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): DLW0095(WFRL6R139FA120WBS)

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	13.0 W
Rated Initial Lamp Lumen	1000 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	DLW0095(WFRL6R139FA120WBS)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290002	120.0	60	0.105	12.50	0.987

Chromaticity Measurement - Sphere-Spectroradiometer Method:

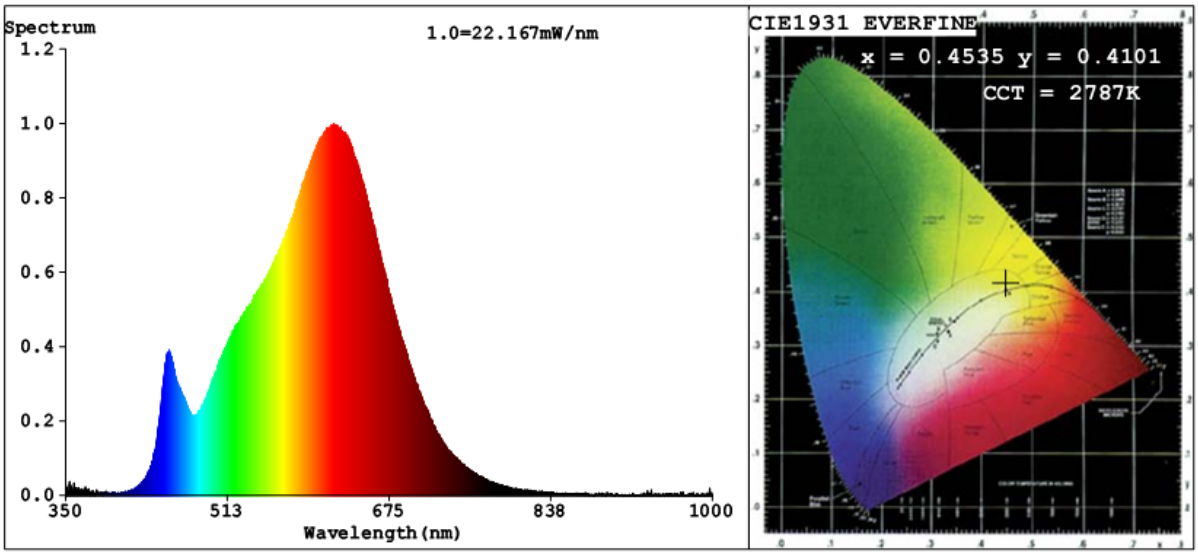
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2787
Duv	0.0007
Chromaticity (x, y)	x=0.4535 y=0.4101
Chromaticity (u', v')	u'=0.2586 v'=0.5262
Color Rendering Index (CRI)	92.0
R9	53

Special Color Rendering Indices			
R1	92	R9	53
R2	97	R10	92
R3	99	R11	93
R4	91	R12	83
R5	92	R13	93
R6	97	R14	100
R7	90	R15	87
R8	78	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1042.2
Luminous Efficacy (lm/W)	83.43
Beam Angle (°)	110.4
Center Beam Candle Power (cd)	370.9

Spectral Power Distribution & Chromaticity Diagram



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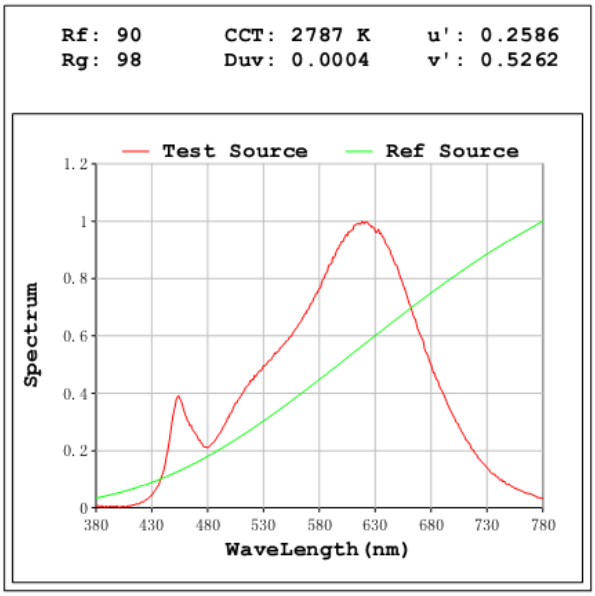
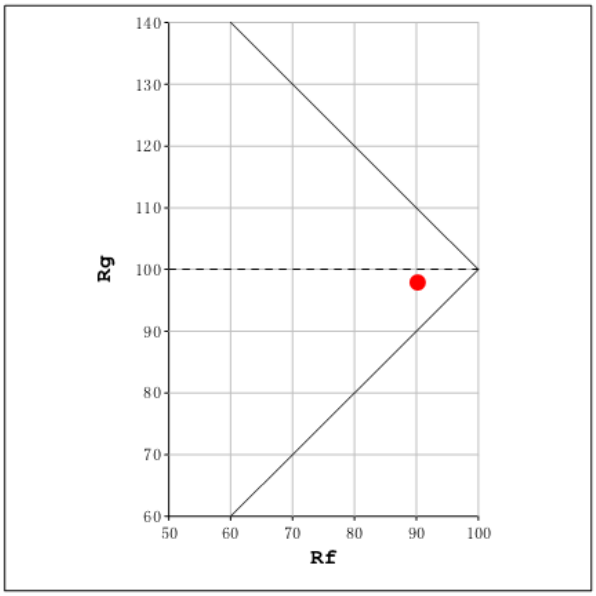
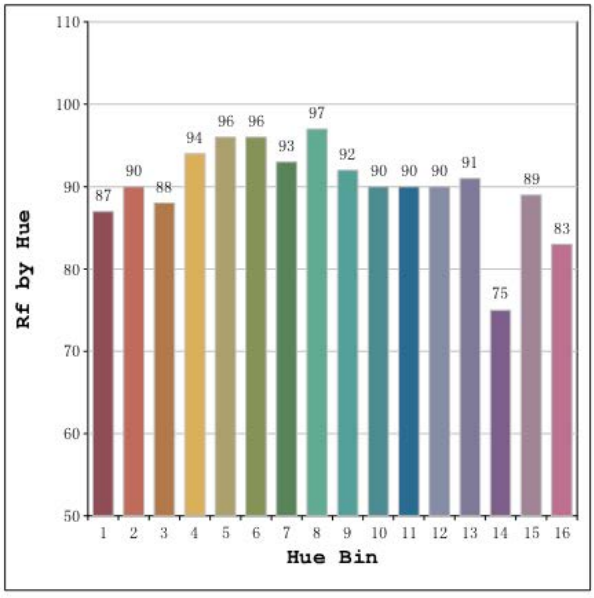
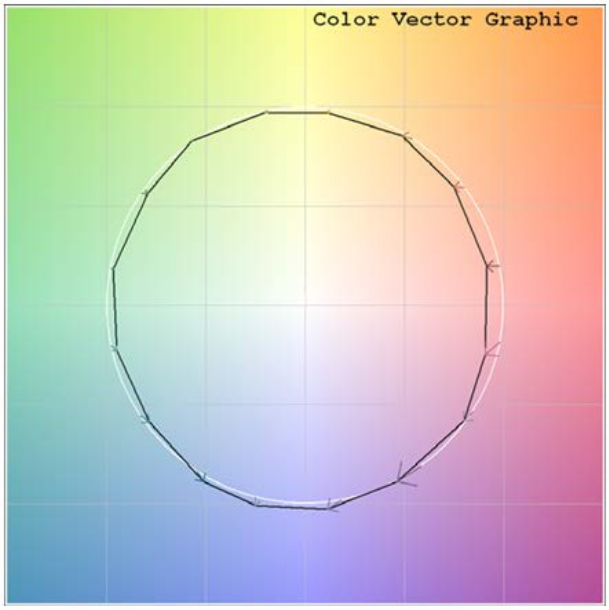






