LM-79-08 Test Report

For

RAB LIGHTING INC

(Brand Name : RAB)

170 Ludlow Ave , PO BOX 970,Northvale,NJ 07647-2305 USA

Model name(s) :

DLG0017(GR4)

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

Type of Luminaire: Downlights

Report Date: 2023-6-17

1.1 Rated Values:	
Rated Voltage / Frequency	120V,60HZ
Nominal Power	15W
Rated Initial Lamp Lumen	950lm（2700k），1000lm（3000k）
Declared CCT	2700k/3000k/3500k/4000k/5000k

1.2 Test Specifications:

Test item	1. Total Luminous Flux 2. Luminous Distribution I ntensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity C oordinate 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	2023-6-17	**Test Ambient:**	25.3
Test Orientation	As intended	**Stabilization Time (min)**	15
Model Number	DLG0017(GR4)	**CCT Setting**	2700k

Electrical Measurement:

Sampel No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
#1	120	60	0.1200	14.21	0.9832

Chromaticity Measurement – Sphere-Spectroradiometer Method:

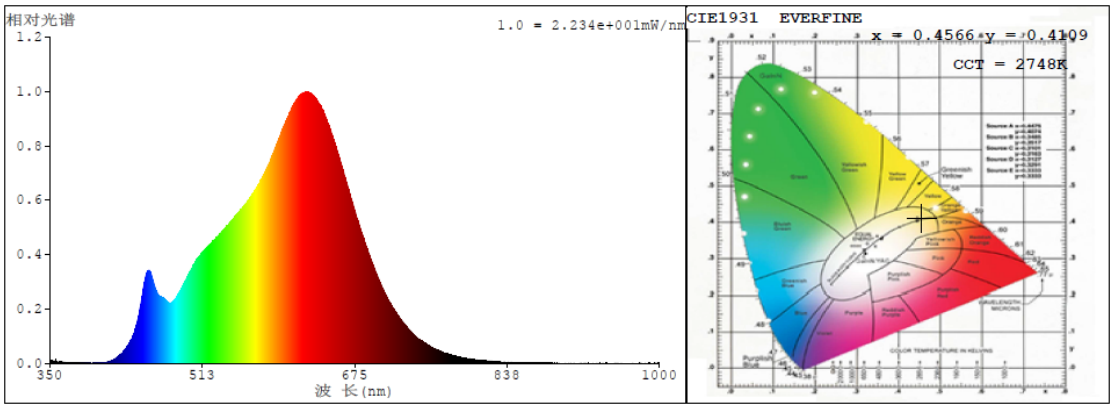
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2748
Duv	0.000383
Chromaticity (x, y)	x=0.4566, y=0.4109
Chromaticity (u', v')	u'=0.2603, v'=0.5270
Color Rendering Index (CRI)	94.9
R9	66

Special Color Rendering Indices			
R1	96	R9	66
R2	99	R10	98
R3	98	R11	99
R4	96	R12	88
R5	96	R13	97
R6	97	R14	100
R7	92	R15	91
R8	84	--	--

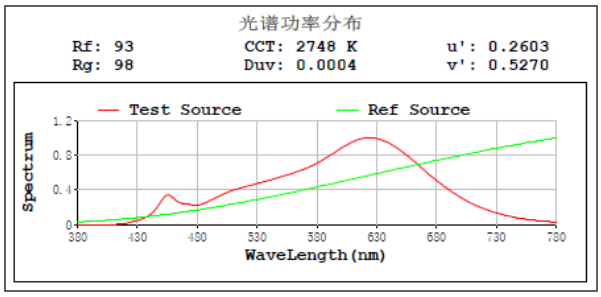
Photometric Measurement – Goniophotometer Method:

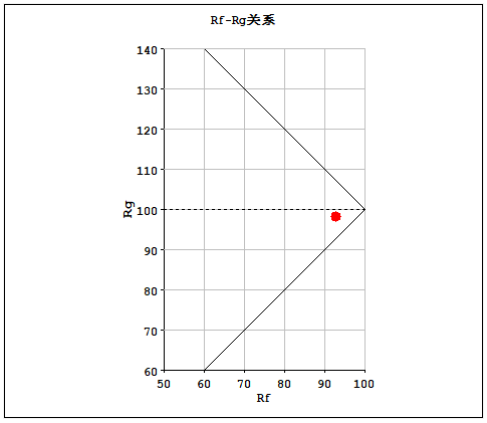
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1029.2
Luminous Efficacy (lm/W)	72.65
Beam Angle (°)	37.1
Center Beam Candle Power (cd)	2772

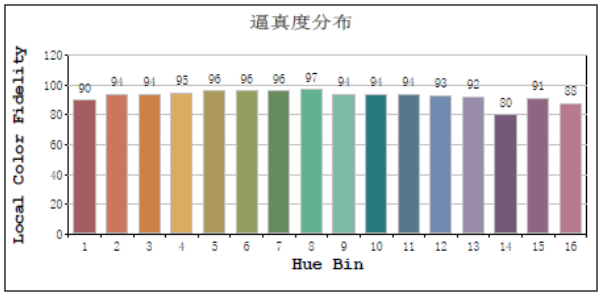
Spectral Power Distribution & Chromaticity Diagram

