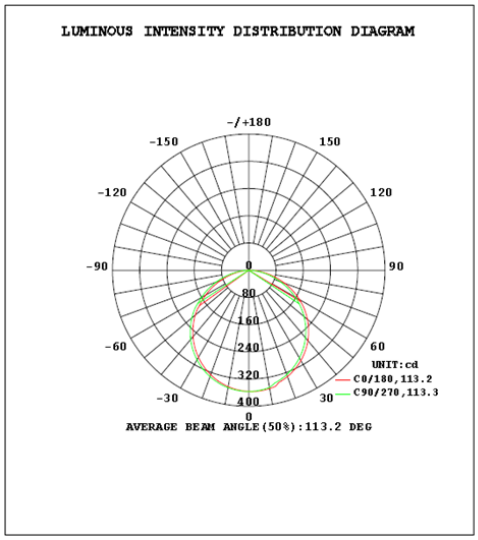


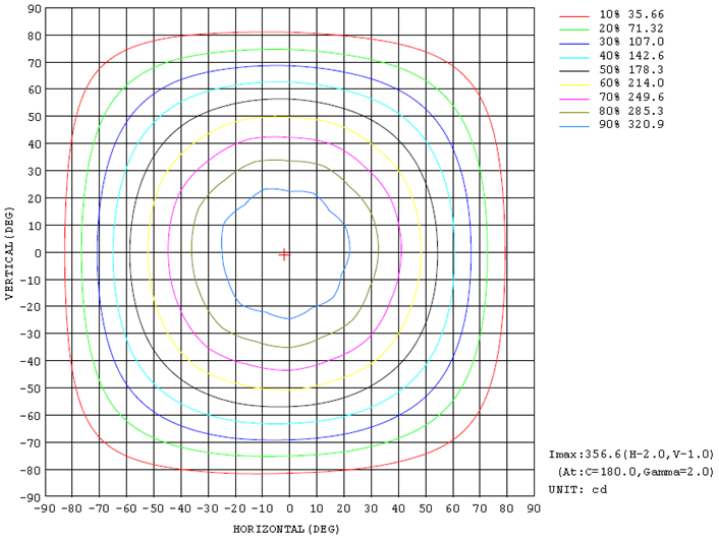
Zonal Lumen Tabulation

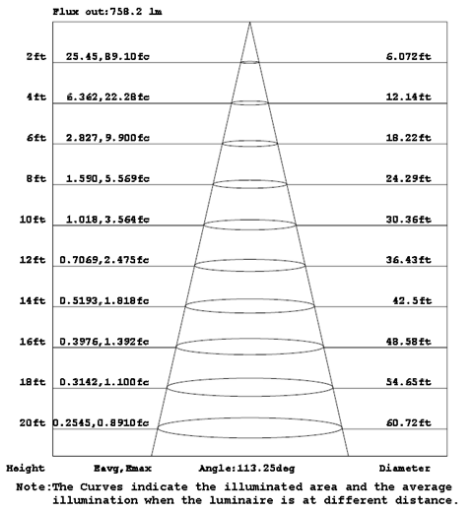
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	275.7	26.8%
0-40	452.6	44.0%
0-60	805.3	78.4%
60-90	222.3	21.6%
70-100	93.7	9.1%
90-120	0.0	0.0%
0-90	1027.6	100.0%
90-180	0.0	0.0%
0-180	1027.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	33.7	3.3%	90-100	0.0	0.0%
10-20	96.1	9.4%	100-110	0.0	0.0%
20-30	145.9	14.2%	110-120	0.0	0.0%
30-40	176.9	17.2%	120-130	0.0	0.0%
40-50	184.8	18.0%	130-140	0.0	0.0%
50-60	167.9	16.3%	140-150	0.0	0.0%
60-70	128.6	12.5%	150-160	0.0	0.0%
70-80	74.2	7.2%	160-170	0.0	0.0%
80-90	19.5	1.9%	170-180	0.0	0.0%

Photometric Data







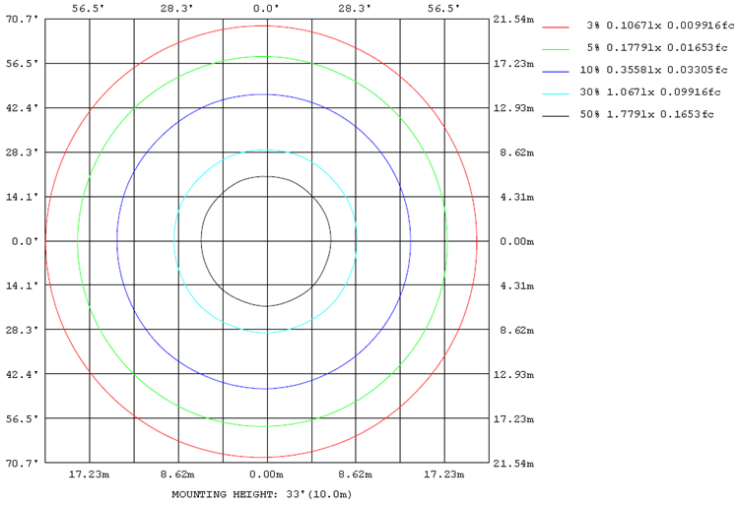


Table--1 UNIT: cd

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	356	356	356	356	356	356	356	356	356	356	356	356	356	356	356	356			
5	353	354	354	354	355	356	356	356	356	356	356	355	355	354	354	353			
10	347	345	348	350	350	352	352	353	353	352	352	351	350	349	345	348			
15	339	334	340	336	343	339	346	341	341	346	340	343	337	341	334	339			
20	327	323	329	326	333	330	336	332	332	337	330	333	326	330	323	327			
25	312	309	315	313	320	317	324	320	321	325	318	320	313	316	309	313			
30	295	292	299	297	304	302	309	306	306	310	303	305	298	299	293	296			
35	276	273	280	279	286	285	292	289	289	292	286	287	279	280	274	277			
40	255	252	259	258	265	265	272	269	270	272	266	266	259	259	253	255			
45	231	229	235	236	243	243	250	248	248	250	244	244	236	236	230	232			
50	205	204	210	211	218	219	226	224	225	226	220	219	212	211	205	206			
55	175	177	180	185	192	194	200	199	199	200	194	192	185	180	178	176			
60	147	149	152	157	161	166	169	171	172	169	167	162	158	152	150	147			
65	117	120	123	128	132	137	140	142	143	140	138	133	128	123	120	118			
70	87.3	90.1	92.7	98.0	102	107	109	112	112	110	107	103	98.6	93.3	90.4	88.1			
75	58.3	60.9	63.5	68.4	71.9	76.6	78.8	80.9	81.3	78.9	77.0	72.3	68.9	64.0	61.2	59.0			
80	31.7	33.9	36.2	40.4	43.3	47.3	49.2	50.9	51.4	49.1	47.5	43.5	40.7	36.6	34.2	32.3			
85	8.95	10.7	12.2	15.4	17.6	20.7	22.1	23.4	23.8	22.0	20.8	17.7	15.6	12.5	10.8	9.32			
90	0.49	0.49	0.49	0.55	0.67	0.83	1.11	0.98	1.03	0.96	0.85	0.71	0.55	0.47	0.47	0.47			

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	DLW0087(WFRLA6R129FA120WS)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120055	120.0	60	0.095	11.20	0.985

Chromaticity Measurement - Sphere-Spectroradiometer Method:

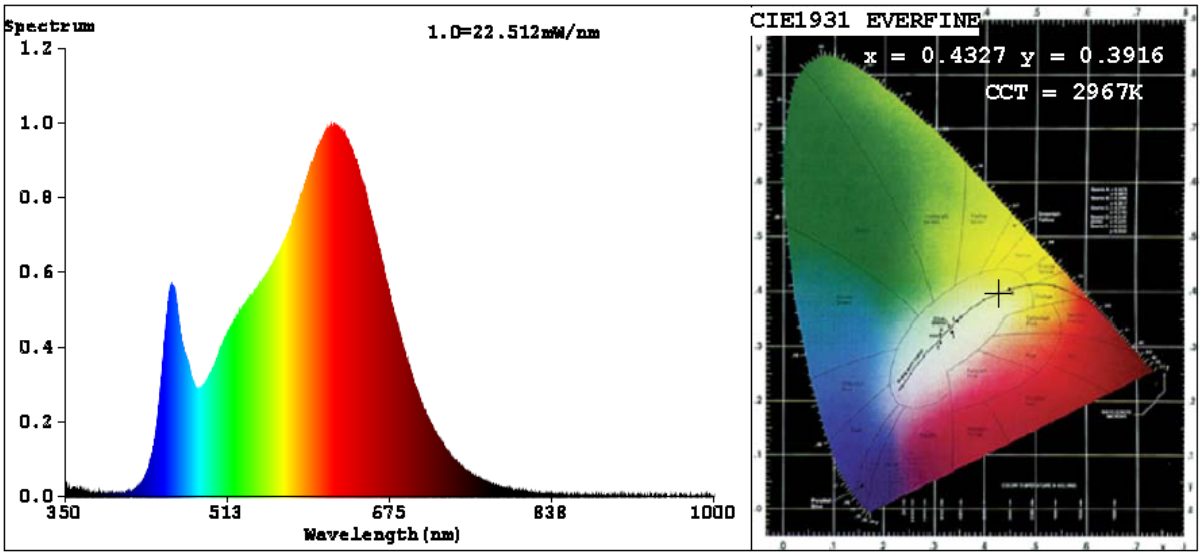
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3134
Duv	-0.0027
Chromaticity (x, y)	x=0.4241 y=0.3928
Chromaticity (u', v')	u'=0.2471 v'=0.5149
Color Rendering Index (CRI)	94.1
R9	68

Special Color Rendering Indices			
R1	96	R9	68
R2	99	R10	96
R3	98	R11	94
R4	93	R12	79
R5	95	R13	97
R6	96	R14	100
R7	92	R15	93
R8	85	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1077.6
Luminous Efficacy (lm/W)	96.22
Beam Angle (°)	113.7
Center Beam Candle Power (cd)	373.4

Spectral Power Distribution & Chromaticity Diagram



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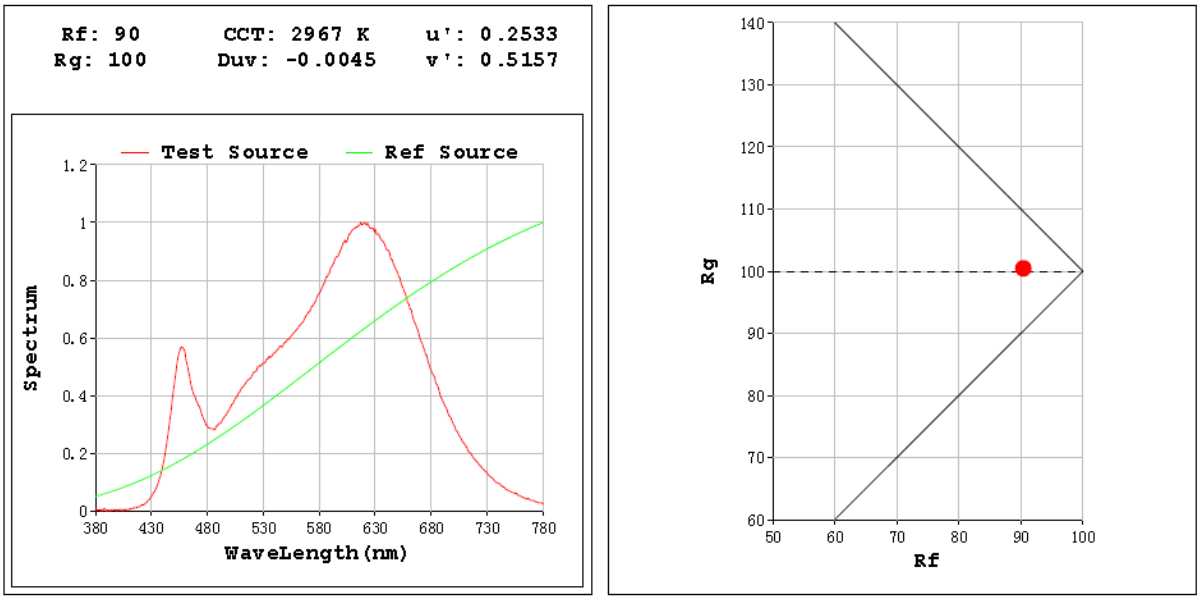
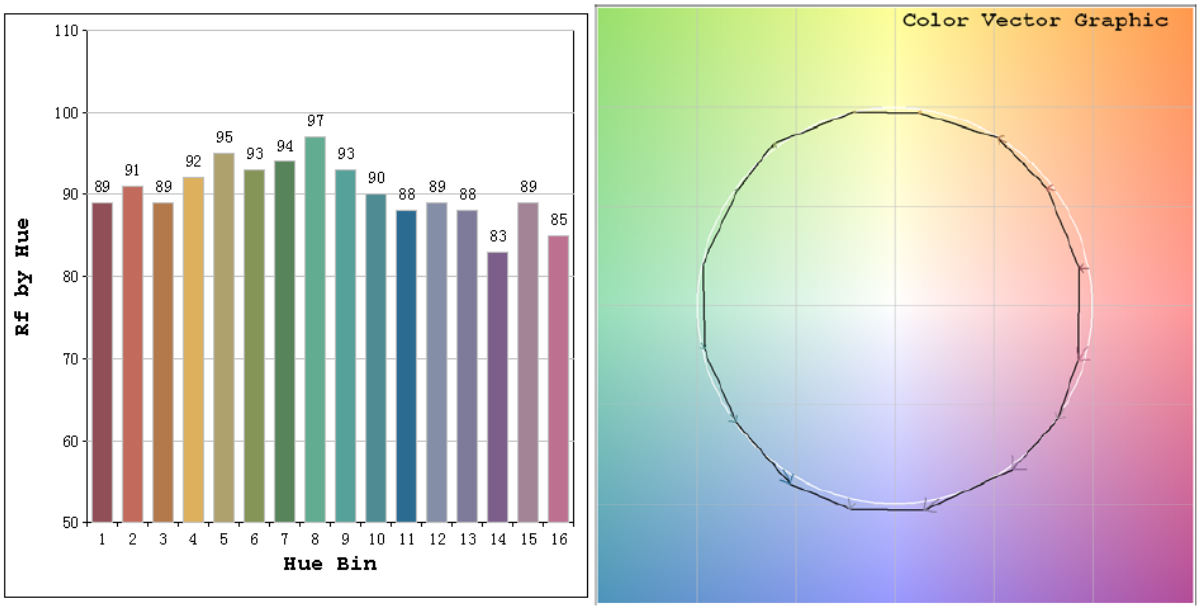