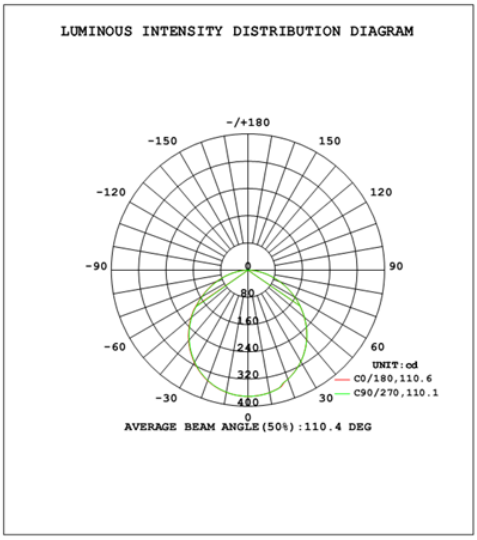


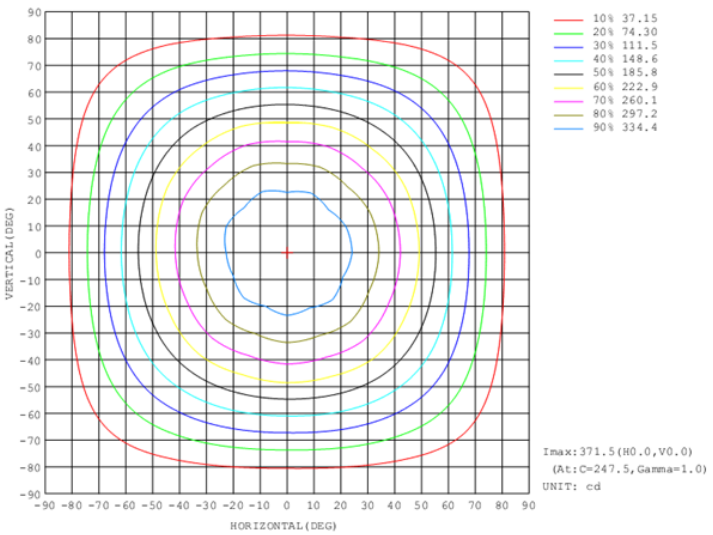
Zonal Lumen Tabulation

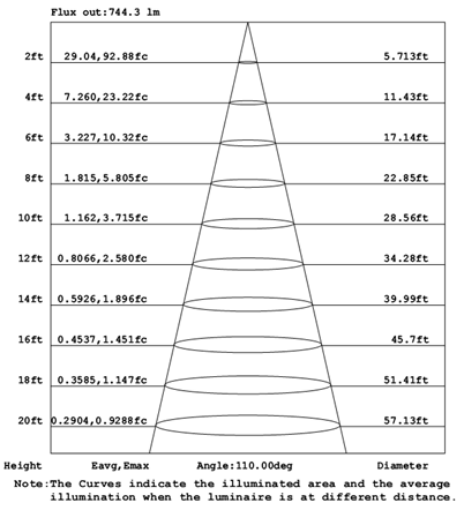
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	286.9	27.5%
0-40	469.0	45.0%
0-60	823.7	79.0%
60-90	219.2	21.0%
70-100	93.0	8.9%
90-120	0.0	0.0%
0-90	1042.9	100.0%
90-180	0.0	0.0%
0-180	1042.9	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	35.1	3.4%	90-100	0.0	0.0%
10-20	100.4	9.6%	100-110	0.0	0.0%
20-30	151.5	14.5%	110-120	0.0	0.0%
30-40	182.1	17.5%	120-130	0.0	0.0%
40-50	187.5	18.0%	130-140	0.0	0.0%
50-60	167.2	16.0%	140-150	0.0	0.0%
60-70	126.2	12.1%	150-160	0.0	0.0%
70-80	73.3	7.0%	160-170	0.0	0.0%
80-90	19.7	1.9%	170-180	0.0	0.0%

Photometric Data







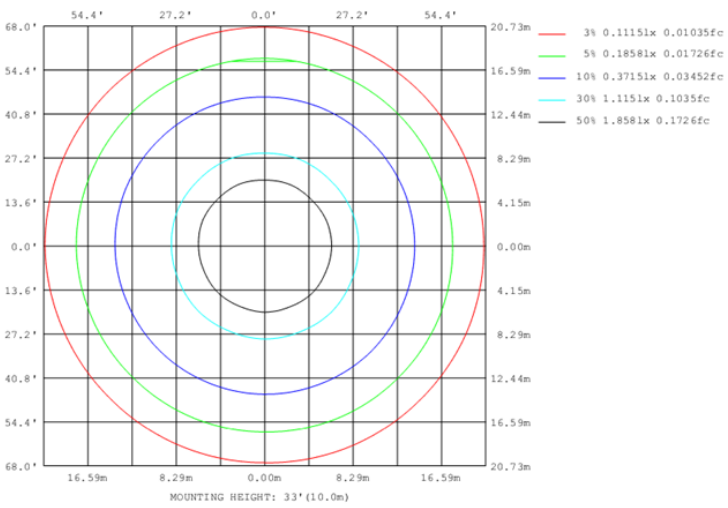


Table--1 UNIT: cd

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	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371			
5	369	369	369	369	369	369	369	369	369	369	370	370	370	369	369	369			
10	364	365	365	365	364	364	364	364	365	365	365	365	365	365	365	365			
15	357	358	357	357	356	353	355	357	358	358	358	358	358	357	357	357			
20	346	341	346	340	344	338	344	339	341	347	342	347	341	346	340	345			
25	331	327	332	326	330	324	329	325	327	333	329	333	327	331	326	331			
30	314	310	315	309	312	306	311	307	310	316	312	316	310	313	308	313			
35	293	290	294	289	291	286	290	287	290	296	292	296	290	293	288	293			
40	270	268	271	266	268	263	267	264	267	273	270	273	267	270	266	270			
45	245	243	246	241	243	238	242	239	242	247	245	247	243	245	241	245			
50	218	216	219	214	215	211	214	213	216	220	218	220	216	218	214	218			
55	188	188	188	186	184	183	183	185	187	190	190	190	188	188	186	188			
60	157	159	157	157	154	154	154	156	158	159	160	159	159	157	158	157			
65	127	129	127	127	125	125	124	126	129	129	130	129	129	128	128	128			
70	97.5	98.9	97.7	97.5	95.5	95.7	95.2	96.7	98.9	99.0	100	99.4	99.6	98.3	98.8	98.2			
75	68.9	69.9	68.8	68.7	67.1	67.3	66.9	68.2	70.1	70.1	71.3	70.5	70.9	69.8	70.3	69.7			
80	41.5	42.3	41.3	41.4	40.0	40.3	39.9	41.0	42.5	42.3	43.6	43.0	43.5	42.7	43.1	42.4			
85	16.7	17.2	16.3	16.5	15.5	15.9	15.6	16.3	17.6	17.2	18.3	17.9	18.6	17.9	18.3	17.6			
90	0.45	0.44	0.45	0.44	0.44	0.43	0.43	0.43	0.42	0.46	0.45	0.48	0.47	0.50	0.46	0.48			

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	DLW0095(WFRL6R139FA120WBS)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290002	120.0	60	0.104	12.30	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

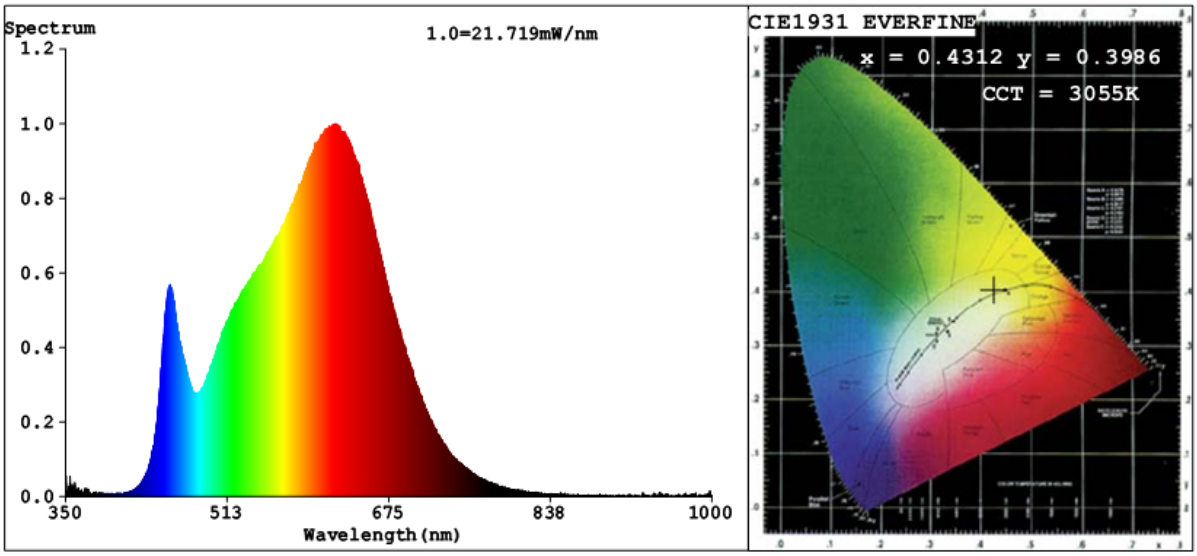
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3055
Duv	-0.0014
Chromaticity (x, y)	x=0.4312 y=0.3986
Chromaticity (u', v')	u'=0.2492 v'=0.5184
Color Rendering Index (CRI)	93.5
R9	63

Special Color Rendering Indices			
R1	94	R9	63
R2	98	R10	94
R3	98	R11	94
R4	93	R12	81
R5	94	R13	96
R6	96	R14	99
R7	91	R15	91
R8	83	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1089.4
Luminous Efficacy (lm/W)	88.57
Beam Angle (°)	110.7
Center Beam Candle Power (cd)	387.1