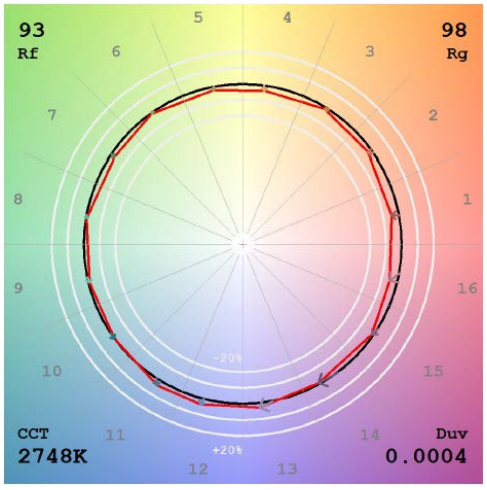


TM30







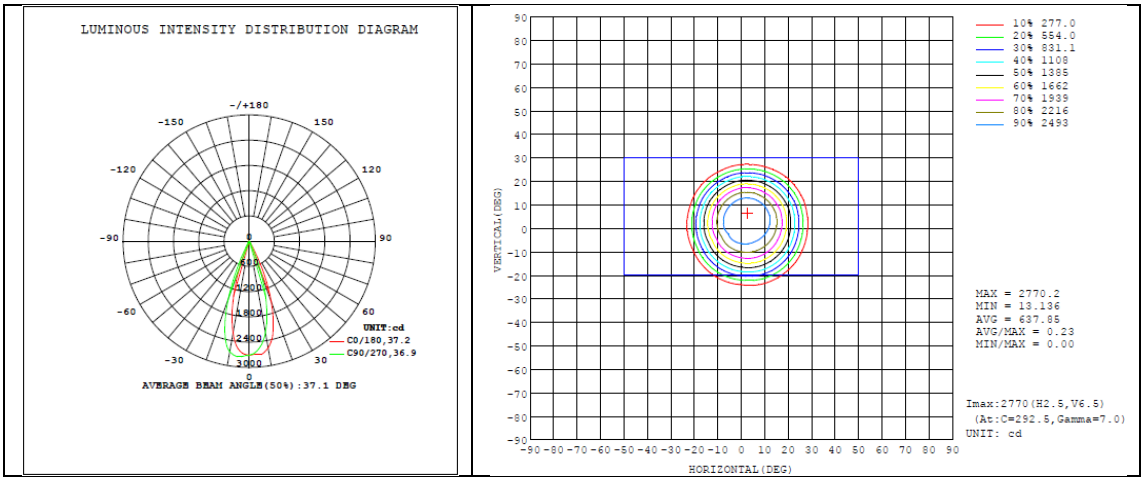


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
0-30	960.2	93.3%
0-40	987.0	95.9%
0-60	1019.9	99.1%
60-90	9.3	0.8%
70-100	3.1	0.3%
90-120	0.0	0.0%
0-90	1029.2	100.0%
90-180	0.0	0.0%
0-180	1029.2	100.0%

Lumens Per Zone					
Zone	**Lumens**	**% Total**	**Zone**	**Lumens**	**% Total**
0-10	247.0	24.0%	90-100	0	0%
10-20	505.3	49.1%	100-110	0	0%
20-30	207.9	20.2%	110-120	0	0%
30-40	26.8	2.6%	120-130	0	0%
40-50	19.6	1.9%	130-140	0	0%
50-60	13.4	1.3%	140-150	0	0%
60-70	6.2	0.6%	150-160	0	0%
70-80	2.1	0.2%	160-170	0	0%
80-90	1.0	0.1%	170-180	0	0%