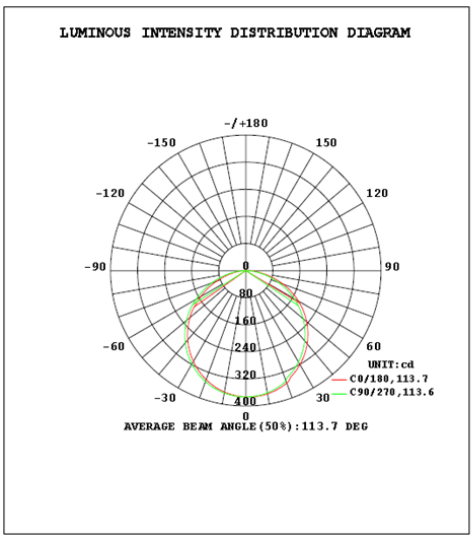


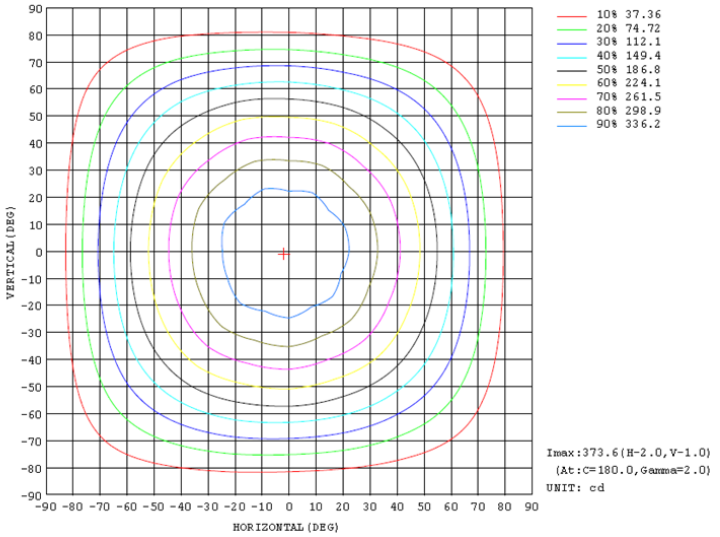
Zonal Lumen Tabulation

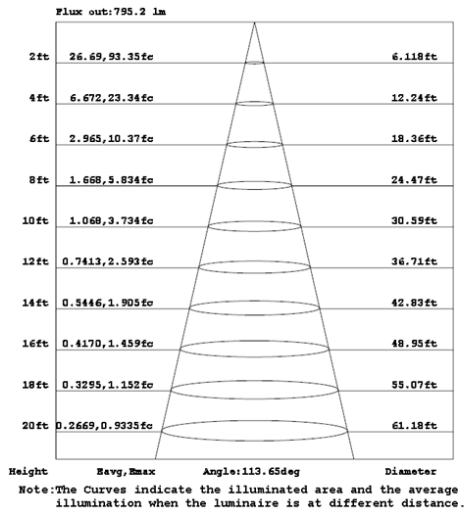
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	289.6	26.9%
0-40	474.8	44.1%
0-60	844.6	78.4%
60-90	233.1	21.6%
70-100	98.3	9.1%
90-120	0.0	0.0%
0-90	1077.6	100.0%
90-180	0.0	0.0%
0-180	1077.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	35.3	3.3%	90-100	0.0	0.0%
10-20	101.3	9.4%	100-110	0.0	0.0%
20-30	153.0	14.2%	110-120	0.0	0.0%
30-40	185.3	17.2%	120-130	0.0	0.0%
40-50	193.6	18.0%	130-140	0.0	0.0%
50-60	176.1	16.3%	140-150	0.0	0.0%
60-70	134.7	12.5%	150-160	0.0	0.0%
70-80	77.8	7.2%	160-170	0.0	0.0%
80-90	20.5	1.9%	170-180	0.0	0.0%

Photometric Data







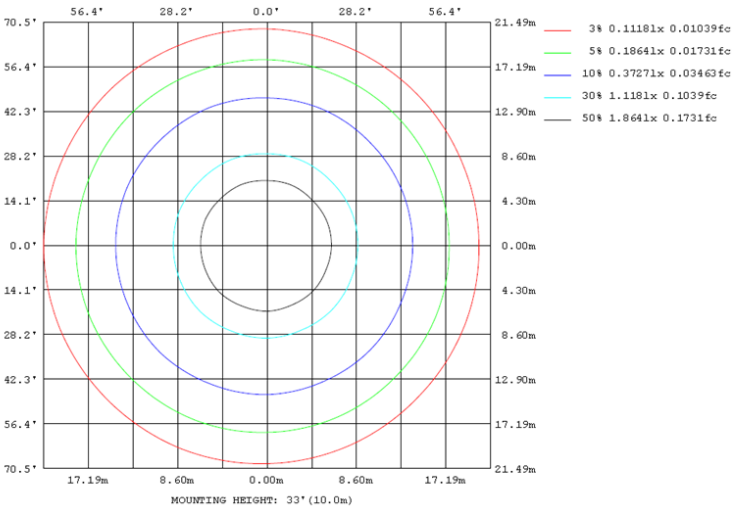


Table--1 UNIT: cd

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	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373			
5	370	370	371	371	372	372	373	373	373	373	372	372	371	371	370	370			
10	364	365	365	366	367	368	369	369	370	369	369	367	367	365	365	364			
15	355	356	356	358	360	361	362	363	363	362	361	360	358	357	356	355			
20	343	339	345	345	349	351	352	354	354	352	352	349	345	345	338	343			
25	328	324	330	328	335	333	339	335	336	340	333	335	328	331	324	328			
30	310	307	313	311	319	317	324	320	321	324	317	319	312	313	307	310			
35	290	287	293	292	300	299	306	302	303	306	299	300	293	293	287	290			
40	267	265	271	271	278	278	285	282	282	285	278	278	271	271	265	267			
45	243	241	247	247	255	255	262	260	260	261	255	255	247	247	241	243			
50	216	215	220	221	229	230	236	235	235	236	230	229	222	220	214	216			
55	186	187	192	194	201	203	209	208	208	209	203	201	194	192	186	186			
60	154	157	159	165	169	174	177	180	180	177	174	169	165	159	157	154			
65	123	126	129	134	139	144	146	149	149	146	144	138	134	129	126	123			
70	92.1	95.3	97.4	103	107	112	115	117	117	114	112	107	103	97.4	94.7	92.2			
75	61.7	64.7	66.8	72.1	75.7	80.6	82.5	84.7	84.8	82.0	80.4	75.4	71.8	66.7	64.1	61.8			
80	33.8	36.3	38.3	42.7	45.8	49.9	51.5	53.3	53.5	50.9	49.5	45.3	42.4	38.0	35.8	33.8			
85	9.77	11.8	13.1	16.5	18.9	22.0	23.1	24.5	24.7	22.6	21.7	18.4	16.2	12.9	11.4	9.75			
90	0.50	0.50	0.53	0.59	0.76	0.95	1.17	1.03	1.04	0.98	0.91	0.75	0.55	0.49	0.48	0.49			

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	DLW0087(WFRLA6R129FA120WS)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120055	120.0	60	0.093	11.00	0.984

Chromaticity Measurement - Sphere-Spectroradiometer Method:

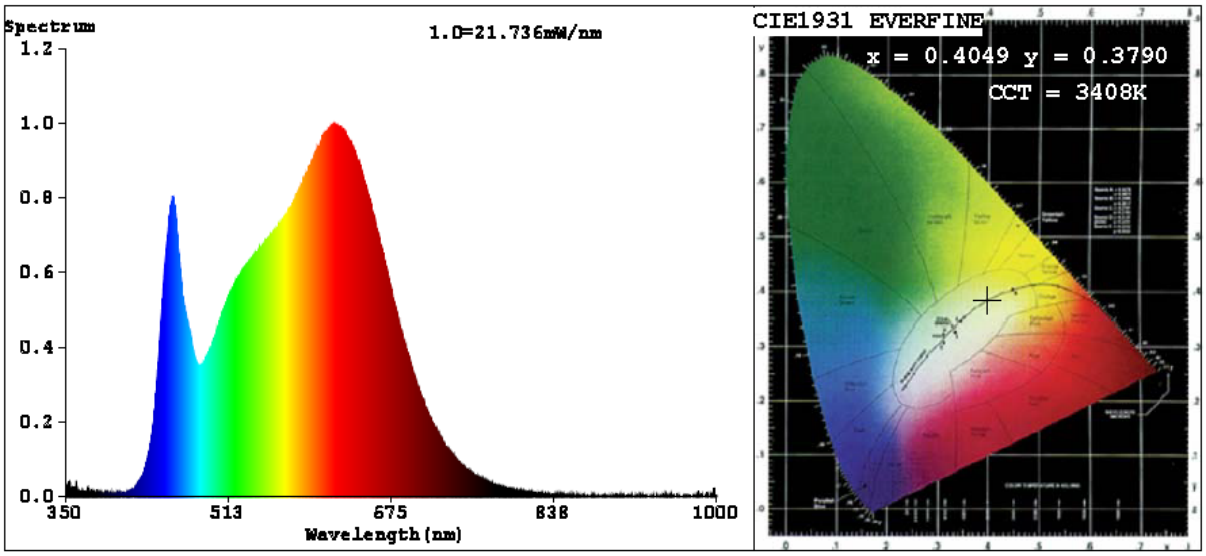
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3408
Duv	-0.0052
Chromaticity (x, y)	x=0.4049 y=0.3790
Chromaticity (u', v')	u'=0.2404 v'=0.5063
Color Rendering Index (CRI)	95.3
R9	77