Spectral Power Distribution & Chromaticity Diagram



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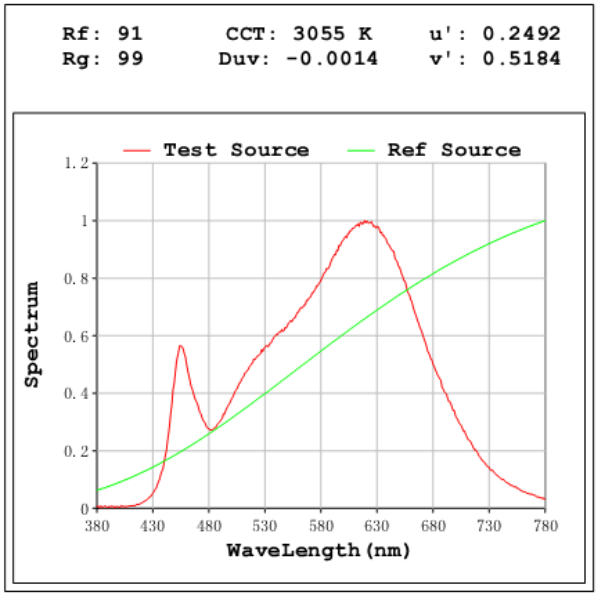
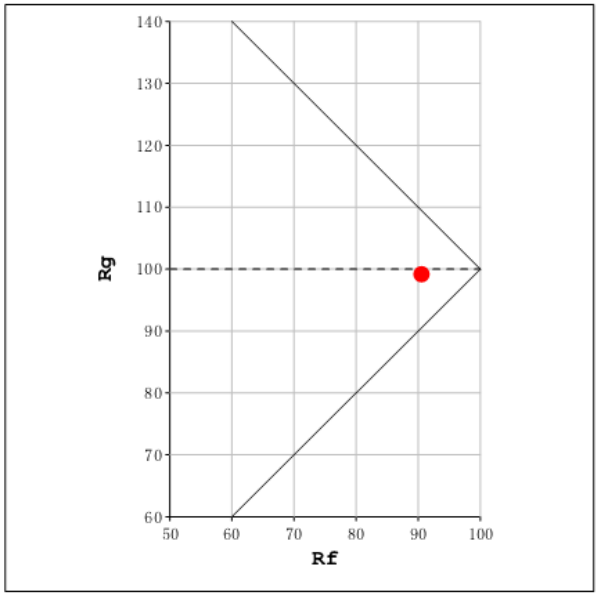
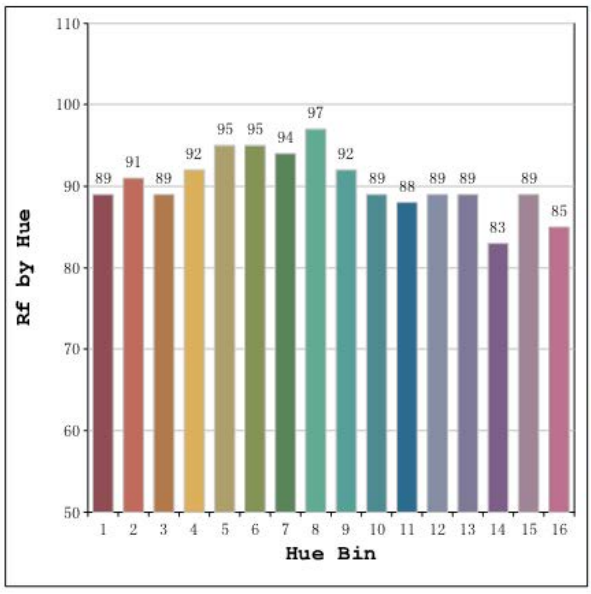
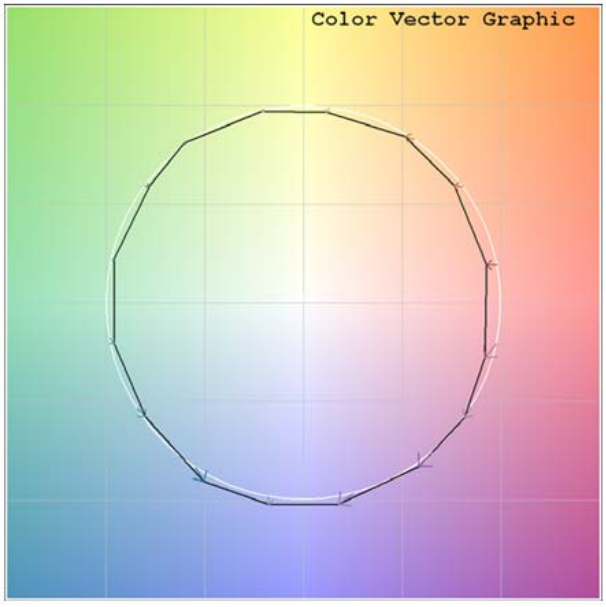






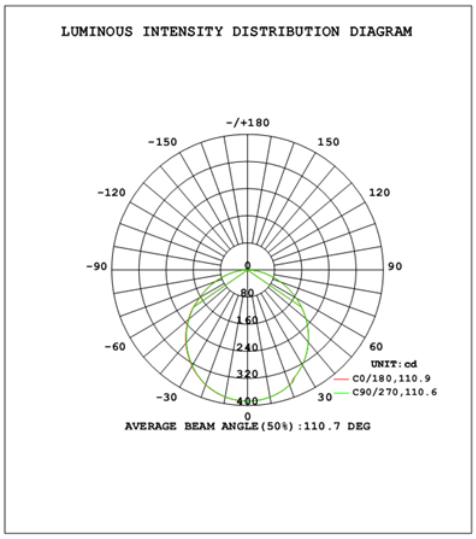


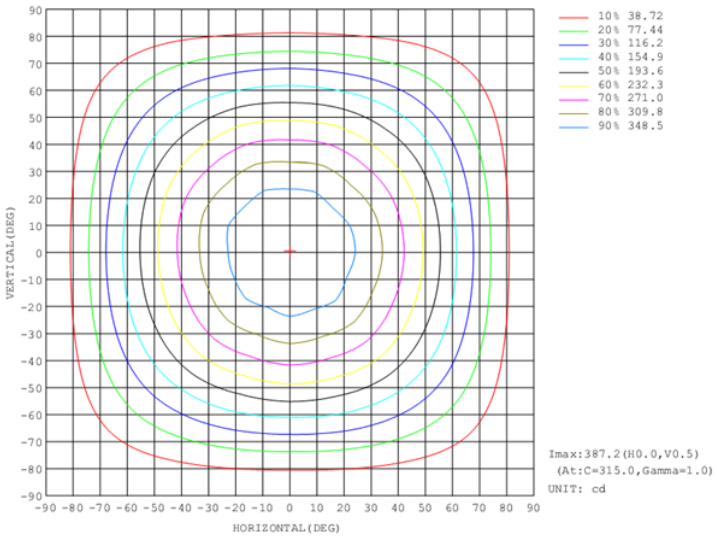
Zonal Lumen Tabulation

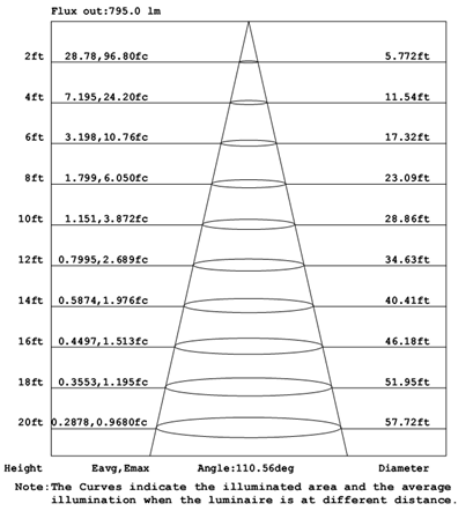
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	300.1	27.5%
0-40	490.1	45.0%
0-60	860.6	79.0%
60-90	228.9	21.0%
70-100	97.1	8.9%
90-120	0.0	0.0%
0-90	1089.4	100.0%
90-180	0.0	0.0%
0-180	1089.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	36.6	3.4%	90-100	0.0	0.0%
10-20	105.1	9.6%	100-110	0.0	0.0%
20-30	158.4	14.5%	110-120	0.0	0.0%
30-40	190.0	17.4%	120-130	0.0	0.0%
40-50	195.7	18.0%	130-140	0.0	0.0%
50-60	174.7	16.0%	140-150	0.0	0.0%
60-70	131.8	12.1%	150-160	0.0	0.0%
70-80	76.5	7.0%	160-170	0.0	0.0%
80-90	20.6	1.9%	170-180	0.0	0.0%