Photometric Data



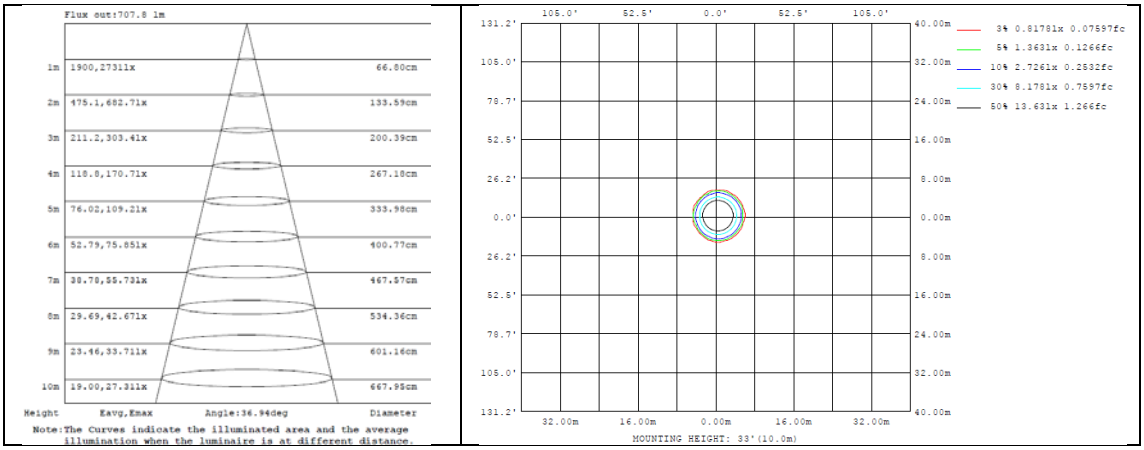


Table--1 UNIT: cd

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	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710	2710			
5	2705	2682	2634	2599	2571	2563	2558	2570	2613	2657	2700	2738	2754	2752	2719	2716			
10	2576	2473	2377	2300	2214	2160	2134	2130	2220	2334	2456	2578	2670	2711	2701	2662			
15	2198	2056	1910	1762	1606	1509	1445	1420	1523	1669	1868	2062	2247	2341	2374	2336			
20	1530	1383	1207	1037	857	744	664	624	708	834	1035	1228	1459	1595	1676	1675			
25	752	604	441	309	180	127	97.3	90.0	108	146	262	402	588	733	828	866			
30	142	90.8	73.3	63.9	54.4	49.0	45.9	43.8	45.4	49.4	57.0	68.3	84.8	121	138	165			
35	46.6	44.1	41.6	39.1	36.6	35.4	34.0	33.6	33.3	34.1	36.1	38.2	41.7	45.1	48.3	50.5			
40	32.3	32.0	31.6	31.2	30.4	29.5	29.0	28.8	28.4	28.9	28.8	29.1	30.0	30.9	31.5	32.3			
45	24.7	25.4	25.5	25.4	25.5	25.4	25.2	25.1	24.3	24.0	23.9	23.9	24.0	23.9	23.8	24.7			
50	18.4	19.1	19.9	20.9	21.4	21.8	21.8	21.5	20.9	20.2	19.5	18.7	18.0	17.4	17.4	17.9			
55	14.1	14.5	15.2	15.9	16.3	16.7	16.7	16.3	15.9	15.2	14.7	14.4	14.1	13.7	13.6	13.8			
60	9.67	10.3	11.0	11.7	12.0	12.3	12.1	11.6	11.4	10.7	9.95	9.34	9.08	8.97	8.97	9.61			
65	5.50	5.85	6.23	6.63	6.70	6.86	6.66	6.39	6.32	5.98	5.64	5.31	5.11	5.03	5.13	5.48			
70	2.81	3.08	3.41	3.72	3.94	4.08	4.02	3.87	3.74	3.50	3.20	2.91	2.70	2.55	2.52	2.75			
75	1.83	1.99	2.29	2.54	2.81	2.95	3.03	2.95	2.82	2.63	2.33	2.11	1.86	1.75	1.65	1.75			
80	1.43	1.55	1.80	1.99	2.21	2.30	2.33	2.21	2.12	1.96	1.75	1.57	1.40	1.33	1.26	1.38			
85	0.62	0.69	0.87	0.98	1.10	1.15	1.14	1.01	0.98	0.89	0.73	0.65	0.53	0.51	0.47	0.62			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2023-6-17	Test Ambient:	25.3
Test Orientation	As intended	Stabilization Time (min)	15
Model Number	DLG0017(GR4)	CCT Setting	3000k

Electrical Measurement:

Sampel No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
#1	120	60	0.1174	13.90	0.9826

Chromaticity Measurement - Sphere-Spectroradiometer Method:

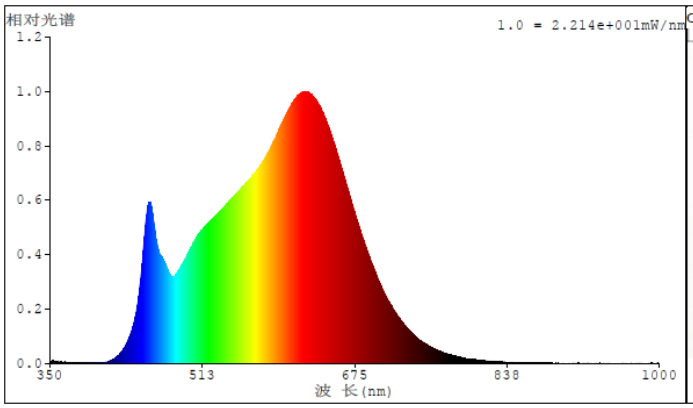
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3113
Duv	-0.00150
Chromaticity (x, y)	x=0.4271, y=0.3968
Chromaticity (u', v')	u'=0.2473, v'=0.5170
Color Rendering Index (CRI)	95.3
R9	74

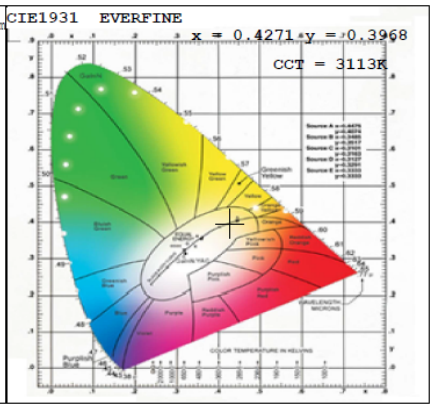
Special Color Rendering Indices			
R1	98	R9	74
R2	99	R10	99
R3	98	R11	98
R4	96	R12	83
R5	97	R13	99
R6	95	R14	99
R7	92	R15	94
R8	87	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1122.6
Luminous Efficacy (lm/W)	80.91
Beam Angle (°)	37.1
Center Beam Candle Power (cd)	3010