Special Color Rendering Indices			
R1	98	R9	77
R2	98	R10	98
R3	98	R11	96
R4	96	R12	80
R5	97	R13	99
R6	95	R14	99
R7	93	R15	96
R8	89	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1120.2
Luminous Efficacy (lm/W)	101.83
Beam Angle (°)	113.9
Center Beam Candle Power (cd)	387.9

Spectral Power Distribution & Chromaticity Diagram



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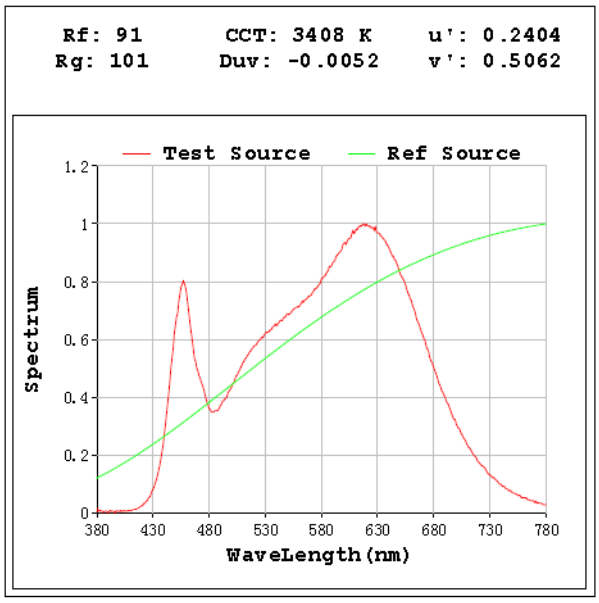
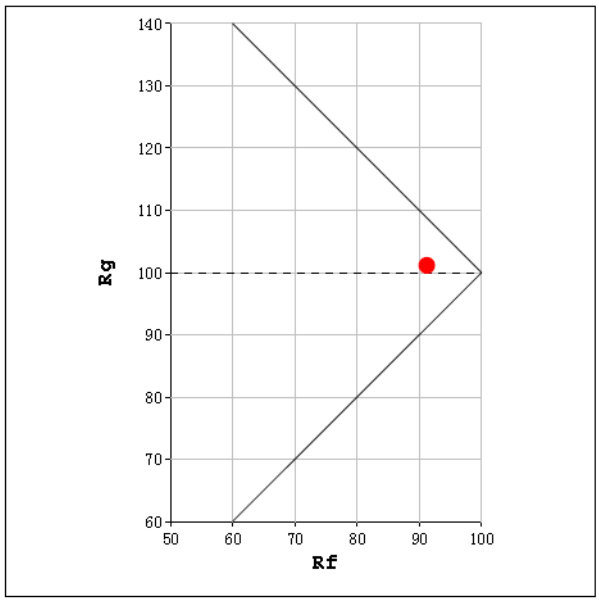
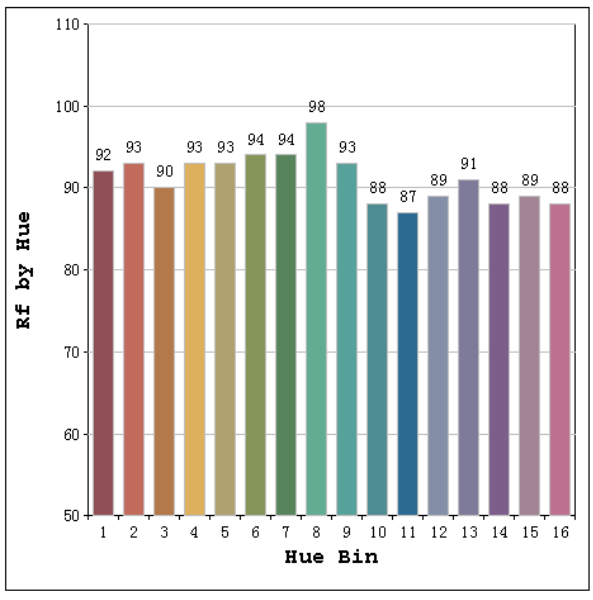
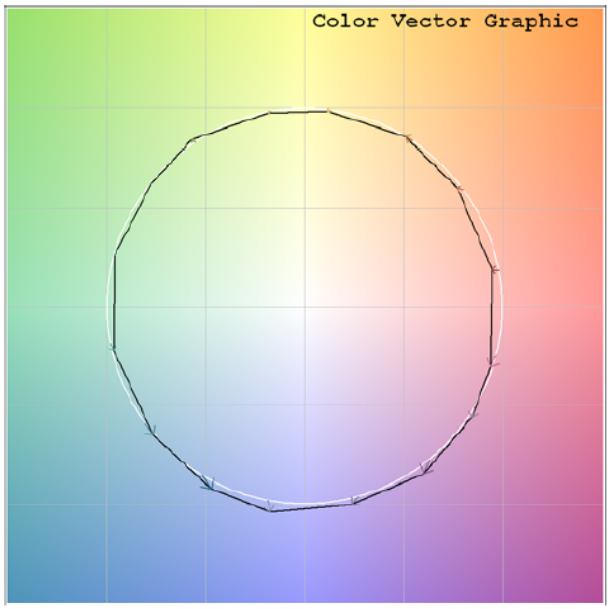






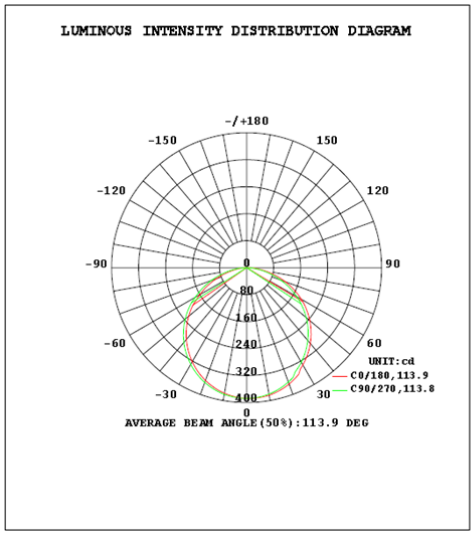


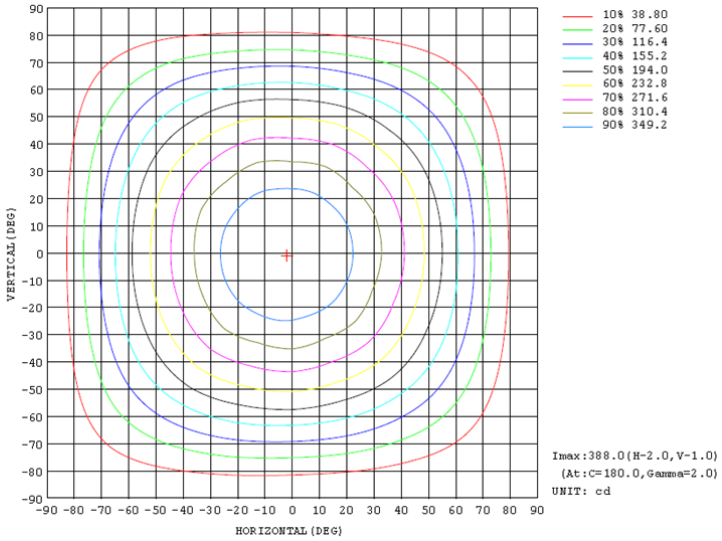
Zonal Lumen Tabulation

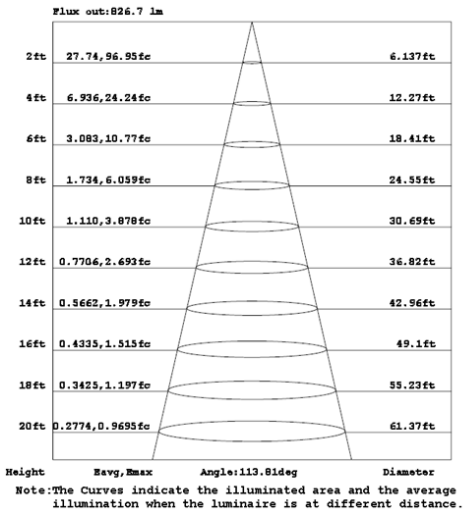
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	301.3	26.9%
0-40	493.8	44.1%
0-60	878.1	78.4%
60-90	242.1	21.6%
70-100	102.1	9.1%
90-120	0.0	0.0%
0-90	1120.2	100.0%
90-180	0.0	0.0%
0-180	1120.2	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	36.7	3.3%	90-100	0.0	0.0%
10-20	105.2	9.4%	100-110	0.0	0.0%
20-30	159.4	14.2%	110-120	0.0	0.0%
30-40	192.5	17.2%	120-130	0.0	0.0%
40-50	201.1	18.0%	130-140	0.0	0.0%
50-60	183.1	16.3%	140-150	0.0	0.0%
60-70	140.0	12.5%	150-160	0.0	0.0%
70-80	80.8	7.2%	160-170	0.0	0.0%
80-90	21.3	1.9%	170-180	0.0	0.0%