Photometric Data







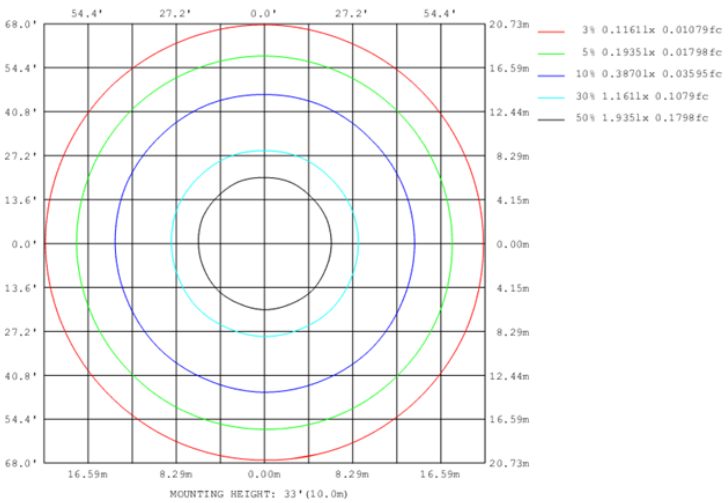


Table--1 UNIT: cd

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	387	387	387	387	387	387	387	387	387	387	387	387	387	387	387	387			
5	385	386	385	385	385	385	385	385	386	386	386	386	386	386	386	386			
10	380	381	380	380	380	380	380	380	381	381	381	381	381	381	381	381			
15	372	373	372	372	371	371	371	372	373	373	374	373	373	372	373	372			
20	361	362	361	361	359	359	359	360	362	362	363	362	362	361	361	361			
25	346	341	346	340	344	338	343	339	341	348	343	348	341	346	340	345			
30	327	324	328	322	325	320	324	321	323	330	326	330	323	327	322	327			
35	306	303	307	301	304	299	303	300	302	309	305	308	303	306	301	306			
40	282	279	283	278	279	275	279	276	279	285	281	284	279	282	277	282			
45	256	253	257	252	253	249	252	250	253	258	256	258	253	256	251	255			
50	228	226	228	224	225	221	224	222	225	230	228	230	225	227	224	227			
55	198	196	198	194	195	191	194	193	195	200	198	200	196	198	195	198			
60	164	166	164	164	161	161	161	162	165	166	167	166	166	164	165	164			
65	133	134	133	133	130	130	130	132	134	135	136	135	135	133	134	133			
70	102	103	102	102	99.8	100.0	99.4	101	103	103	105	104	104	103	103	103			
75	72.3	73.1	72.0	71.8	70.1	70.3	69.9	71.1	72.9	73.1	74.4	73.6	74.0	72.9	73.4	72.8			
80	43.6	44.3	43.2	43.2	41.8	42.1	41.6	42.8	44.1	44.2	45.4	44.8	45.4	44.5	44.9	44.3			
85	17.7	18.0	17.1	17.2	16.2	16.6	16.2	17.0	18.1	17.9	19.0	18.6	19.3	18.8	19.1	18.4			
90	0.48	0.46	0.47	0.46	0.47	0.45	0.46	0.45	0.45	0.47	0.47	0.50	0.49	0.51	0.50	0.51			

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	DLW0095(WFRL6R139FA120WBS)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290002	120.0	60	0.102	12.10	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

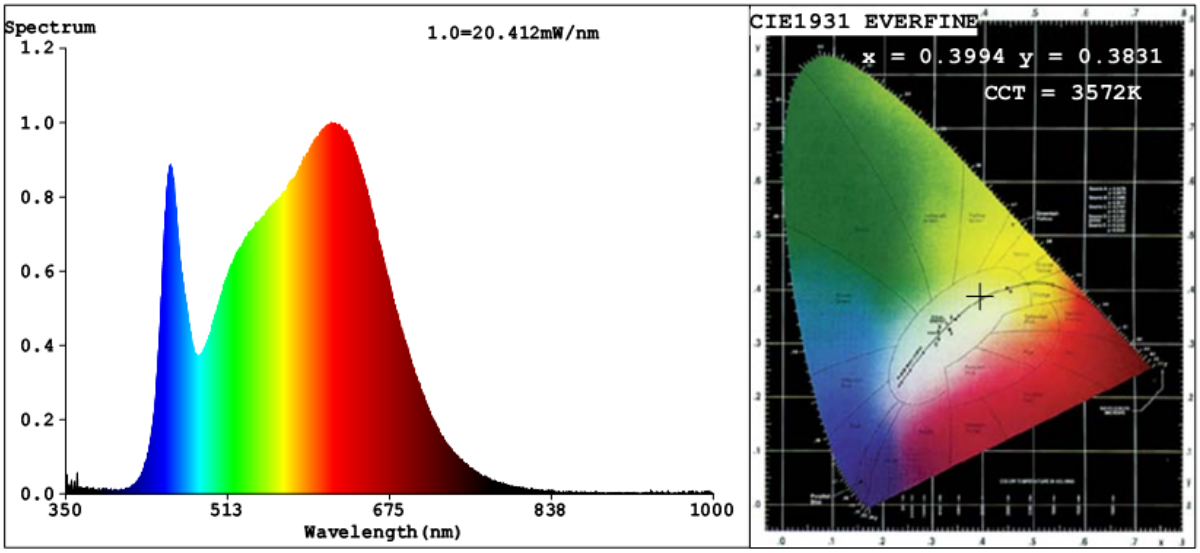
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3572
Duv	-0.0020
Chromaticity (x, y)	x=0.3994 y=0.3831
Chromaticity (u', v')	u'=0.2349 v'=0.5072
Color Rendering Index (CRI)	94.7
R9	72

Special Color Rendering Indices			
R1	96	R9	72
R2	99	R10	95
R3	98	R11	94
R4	94	R12	76
R5	95	R13	97
R6	95	R14	99
R7	93	R15	94
R8	88	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1145.6
Luminous Efficacy (lm/W)	94.68
Beam Angle (°)	110.8
Center Beam Candle Power (cd)	406.6

Spectral Power Distribution & Chromaticity Diagram



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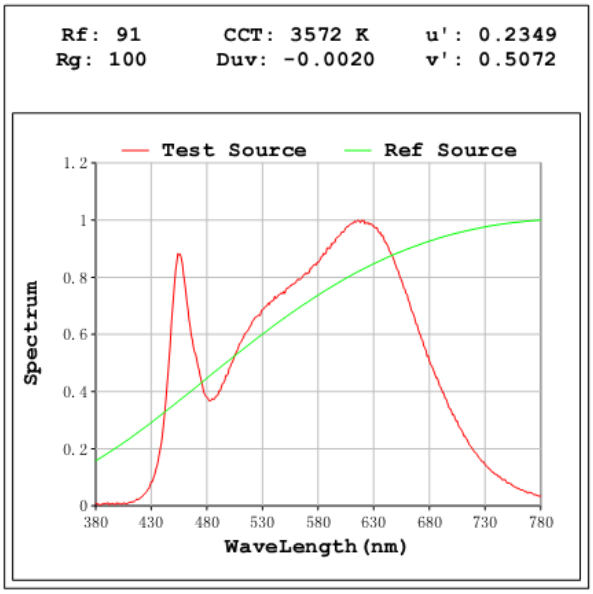
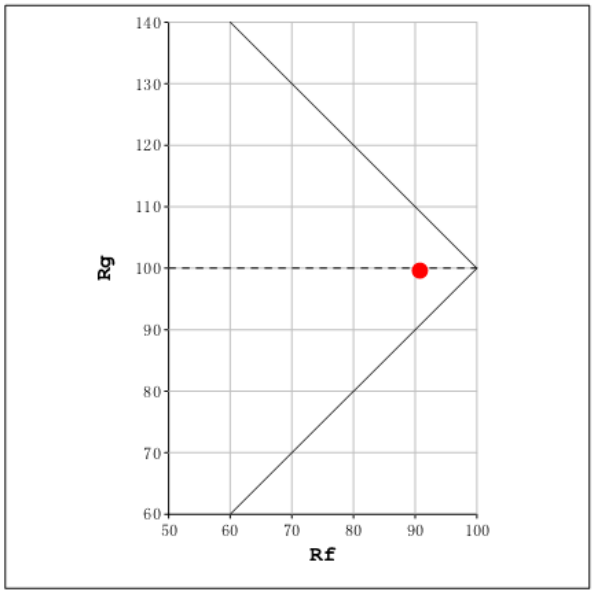
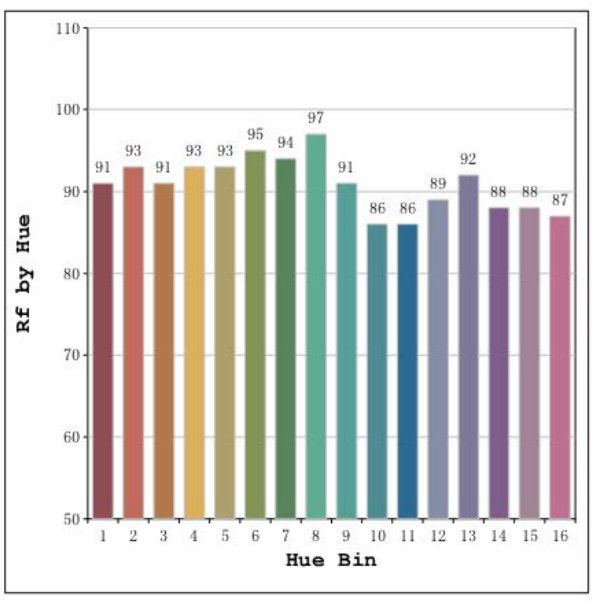
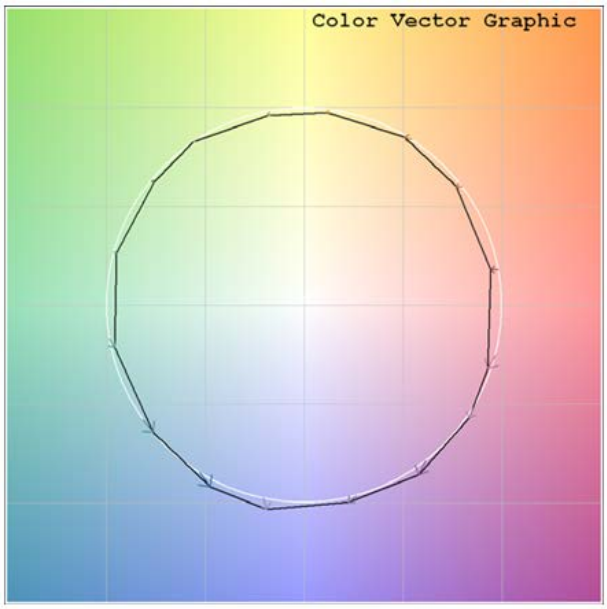