Spectral Power Distribution & Chromaticity Diagram





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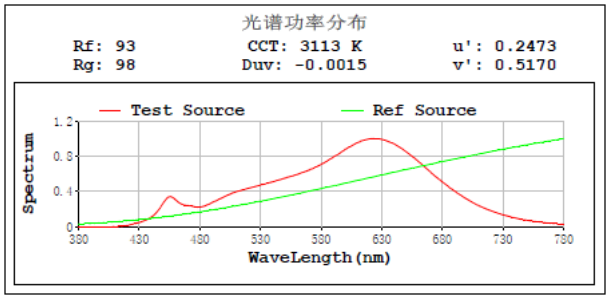
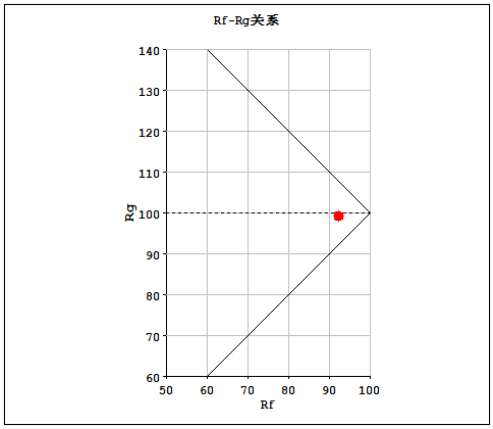
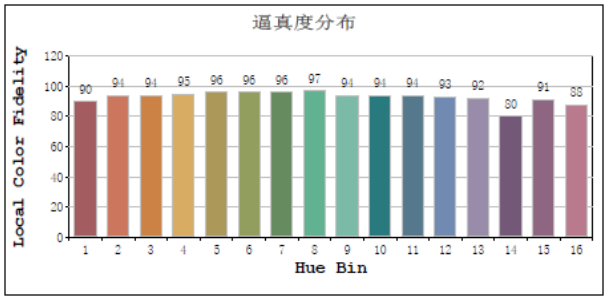
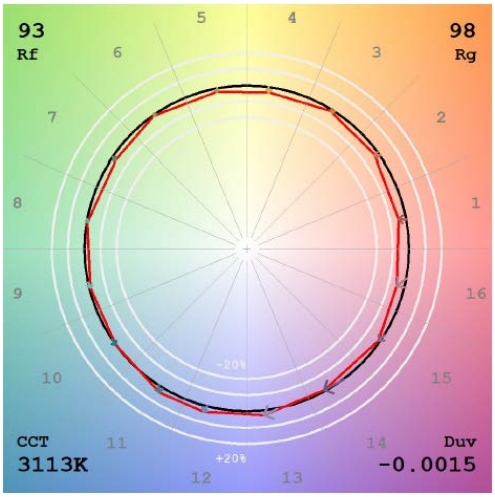






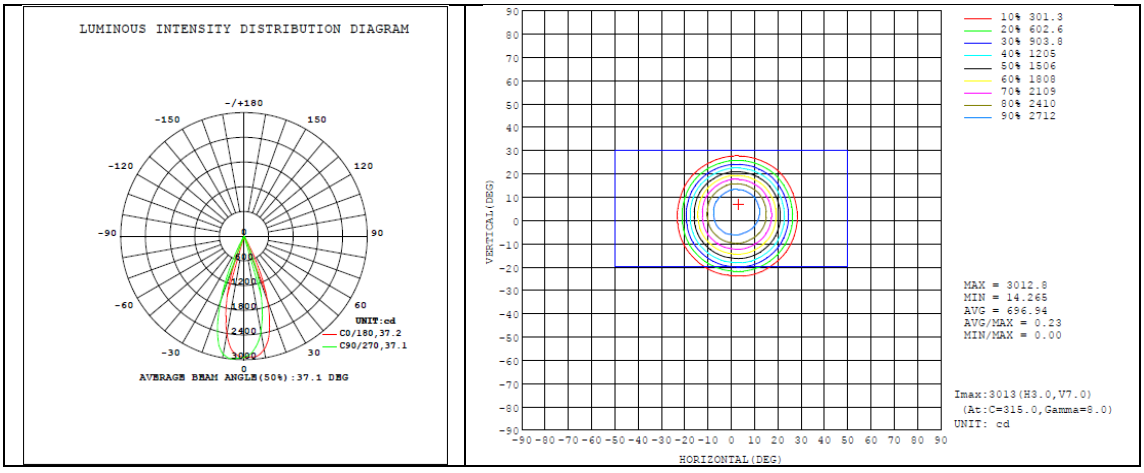


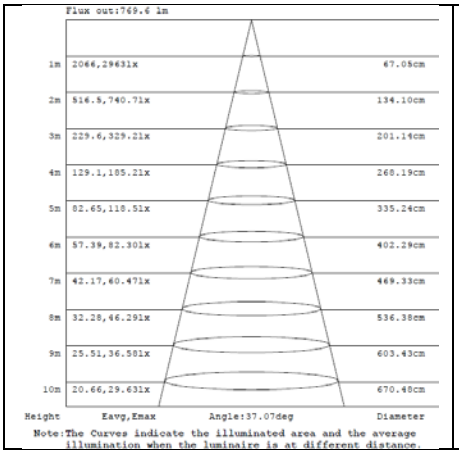
Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
0-30	1046.3	93.2%
0-40	1076.6	95.9%
0-60	1112.5	99.1%
60-90	10.1	0.8%
70-100	3.4	0.3%
90-120	0.0	0.0%
0-90	1122.6	100.0%
90-180	0.0	0.0%
0-180	1122.6	100.0%

Lumens Per Zone					
Zone	**Lumens**	**% Total**	**Zone**	**Lumens**	**% Total**
0-10	267.2	23.8%	90-100	0	0%
10-20	551.2	49.1%	100-110	0	0%
20-30	227.9	20.3%	110-120	0	0%
30-40	30.3	2.7%	120-130	0	0%
40-50	21.3	1.9%	130-140	0	0%
50-60	14.6	1.3%	140-150	0	0%
60-70	6.7	0.6%	150-160	0	0%
70-80	2.2	0.2%	160-170	0	0%
80-90	1.1	0.1%	170-180	0	0%