Photometric Data







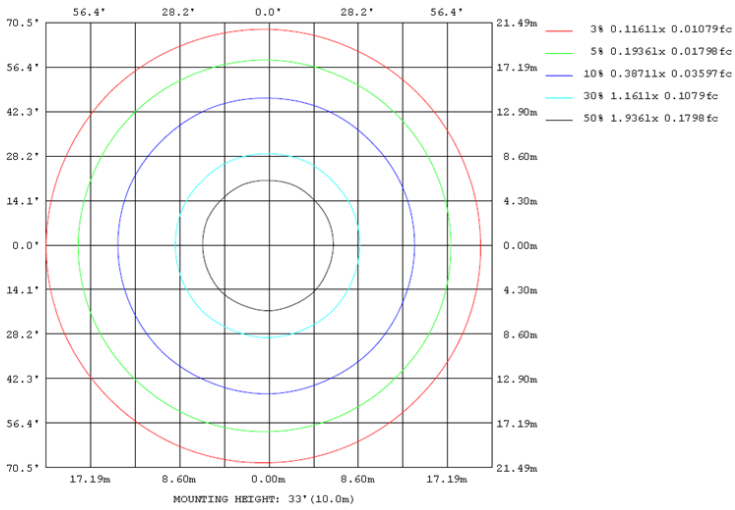


Table--1 UNIT: cd

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	388	388	388	388	388	388	388	388	388	388	388	388	388	388	388	388			
5	384	385	385	386	386	387	387	387	387	387	387	386	386	385	385	385			
10	378	379	379	381	381	382	383	384	384	383	383	382	381	379	379	378			
15	369	370	370	372	373	375	376	377	377	376	375	374	372	370	370	369			
20	356	357	358	361	362	365	366	367	367	366	365	363	361	358	357	356			
25	340	337	343	340	348	352	353	354	354	353	352	349	341	343	336	341			
30	322	319	325	323	331	329	336	333	333	336	330	332	324	325	319	322			
35	301	298	305	304	311	310	317	314	314	317	311	312	304	305	298	301			
40	278	275	282	281	289	289	296	293	293	296	289	290	281	282	275	278			
45	252	250	256	257	265	265	272	270	270	271	265	265	257	257	250	252			
50	224	223	229	230	238	239	246	244	244	245	239	238	230	229	223	224			
55	194	194	200	201	209	211	217	216	216	217	211	209	201	199	194	194			
60	160	163	165	171	175	181	185	186	187	185	181	175	171	165	163	160			
65	128	131	134	139	144	150	152	155	155	152	150	144	139	134	131	128			
70	95.8	98.9	101	107	111	117	119	122	122	119	117	111	107	101	98.4	95.8			
75	64.1	67.2	69.4	74.9	78.6	83.7	85.8	88.0	88.1	85.2	83.6	78.5	74.6	69.3	66.6	64.2			
80	35.1	37.8	39.7	44.3	47.5	51.9	53.5	55.4	55.6	52.9	51.6	47.1	44.0	39.5	37.3	35.1			
85	10.2	12.3	13.6	17.1	19.6	22.8	24.1	25.5	25.6	23.5	22.5	19.1	16.8	13.4	11.8	10.2			
90	0.56	0.54	0.54	0.62	0.79	0.98	1.21	1.06	1.06	1.01	0.94	0.79	0.58	0.50	0.50	0.51			

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	DLW0087(WFRLA6R129FA120WS)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120055	120.0	60	0.094	11.10	0.985

Chromaticity Measurement - Sphere-Spectroradiometer Method:

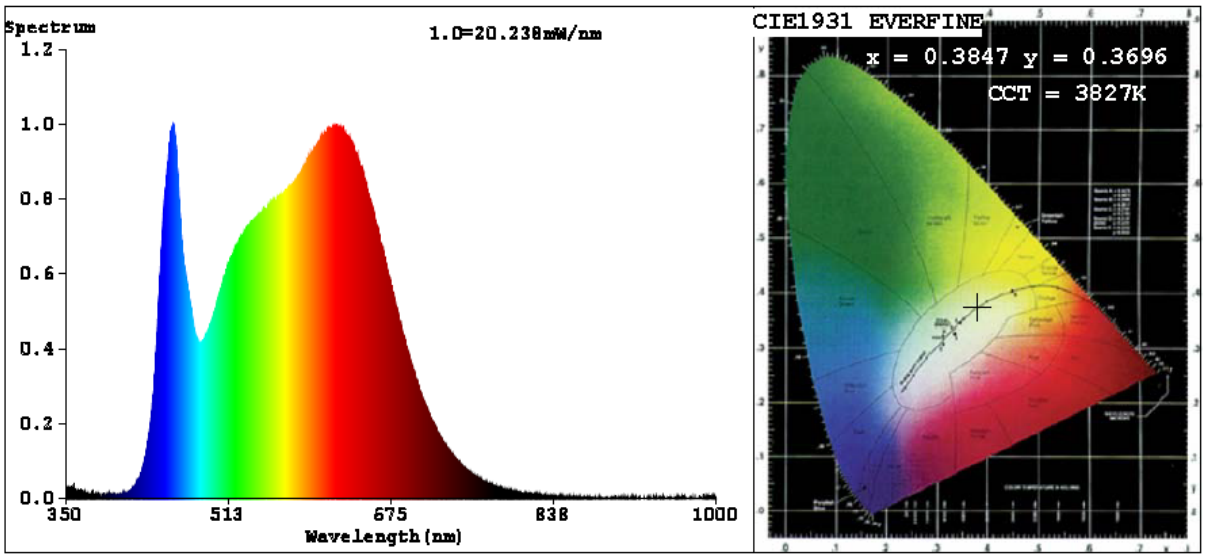
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3827
Duv	-0.0046
Chromaticity (x, y)	x=0.3847 y=0.3696
Chromaticity (u', v')	u'=0.2309 v'=0.4990
Color Rendering Index (CRI)	96.0
R9	82

Special Color Rendering Indices			
R1	98	R9	82
R2	99	R10	97
R3	98	R11	96
R4	96	R12	77
R5	97	R13	99
R6	95	R14	98
R7	94	R15	97
R8	92	--	--