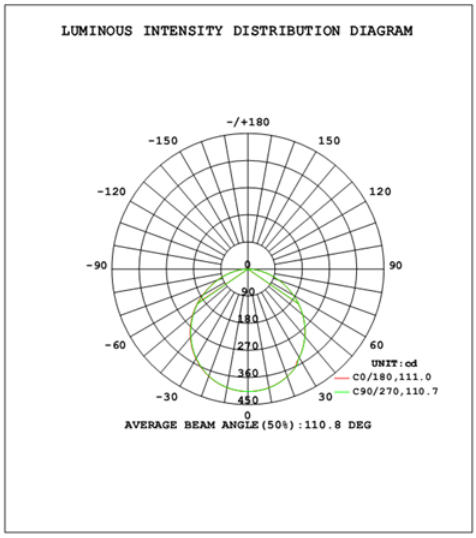


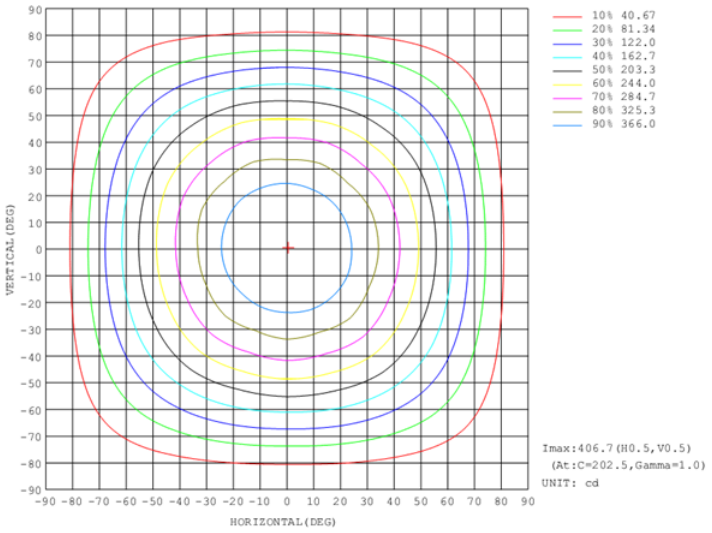
Zonal Lumen Tabulation

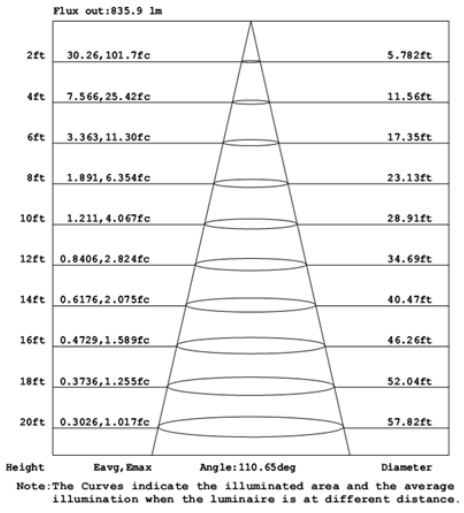
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	316.0	27.6%
0-40	515.6	45.0%
0-60	905.0	79.0%
60-90	240.6	21.0%
70-100	102.1	8.9%
90-120	0.0	0.0%
0-90	1145.6	100.0%
90-180	0.0	0.0%
0-180	1145.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	38.5	3.4%	90-100	0.0	0.0%
10-20	110.4	9.6%	100-110	0.0	0.0%
20-30	167.1	14.6%	110-120	0.0	0.0%
30-40	199.6	17.4%	120-130	0.0	0.0%
40-50	205.6	17.9%	130-140	0.0	0.0%
50-60	183.8	16.0%	140-150	0.0	0.0%
60-70	138.5	12.1%	150-160	0.0	0.0%
70-80	80.4	7.0%	160-170	0.0	0.0%
80-90	21.7	1.9%	170-180	0.0	0.0%

Photometric Data







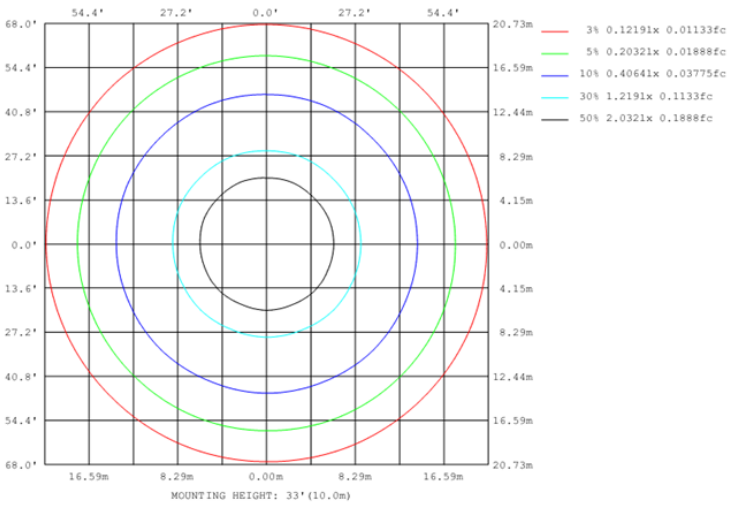


Table--1

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	407	407	407	407	407	407	407	407	407	407	407	407	407	407	407	407			
5	405	405	405	405	405	405	405	405	405	405	405	405	405	405	405	405			
10	400	400	400	400	399	399	399	400	400	400	401	400	401	400	400	400			
15	391	392	391	391	390	390	390	391	392	392	393	392	392	391	391	391			
20	379	380	379	379	378	377	377	378	380	380	381	380	380	379	379	379			
25	363	365	364	363	362	361	361	362	364	365	366	365	365	363	363	363			
30	344	340	345	339	342	336	341	337	339	346	342	346	340	344	338	344			
35	322	318	323	317	319	314	318	315	318	324	320	324	318	321	316	321			
40	296	294	298	292	294	289	293	290	293	299	296	299	293	296	291	296			
45	269	266	270	264	266	261	265	263	266	271	268	271	266	268	264	268			
50	239	237	240	235	236	232	235	233	236	241	239	241	237	239	235	239			
55	208	206	208	204	205	201	204	203	205	210	208	210	206	207	204	208			
60	172	174	173	172	169	169	169	171	173	174	176	174	174	172	173	172			
65	140	141	140	139	137	137	137	138	141	141	143	142	142	140	141	140			
70	107	109	107	107	105	105	104	106	108	109	110	109	109	108	108	108			
75	76.0	76.9	75.6	75.4	73.7	73.9	73.4	74.8	76.6	76.8	78.2	77.3	77.8	76.7	77.2	76.6			
80	45.9	46.6	45.4	45.4	44.0	44.3	43.8	44.9	46.3	46.4	47.7	47.1	47.7	46.9	47.3	46.6			
85	18.7	19.0	18.0	18.1	17.1	17.4	17.1	17.9	19.0	18.8	20.0	19.6	20.3	19.7	20.1	19.4			
90	0.50	0.48	0.49	0.48	0.49	0.47	0.49	0.48	0.48	0.50	0.48	0.53	0.51	0.55	0.52	0.53			

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	DLW0095(WFRL6R139FA120WBS)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290002	120.0	60	0.103	12.20	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

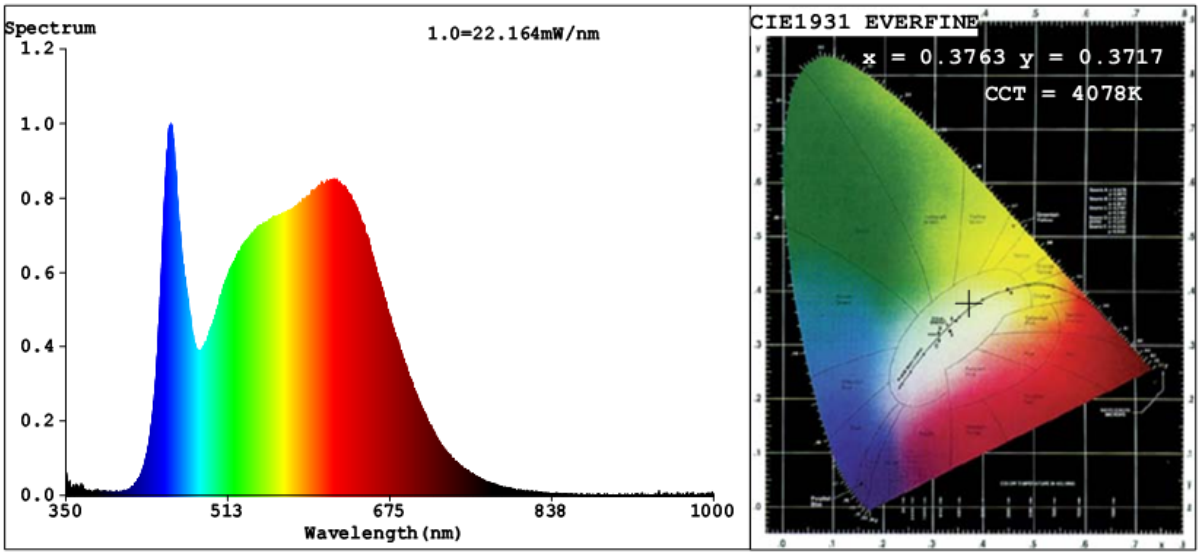
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4078
Duv	-0.0012
Chromaticity (x, y)	x=0.3763 y=0.3717
Chromaticity (u', v')	u'=0.2244 v'=0.4987
Color Rendering Index (CRI)	94.4
R9	75