Photometric Data





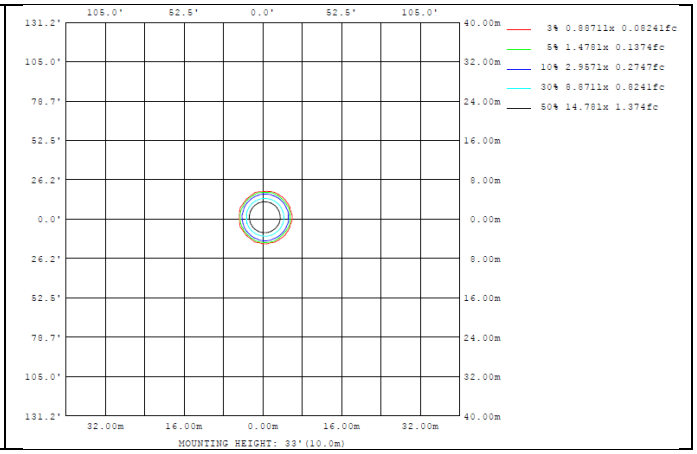


Table--1 UNIT: cd

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	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940
5	2945	2903	2842	2811	2767	2777	2779	2805	2836	2880	2937	2974	2988	2977	2957	2951
10	2795	2683	2548	2471	2362	2319	2306	2358	2414	2541	2709	2821	2913	2946	2954	2877
15	2392	2221	2016	1858	1682	1597	1556	1592	1652	1834	2083	2297	2497	2577	2615	2512
20	1673	1478	1248	1066	878	768	709	723	764	937	1186	1411	1663	1791	1862	1787
25	828	630	425	289	169	125	115	106	117	171	326	506	713	859	942	909
30	139	95.6	75.5	66.0	57.0	52.1	49.9	49.0	49.6	55.5	65.3	80.3	102	151	164	163
35	51.5	47.9	44.4	41.8	39.3	38.1	37.2	37.2	36.4	38.1	40.4	43.1	47.2	51.1	54.1	53.9
40	35.5	35.2	33.7	33.4	32.8	32.0	31.8	31.7	31.1	32.2	32.1	32.7	33.5	34.5	35.1	34.9
45	27.3	28.0	27.2	26.7	27.4	27.5	27.6	27.7	26.6	26.7	26.7	26.7	26.7	26.5	26.4	26.6
50	20.3	21.0	21.3	21.5	23.0	23.5	23.8	23.7	22.9	22.6	21.7	20.9	20.1	19.4	19.3	19.3
55	15.5	16.0	16.2	15.5	17.4	17.9	18.2	18.0	17.3	17.1	16.6	16.1	15.6	15.1	15.1	15.0
60	10.7	11.2	11.5	10.4	12.5	13.0	13.1	13.1	12.4	12.3	11.7	10.9	10.5	10.1	10.1	10.1
65	6.12	6.42	6.41	6.05	7.03	7.24	7.23	7.20	6.91	6.92	6.56	6.19	5.95	5.78	5.82	5.78
70	3.15	3.43	3.59	3.60	3.96	4.35	4.39	4.35	4.10	4.09	3.73	3.36	3.13	2.91	2.85	2.92
75	2.04	2.27	2.62	2.22	2.81	3.21	3.33	3.26	3.11	3.03	2.68	2.37	2.08	1.95	1.85	1.90
80	1.59	1.76	2.00	1.93	1.34	1.97	2.47	2.48	2.34	2.30	2.06	1.81	1.60	1.51	1.42	1.48
85	0.72	0.79	0.93	1.02	1.16	1.06	1.15	1.19	1.08	1.10	0.93	0.81	0.67	0.63	0.57	0.63
90	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2023-6-17	Test Ambient:	25.3
Test Orientation	As intended	Stabilization Time (min)	15
Model Number	DLG0017(GR4)	CCT Setting	3500k

Electrical Measurement:

Sampel No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
#1	120	60	0.1142	13.50	0.9817

Chromaticity Measurement - Sphere-Spectroradiometer Method:

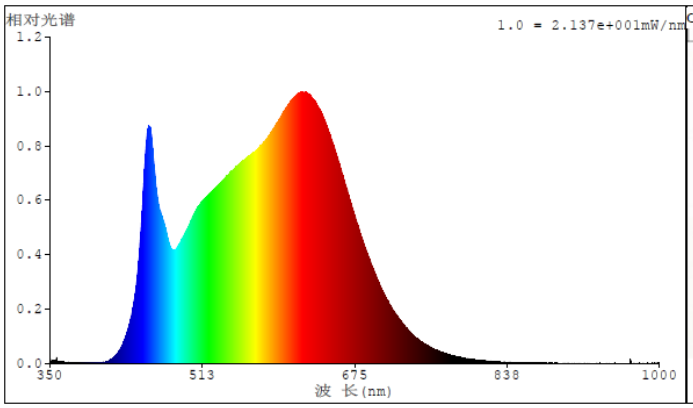
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3581
Duv	-0.00187
Chromaticity (x, y)	x=0.3990, y=0.3833
Chromaticity (u', v')	u'=0.2347, v'=0.5072
Color Rendering Index (CRI)	95.5
R9	79