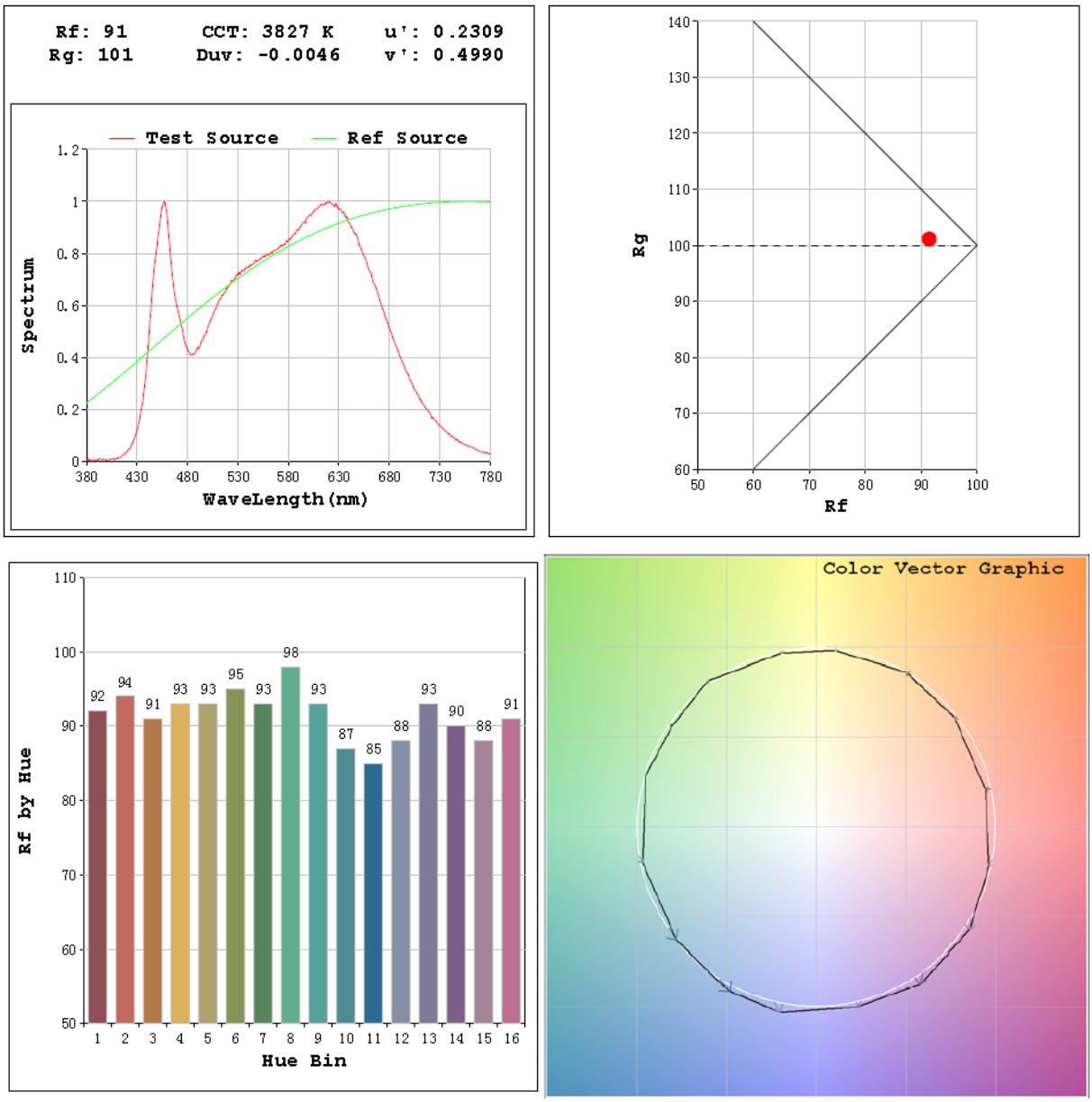
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1136.3
Luminous Efficacy (lm/W)	102.37
Beam Angle (°)	113.9
Center Beam Candle Power (cd)	393.2

Spectral Power Distribution & Chromaticity Diagram



TM30

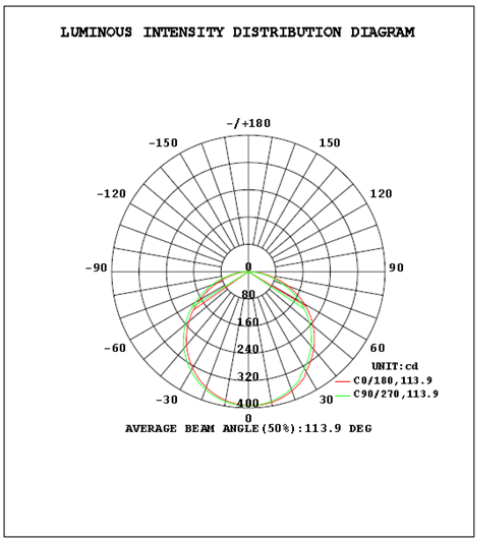


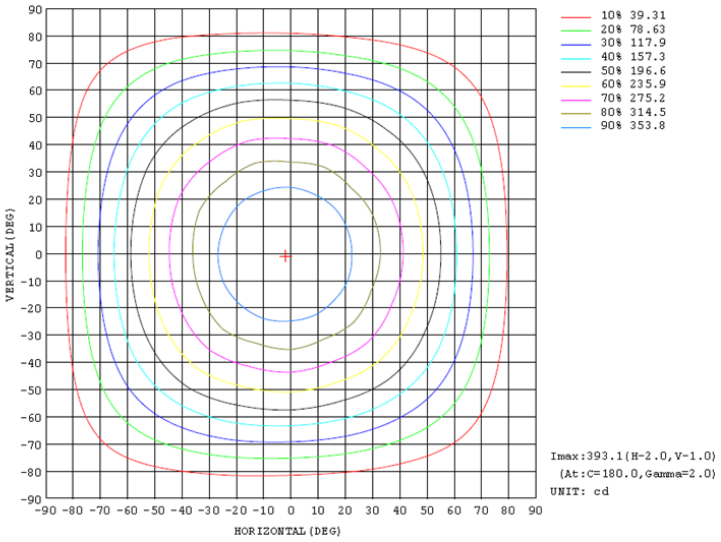
Zonal Lumen Tabulation

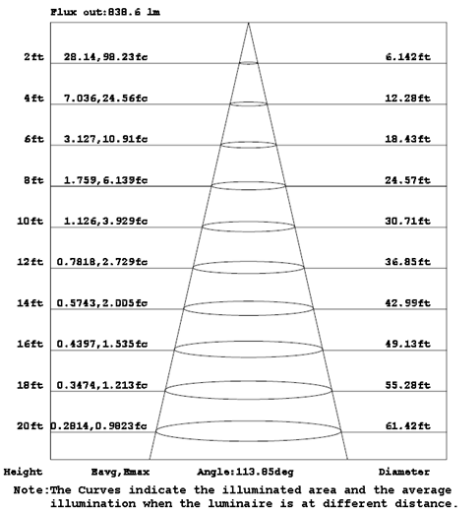
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	305.8	26.9%
0-40	501.0	44.1%
0-60	890.7	78.4%
60-90	245.5	21.6%
70-100	103.6	9.1%
90-120	0.0	0.0%
0-90	1136.3	100.0%
90-180	0.0	0.0%
0-180	1136.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	37.2	3.3%	90-100	0.0	0.0%
10-20	106.7	9.4%	100-110	0.0	0.0%
20-30	161.9	14.2%	110-120	0.0	0.0%
30-40	195.2	17.2%	120-130	0.0	0.0%
40-50	204.0	18.0%	130-140	0.0	0.0%
50-60	185.8	16.4%	140-150	0.0	0.0%
60-70	142.0	12.5%	150-160	0.0	0.0%
70-80	82.0	7.2%	160-170	0.0	0.0%
80-90	21.6	1.9%	170-180	0.0	0.0%