Special Color Rendering Indices			
R1	96	R9	75
R2	98	R10	93
R3	97	R11	93
R4	93	R12	71
R5	94	R13	97
R6	94	R14	98
R7	94	R15	94
R8	89	--	--

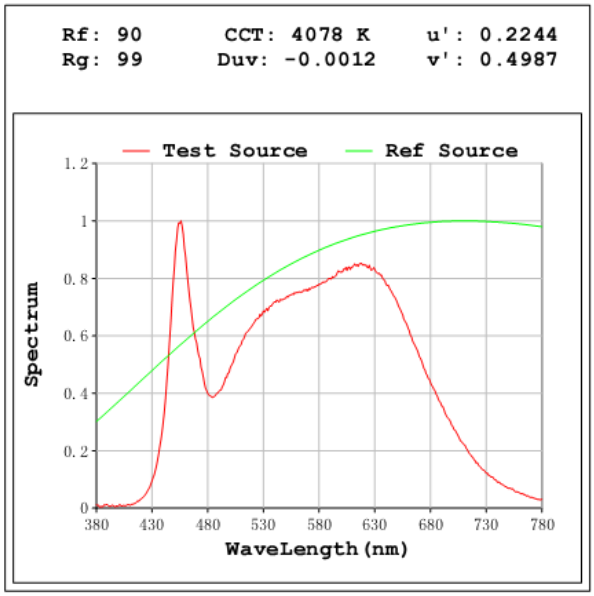
Photometric Measurement – Goniophotometer Method:

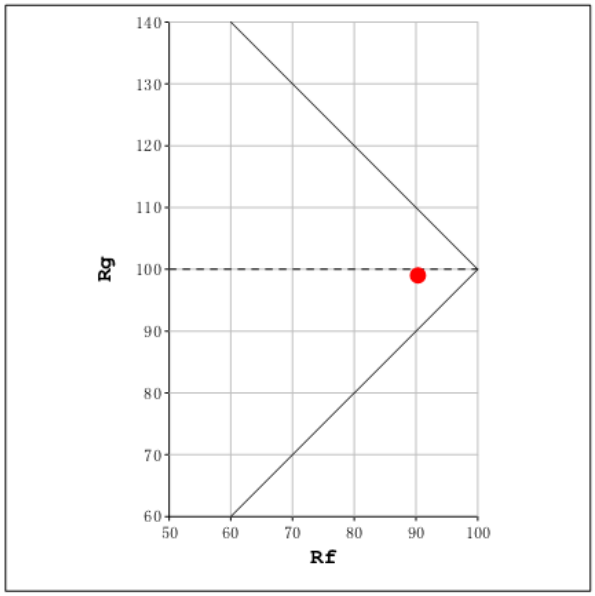
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1161.4
Luminous Efficacy (lm/W)	95.20
Beam Angle (°)	110.9
Center Beam Candle Power (cd)	412.2

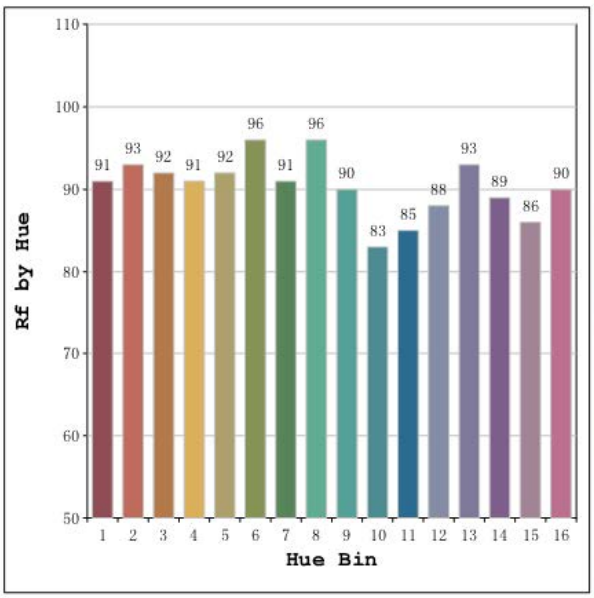
Spectral Power Distribution & Chromaticity Diagram

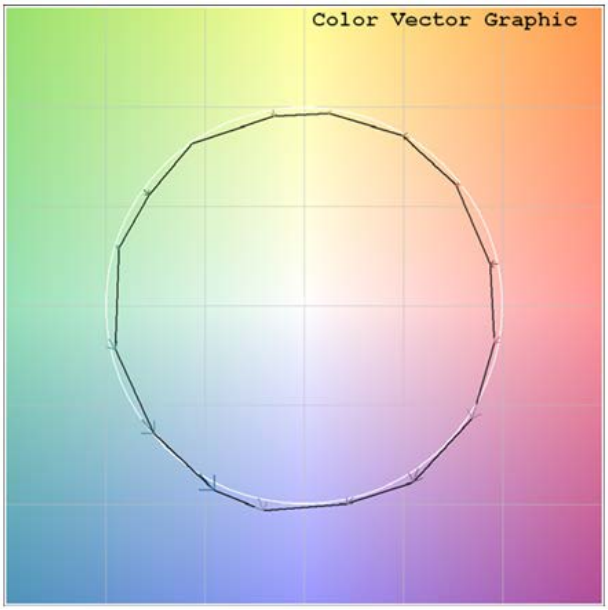


TM30







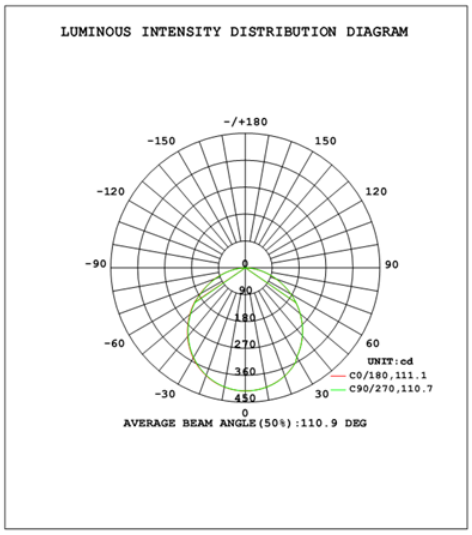


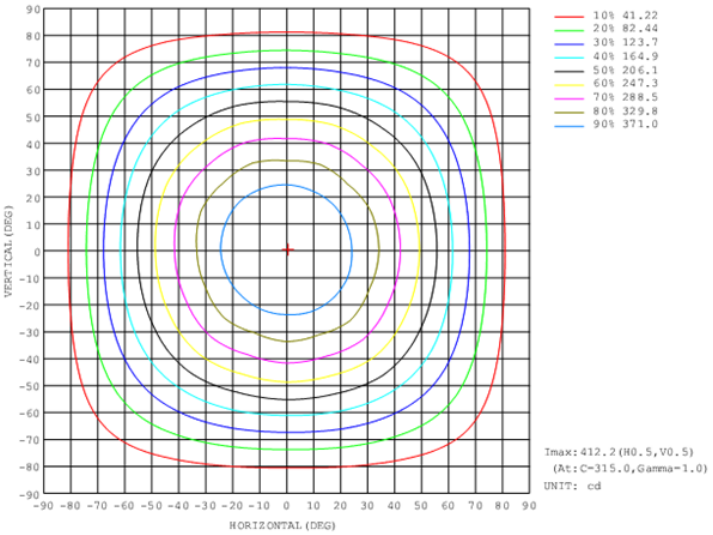
Zonal Lumen Tabulation

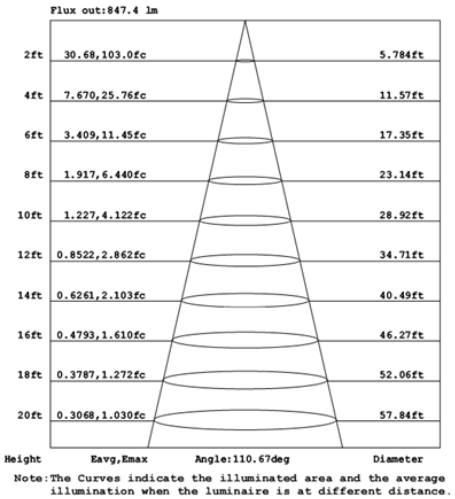
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	320.4	27.6%
0-40	522.7	45.0%
0-60	917.5	79.0%
60-90	243.9	21.0%
70-100	103.5	8.9%
90-120	0.0	0.0%
0-90	1161.4	100.0%
90-180	0.0	0.0%
0-180	1161.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	39.0	3.4%	90-100	0.0	0.0%
10-20	111.9	9.6%	100-110	0.0	0.0%
20-30	169.5	14.6%	110-120	0.0	0.0%
30-40	202.3	17.4%	120-130	0.0	0.0%
40-50	208.4	17.9%	130-140	0.0	0.0%
50-60	186.4	16.1%	140-150	0.0	0.0%
60-70	140.4	12.1%	150-160	0.0	0.0%
70-80	81.6	7.0%	160-170	0.0	0.0%
80-90	22.0	1.9%	170-180	0.0	0.0%