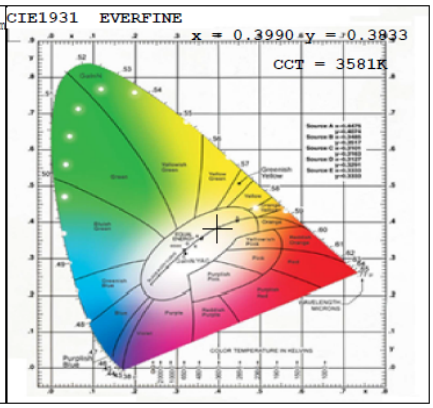
Special Color Rendering Indices			
R1	98	R9	79
R2	99	R10	99
R3	98	R11	97
R4	95	R12	79
R5	96	R13	100
R6	96	R14	100
R7	93	R15	96
R8	89	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1215.4
Luminous Efficacy (lm/W)	89.90
Beam Angle (°)	37.0
Center Beam Candle Power (cd)	3278

Spectral Power Distribution & Chromaticity Diagram





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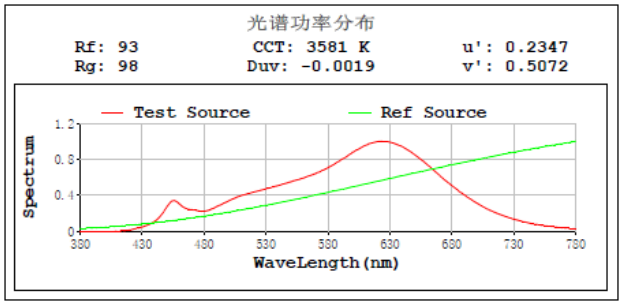
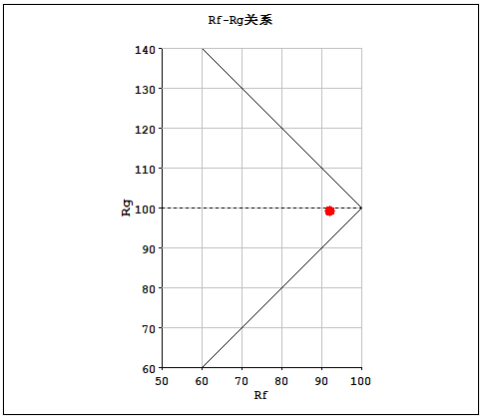
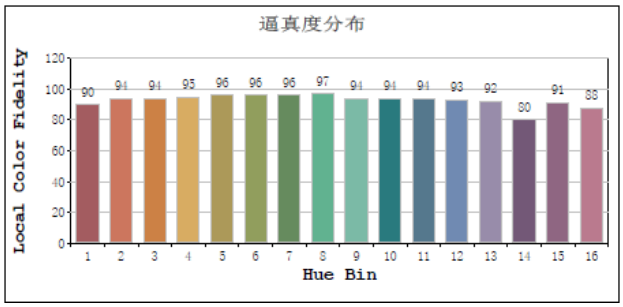
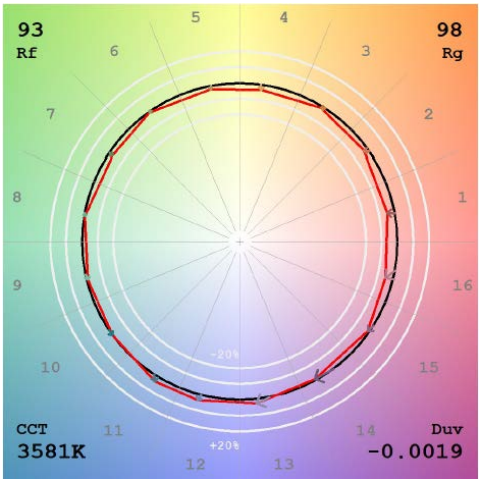






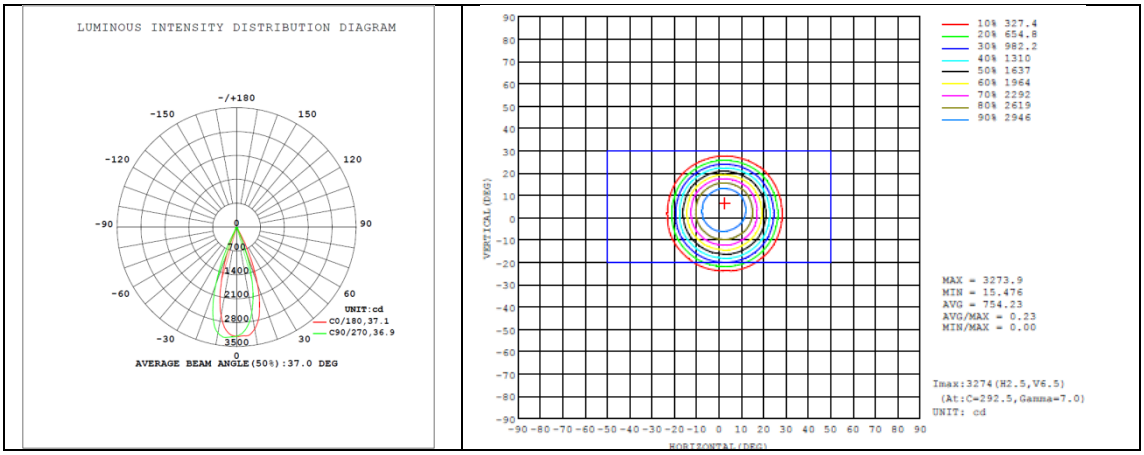


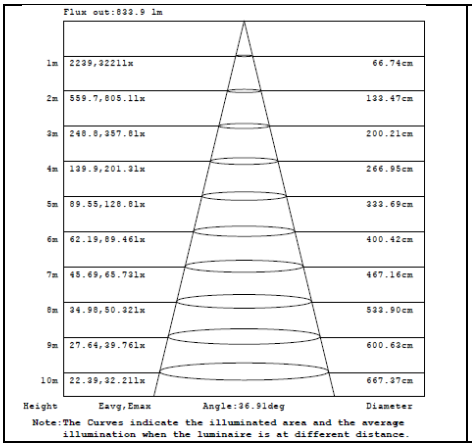
Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
0-30	1132.8	93.2%
0-40	1165.6	95.9%
0-60	1204.5	99.1%
60-90	10.9	0.8%
70-100	3.6	0.3%
90-120	0.0	0.0%
0-90	1215.4	100.0%
90-180	0.0	0.0%
0-180	1215.4	100.0%