Photometric Data







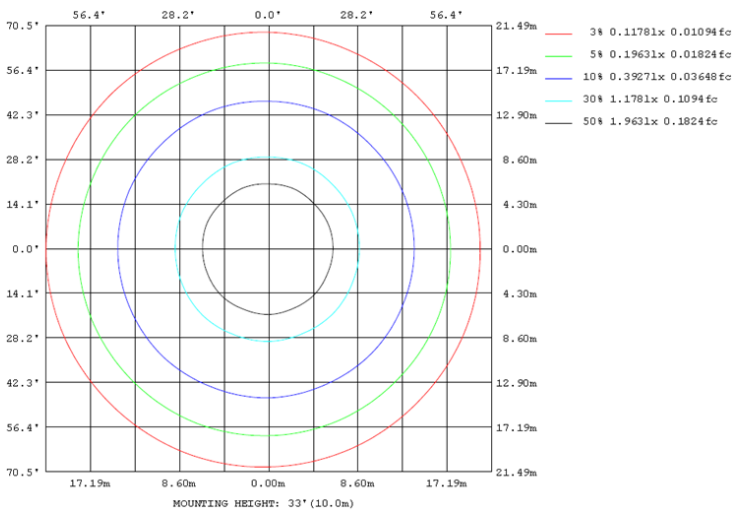


Table--1 UNIT: cd

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	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393			
5	390	390	390	391	392	392	392	393	393	392	392	392	391	390	390	390			
10	383	384	385	386	387	388	389	389	389	389	388	387	386	385	384	384			
15	374	375	375	377	379	381	381	382	383	381	381	379	378	376	375	374			
20	361	362	363	365	367	370	371	372	373	371	370	368	366	363	362	361			
25	345	344	348	351	353	356	358	359	359	358	357	353	352	348	344	345			
30	327	323	330	328	336	334	341	337	338	341	334	336	328	330	323	327			
35	305	302	309	308	316	315	322	319	319	322	315	316	308	309	302	305			
40	282	279	286	285	293	293	300	297	297	300	293	294	286	286	279	282			
45	256	254	260	260	268	269	276	273	274	275	269	268	261	260	254	256			
50	227	226	232	233	241	242	249	247	248	249	243	241	233	232	226	227			
55	197	197	202	204	212	214	220	219	219	220	214	212	204	202	196	197			
60	162	166	168	173	178	184	190	189	189	188	184	178	174	168	165	163			
65	130	133	136	141	146	152	154	157	157	154	152	146	141	136	133	130			
70	97.0	100	103	109	113	118	121	123	123	120	118	113	109	103	99.8	97.1			
75	65.1	68.2	70.4	76.0	79.8	84.9	87.0	89.3	89.3	86.4	84.7	79.6	75.8	70.3	67.6	65.1			
80	35.6	38.4	40.3	45.0	48.2	52.5	54.2	56.2	56.3	53.6	52.3	47.8	44.7	40.1	37.8	35.6			
85	10.3	12.5	13.8	17.3	19.8	23.1	24.3	25.8	26.0	23.8	22.9	19.4	17.1	13.6	12.0	10.3			
90	0.55	0.54	0.54	0.63	0.80	1.00	1.22	1.08	1.06	1.02	0.96	0.80	0.58	0.51	0.51	0.52			

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	DLW0087(WFRLA6R129FA120WS)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202207120055	120.0	60	0.097	11.50	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

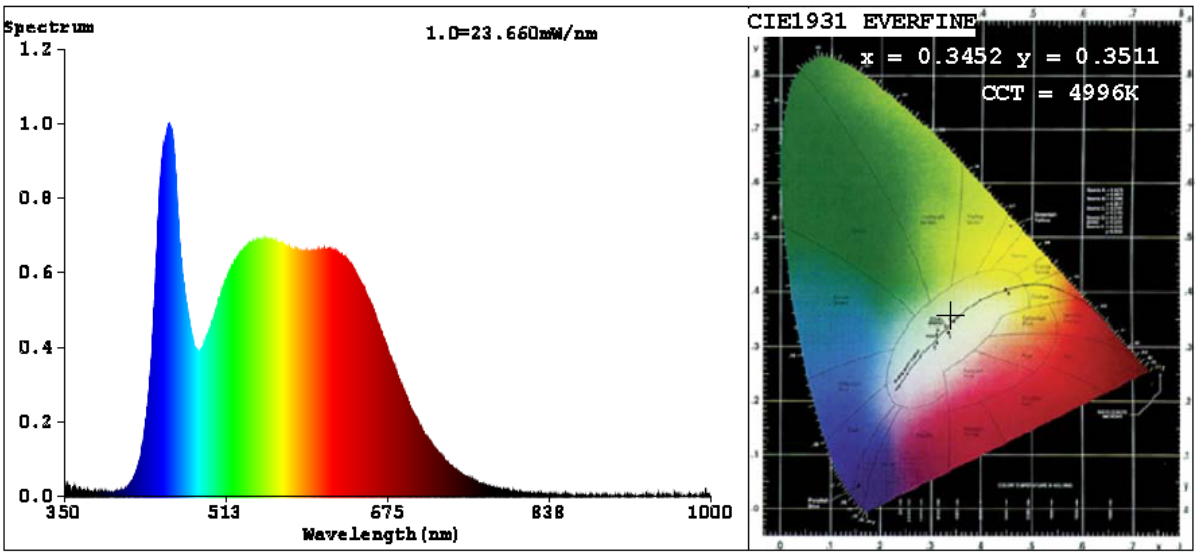
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4996
Duv	-0.0003
Chromaticity (x, y)	x=0.3452 y=0.3511
Chromaticity (u', v')	u'=0.2116 v'=0.4845
Color Rendering Index (CRI)	93.8
R9	78

Special Color Rendering Indices			
R1	95	R9	78
R2	96	R10	88
R3	94	R11	92
R4	93	R12	68
R5	92	R13	95
R6	92	R14	97
R7	97	R15	94
R8	92	--	--

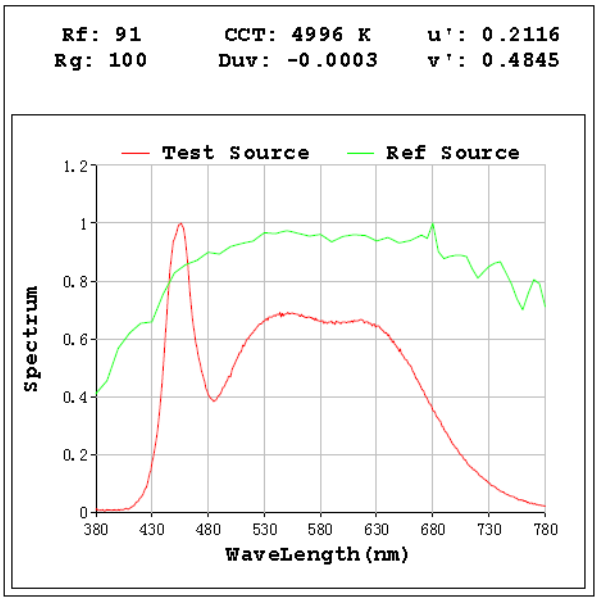
Photometric Measurement – Goniophotometer Method:

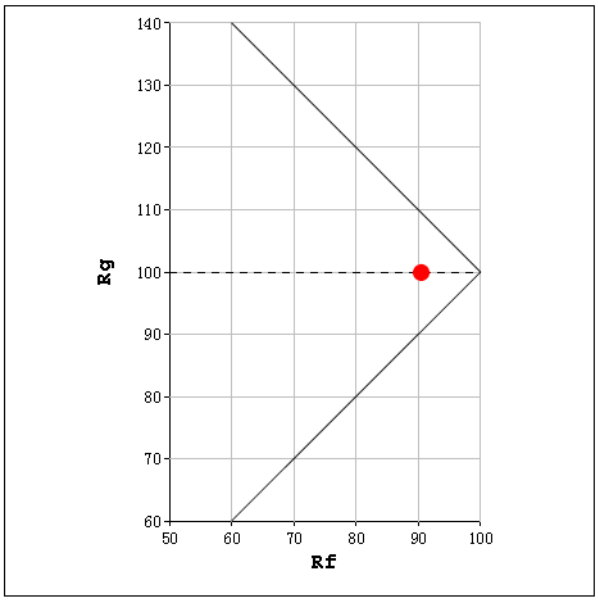
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1108.8
Luminous Efficacy (lm/W)	96.41
Beam Angle (°)	113.8
Center Beam Candle Power (cd)	383.8

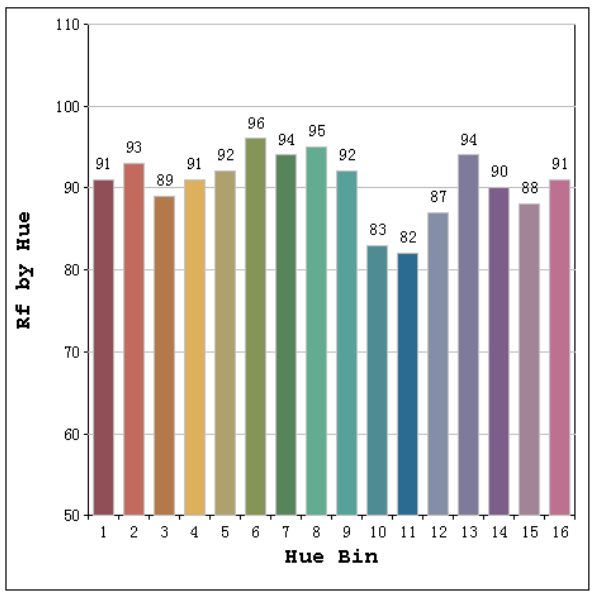
Spectral Power Distribution & Chromaticity Diagram