Photometric Data







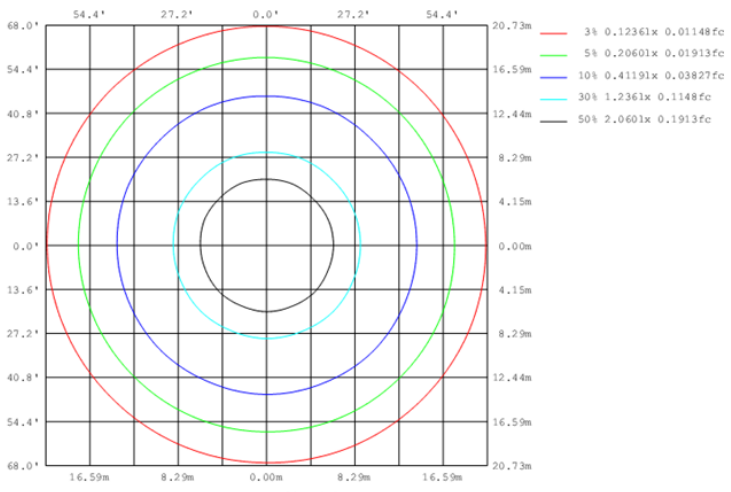


Table--1

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	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412			
5	410	410	410	410	410	410	410	410	410	410	411	410	411	410	411	410			
10	405	405	405	405	404	405	404	405	405	406	406	406	406	405	405	405			
15	396	397	397	396	395	395	395	396	397	397	398	397	397	396	397	396			
20	384	385	385	384	383	382	382	383	385	385	386	385	385	384	384	384			
25	368	369	369	368	366	366	365	367	369	370	371	370	369	368	368	368			
30	349	345	350	343	346	341	345	342	344	351	347	351	344	348	343	348			
35	326	322	327	321	323	318	322	319	322	328	325	328	322	325	320	326			
40	301	297	301	296	298	293	297	294	297	303	300	303	297	300	295	300			
45	272	270	273	268	270	265	268	266	269	275	272	275	269	272	268	272			
50	242	240	243	238	239	235	238	237	239	245	242	245	240	242	238	242			
55	211	209	211	207	208	204	207	205	208	213	211	213	209	210	207	210			
60	175	176	175	174	172	172	171	173	176	177	178	177	176	175	175	175			
65	142	143	142	141	139	139	138	140	143	143	145	144	144	142	143	142			
70	109	110	109	109	106	107	106	108	110	110	112	110	111	109	110	109			
75	77.1	78.0	76.7	76.5	74.7	75.0	74.5	75.8	77.6	77.8	79.3	78.4	78.9	77.8	78.3	77.5			
80	46.6	47.3	46.0	46.1	44.6	44.9	44.4	45.6	47.0	47.1	48.3	47.8	48.4	47.6	48.0	47.2			
85	19.0	19.3	18.3	18.4	17.4	17.7	17.3	18.2	19.2	19.2	20.2	19.9	20.6	20.1	20.4	19.7			
90	0.50	0.49	0.50	0.50	0.50	0.50	0.49	0.48	0.48	0.50	0.49	0.53	0.53	0.55	0.53	0.54			

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	DLW0095(WFRL6R139FA120WBS)	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202208290002	120.0	60	0.105	12.40	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

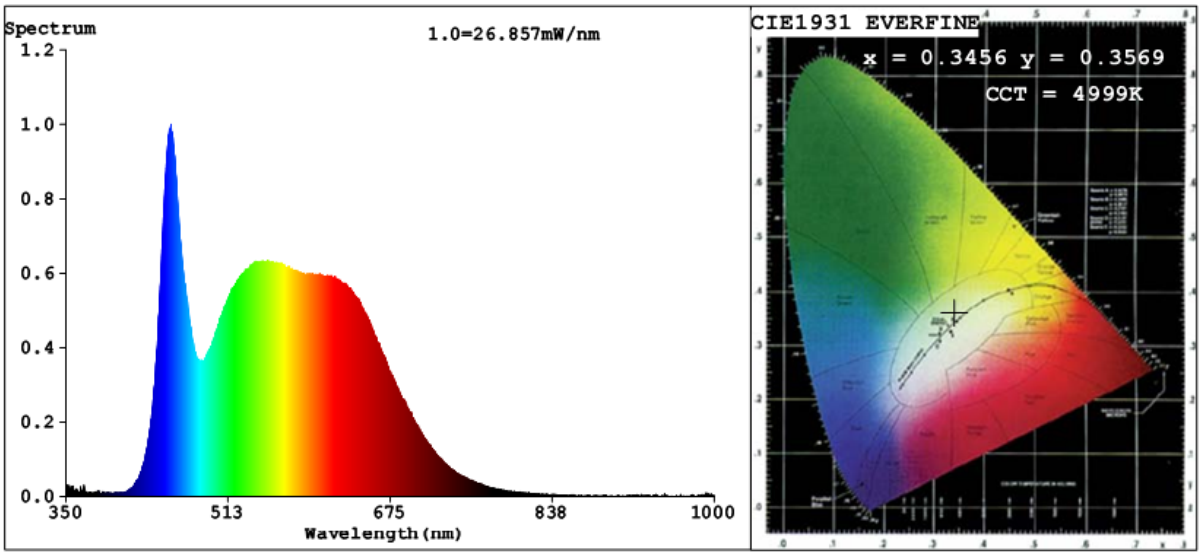
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4999
Duv	0.0024
Chromaticity (x, y)	x=0.3456 y=0.3569
Chromaticity (u', v')	u'=0.2097 v'=0.4873
Color Rendering Index (CRI)	92.2
R9	70

Special Color Rendering Indices			
R1	92	R9	70
R2	96	R10	87
R3	96	R11	89
R4	90	R12	63
R5	90	R13	94
R6	91	R14	98
R7	95	R15	90
R8	88	--	--

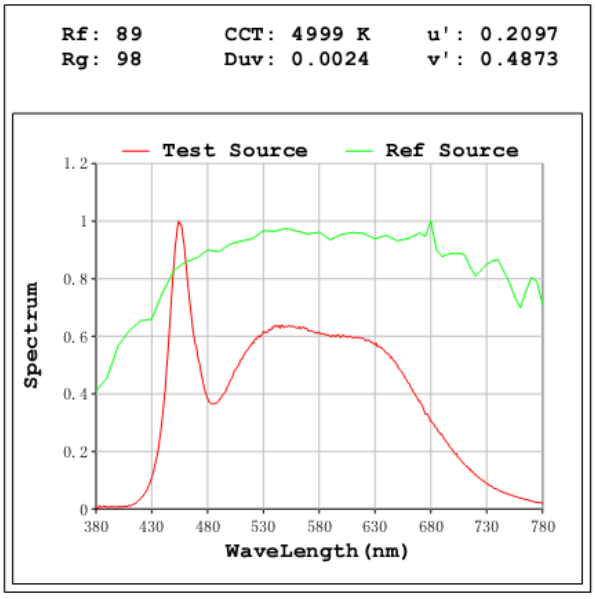
Photometric Measurement – Goniophotometer Method:

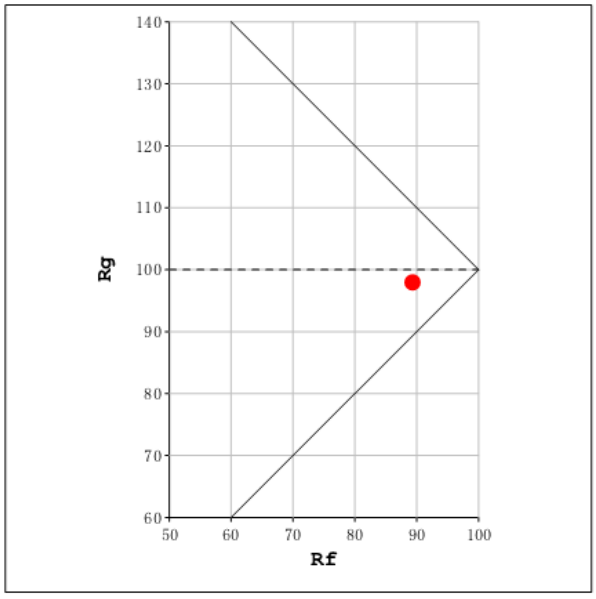
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1140.1
Luminous Efficacy (lm/W)	91.94
Beam Angle (°)	110.9
Center Beam Candle Power (cd)	404.6

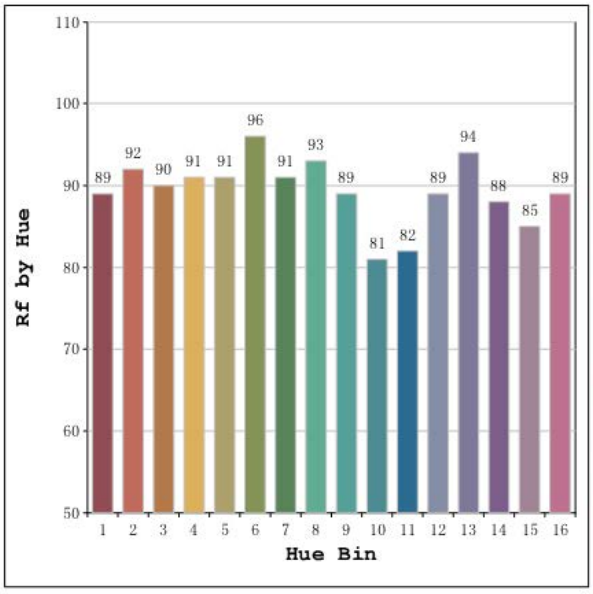
Spectral Power Distribution & Chromaticity Diagram

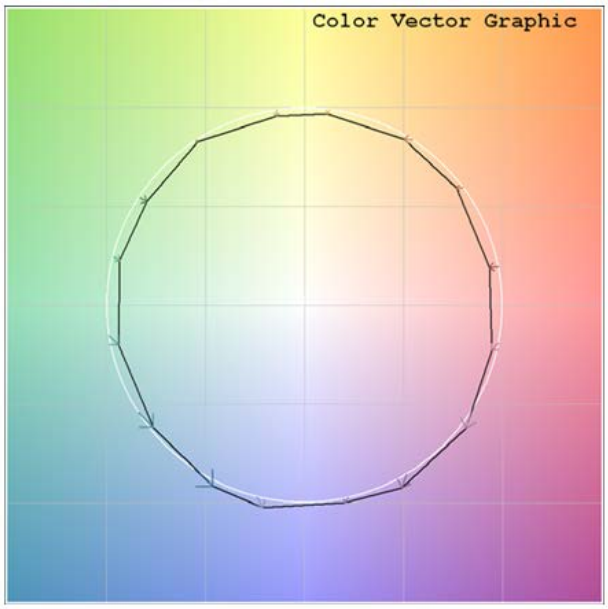


TM30







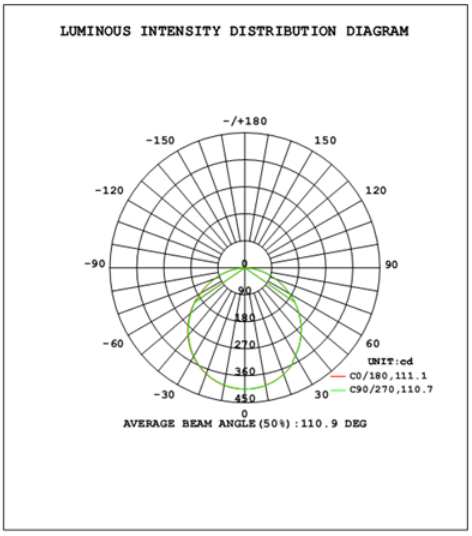


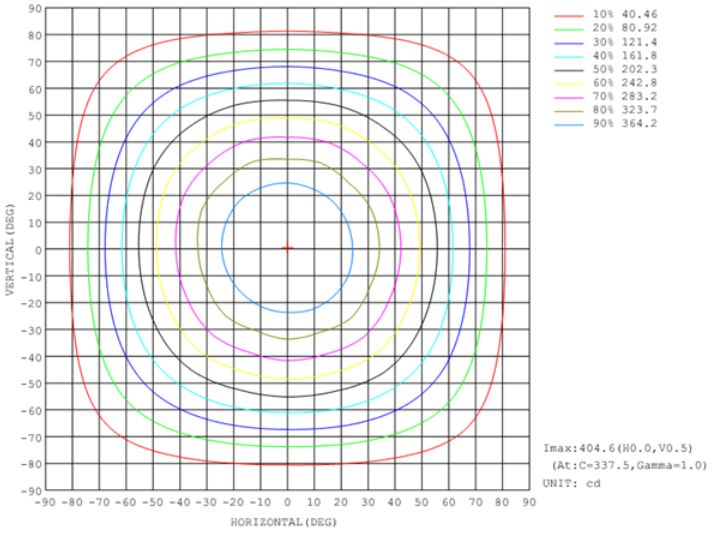
Zonal Lumen Tabulation

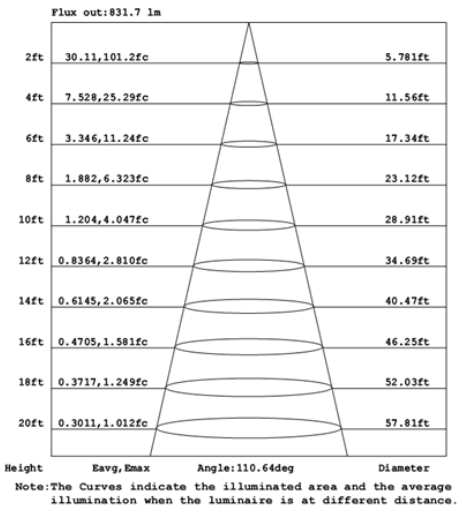
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	314.3	27.6%
0-40	512.9	45.0%
0-60	900.5	79.0%
60-90	239.6	21.0%
70-100	101.7	8.9%
90-120	0.0	0.0%
0-90	1140.1	100.0%
90-180	0.0	0.0%
0-180	1140.1	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	38.3	3.4%	90-100	0.0	0.0%
10-20	109.9	9.6%	100-110	0.0	0.0%
20-30	166.1	14.6%	110-120	0.0	0.0%
30-40	198.6	17.4%	120-130	0.0	0.0%
40-50	204.6	17.9%	130-140	0.0	0.0%
50-60	183.0	16.0%	140-150	0.0	0.0%
60-70	137.9	12.1%	150-160	0.0	0.0%
70-80	80.1	7.0%	160-170	0.0	0.0%
80-90	21.6	1.9%	170-180	0.0	0.0%

Photometric Data







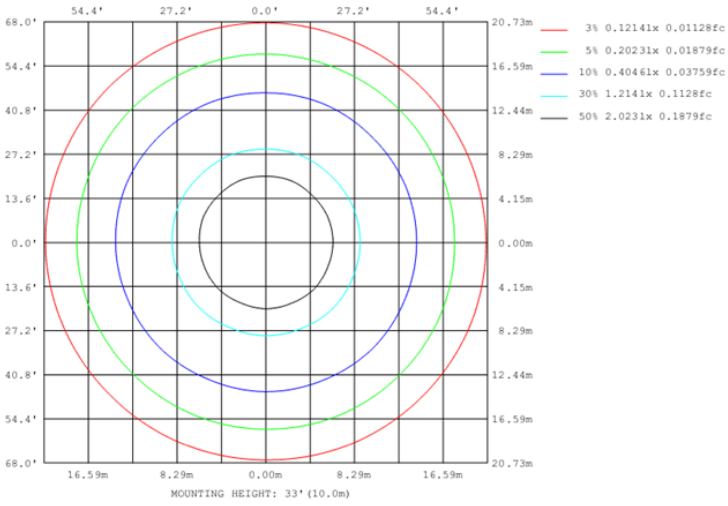


Table--1 UNIT: cd

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	405	405	405	405	405	405	405	405	405	405	405	405	405	405	405	405			
5	403	403	403	403	402	403	402	403	403	403	403	403	403	403	403	403			
10	398	398	398	398	397	397	397	397	398	398	399	398	398	398	398	398			
15	389	390	389	389	388	388	388	388	390	390	391	390	390	389	389	389			
20	377	378	377	377	376	375	375	376	378	378	379	379	378	377	377	377			
25	361	363	362	362	360	359	359	360	362	363	365	363	363	361	361	361			
30	342	338	343	337	340	334	339	335	338	345	340	345	338	342	337	342			
35	320	317	321	315	317	312	316	313	316	323	319	323	316	320	315	320			
40	295	292	296	290	292	287	291	288	291	298	294	297	292	295	290	295			
45	268	265	268	263	264	260	263	261	264	270	267	270	265	267	263	267			
50	238	236	239	234	235	231	234	232	235	240	238	240	236	238	234	238			
55	207	205	207	203	204	200	203	202	204	209	207	209	205	207	204	207			
60	172	173	172	171	169	169	168	170	172	173	175	174	173	172	172	172			
65	139	141	139	139	136	136	136	138	140	141	142	141	141	140	140	140			
70	107	108	107	107	104	105	104	106	108	108	110	109	109	108	108	107			
75	75.8	76.6	75.3	75.2	73.4	73.6	73.2	74.5	76.2	76.5	77.8	77.0	77.5	76.5	76.9	76.3			
80	45.9	46.5	45.3	45.3	43.8	44.1	43.7	44.8	46.1	46.2	47.4	46.9	47.5	46.8	47.1	46.5			
85	18.7	19.0	18.1	18.1	17.1	17.4	17.1	17.8	18.8	18.8	19.8	19.6	20.3	19.7	20.1	19.4			
90	0.50	0.48	0.50	0.49	0.49	0.47	0.48	0.48	0.48	0.49	0.48	0.53	0.51	0.54	0.52	0.53			

3. Product Photo

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