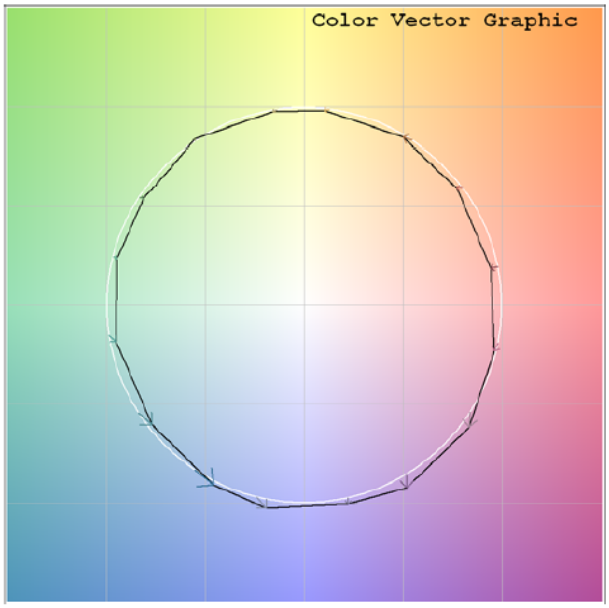


TM30







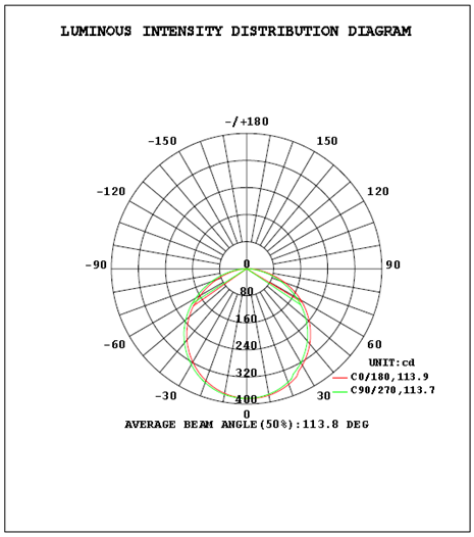


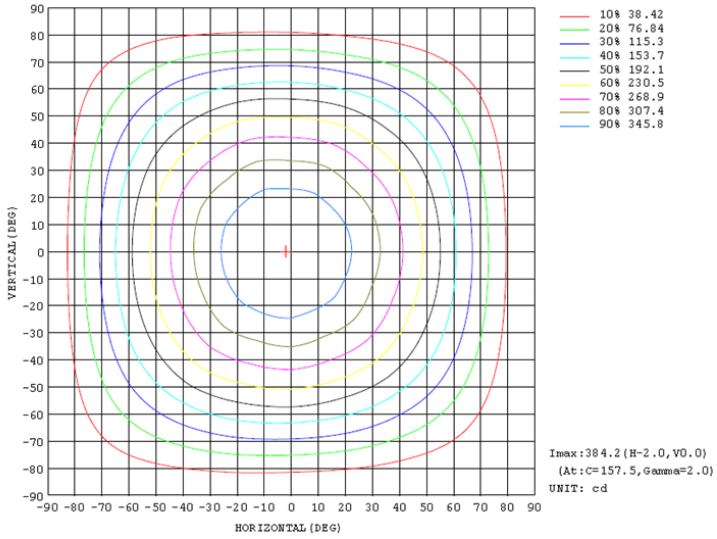
Zonal Lumen Tabulation

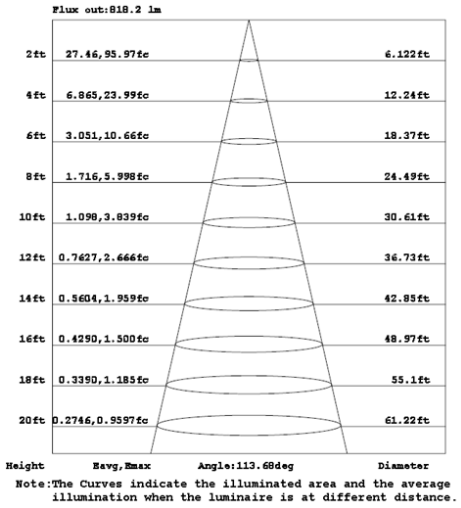
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	298.1	26.9%
0-40	488.7	44.1%
0-60	869.0	78.4%
60-90	239.7	21.6%
70-100	101.1	9.1%
90-120	0.0	0.0%
0-90	1108.8	100.0%
90-180	0.0	0.0%
0-180	1108.8	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	36.3	3.3%	90-100	0.0	0.0%
10-20	104.2	9.4%	100-110	0.0	0.0%
20-30	157.7	14.2%	110-120	0.0	0.0%
30-40	190.5	17.2%	120-130	0.0	0.0%
40-50	199.1	18.0%	130-140	0.0	0.0%
50-60	181.3	16.3%	140-150	0.0	0.0%
60-70	138.6	12.5%	150-160	0.0	0.0%
70-80	80.0	7.2%	160-170	0.0	0.0%
80-90	21.1	1.9%	170-180	0.0	0.0%

Photometric Data







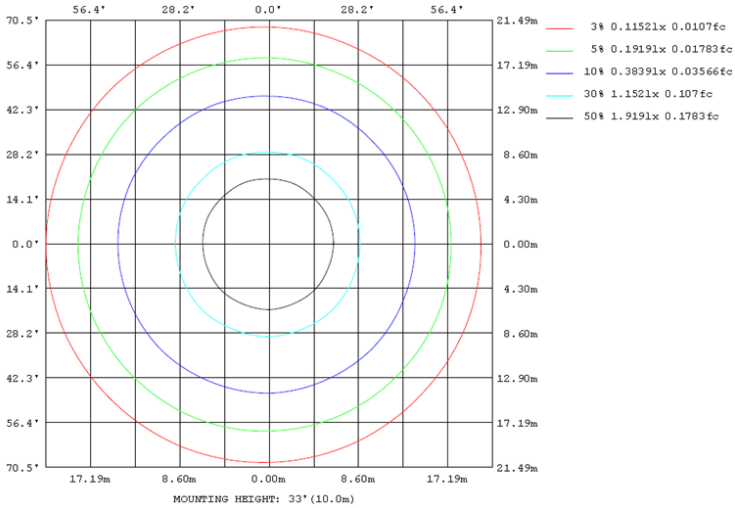


Table--1 UNIT: cd

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	384	384	384	384	384	384	384	384	384	384	384	384	384	384	384	384			
5	380	381	381	382	382	383	383	383	383	383	383	382	382	381	381	381			
10	374	375	375	376	377	379	379	380	380	379	379	378	377	375	375	374			
15	365	366	366	368	369	371	372	373	373	372	372	370	368	367	366	365			
20	352	354	355	357	358	361	362	363	364	362	361	359	357	355	354	353			
25	337	333	340	337	345	345	349	351	351	349	345	345	337	340	333	337			
30	319	316	322	320	328	326	333	329	329	333	326	328	320	322	316	319			
35	298	295	301	300	308	307	314	311	311	314	308	309	301	302	295	298			
40	275	273	279	279	286	286	293	290	290	293	286	287	279	279	273	275			
45	249	248	254	254	262	262	269	267	267	269	263	262	254	254	248	250			
50	222	221	227	228	235	237	243	242	242	243	237	236	228	227	221	222			
55	192	192	197	199	207	209	215	214	214	215	209	207	199	197	192	193			
60	159	162	164	169	174	179	184	185	185	183	179	174	169	164	161	159			
65	127	130	132	138	142	148	151	153	153	150	148	143	138	132	130	127			
70	94.8	98.1	100	106	110	116	118	120	120	117	116	110	106	100	97.5	94.9			
75	63.5	66.6	68.7	74.2	77.9	82.8	84.9	87.1	87.2	84.3	82.8	77.7	73.9	68.7	66.1	63.6			
80	34.8	37.5	39.2	43.9	47.1	51.3	52.9	54.9	55.0	52.3	51.0	46.7	43.6	39.2	36.9	34.8			
85	10.1	12.2	13.5	16.9	19.4	22.6	23.8	25.2	25.4	23.3	22.3	19.0	16.7	13.3	11.7	10.1			
90	0.54	0.53	0.54	0.61	0.79	0.96	1.19	1.04	1.03	0.99	0.94	0.79	0.58	0.51	0.49	0.51			

3. Product Photo

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