Lumens Per Zone					
Zone	**Lumens**	**% Total**	**Zone**	**Lumens**	**% Total**
0-10	290.5	23.9%	90-100	0	0%
10-20	596.8	49.1%	100-110	0	0%
20-30	245.5	20.2%	110-120	0	0%
30-40	32.8	2.7%	120-130	0	0%
40-50	21.9	1.8%	130-140	0	0%
50-60	17.0	1.4%	140-150	0	0%
60-70	7.3	0.6%	150-160	0	0%
70-80	2.4	0.2%	160-170	0	0%
80-90	1.2	0.1%	170-180	0	0%

Photometric Data





Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

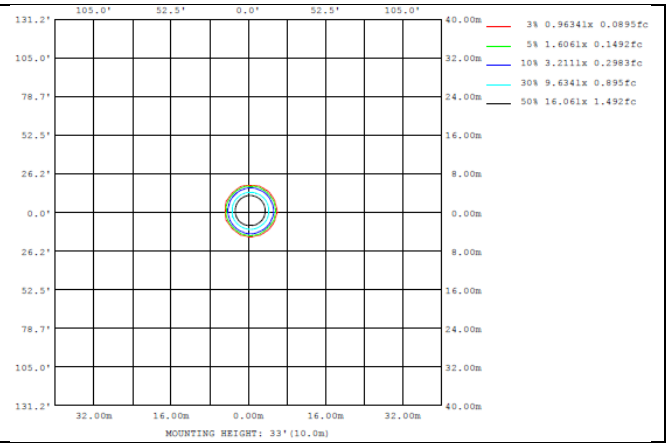


Table--1 UNIT: cd

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	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199	3199			
5	3204	3157	3094	3049	3016	3007	3009	3042	3089	3130	3189	3231	3245	3239	3207	3211			
10	3040	2901	2761	2673	2553	2519	2501	2555	2641	2759	2930	3060	3151	3207	3203	3126			
15	2580	2401	2173	2006	1821	1730	1680	1730	1816	1983	2257	2479	2696	2792	2817	2727			
20	1793	1599	1348	1152	950	832	764	788	849	1011	1282	1518	1791	1935	2015	1936			
25	875	678	457	313	183	136	125	116	133	186	352	544	766	925	1011	980			
30	144	103	82.0	71.5	61.9	56.9	54.2	53.5	54.8	59.9	70.8	86.7	110	139	176	174			
35	55.3	51.7	48.5	45.5	42.8	41.6	40.4	40.5	39.9	41.0	43.6	46.6	51.2	55.4	58.6	58.3			
40	38.5	38.0	37.0	36.6	35.7	34.9	34.5	34.5	34.1	34.6	34.8	35.5	36.4	37.5	38.0	37.9			
45	29.5	30.1	29.9	29.8	29.9	29.9	29.9	30.1	29.2	28.8	28.9	28.9	29.0	28.9	28.7	28.9			
50	21.9	22.6	23.4	24.4	25.0	25.6	25.8	25.8	25.1	24.2	23.4	22.6	21.9	21.1	21.0	21.0			
55	16.8	17.1	17.6	18.4	19.0	19.5	19.8	19.7	19.1	18.3	17.9	17.4	17.0	16.5	16.3	16.3			
60	11.5	12.0	12.4	13.2	13.6	14.2	14.2	14.3	13.7	13.1	12.8	11.6	11.3	11.0	10.9	11.0			
65	6.53	6.83	7.05	7.50	7.62	7.88	7.85	7.87	7.63	7.30	7.03	6.71	6.44	6.28	6.30	6.27			
70	3.36	3.62	3.91	4.26	4.52	4.75	4.78	4.74	4.52	4.27	3.97	3.64	3.39	3.18	3.10	3.17			
75	2.20	2.40	2.70	3.01	3.31	3.53	3.61	3.57	3.41	3.15	2.84	2.56	2.28	2.13	2.01	2.08			
80	1.70	1.86	2.09	2.33	2.55	2.72	2.77	2.73	2.59	2.40	2.18	1.96	1.75	1.63	1.56	1.60			
85	0.75	0.82	0.96	1.09	1.23	1.31	1.35	1.31	1.23	1.13	0.99	0.89	0.74	0.69	0.63	0.69			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2023-6-17	Test Ambient:	25.3
Test Orientation	As intended	Stabilization Time (min)	15
Model Number	DLG0017(GR4)	CCT Setting	4000k

Electrical Measurement:

Sampel No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
#1	120	60	0.1152	13.63	0.9820

Chromaticity Measurement - Sphere-Spectroradiometer Method:

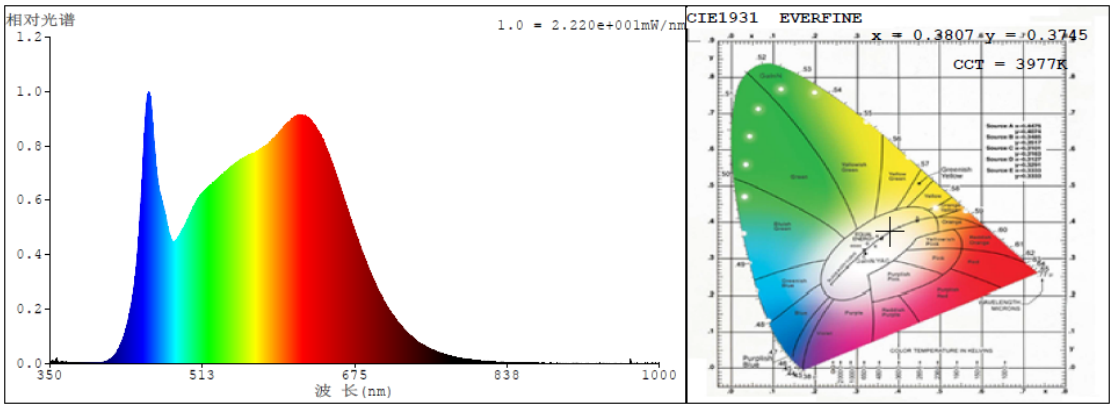
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3977
Duv	-0.00113
Chromaticity (x, y)	x=0.3807, y=0.3745
Chromaticity (u', v')	u'=0.2262, v'=0.5006
Color Rendering Index (CRI)	95.4
R9	78

Special Color Rendering Indices			
R1	97	R9	78
R2	99	R10	99
R3	98	R11	96
R4	94	R12	76
R5	95	R13	99
R6	96	R14	100
R7	93	R15	95
R8	90	--	--

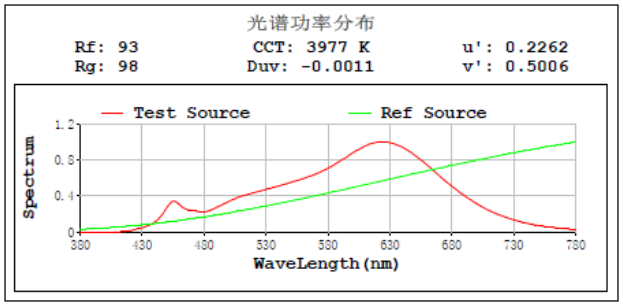
Photometric Measurement – Goniophotometer Method:

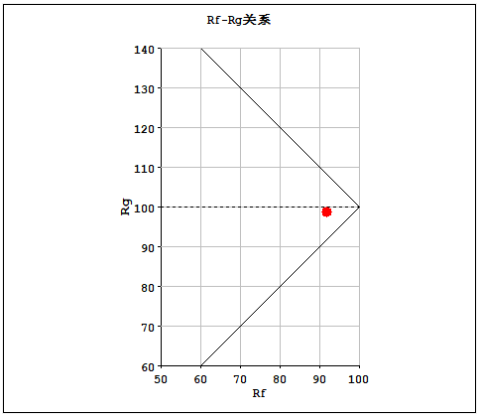
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1244.8
Luminous Efficacy (lm/W)	91.36
Beam Angle (°)	37.1
Center Beam Candle Power (cd)	3331

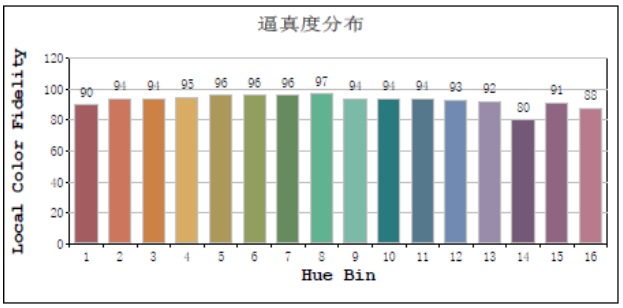
Spectral Power Distribution & Chromaticity Diagram

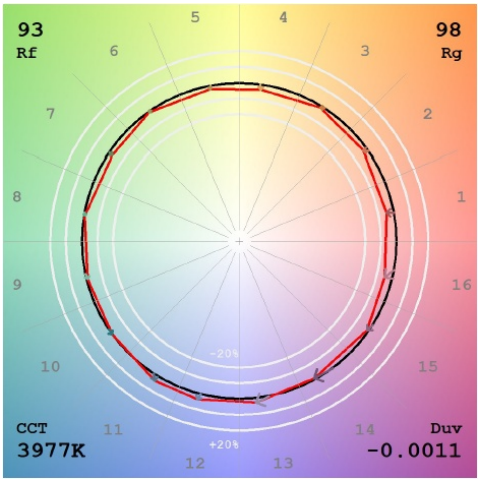


TM30







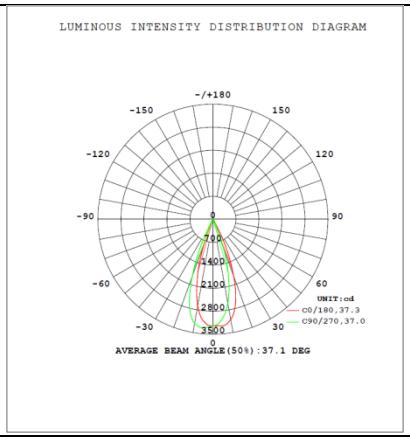


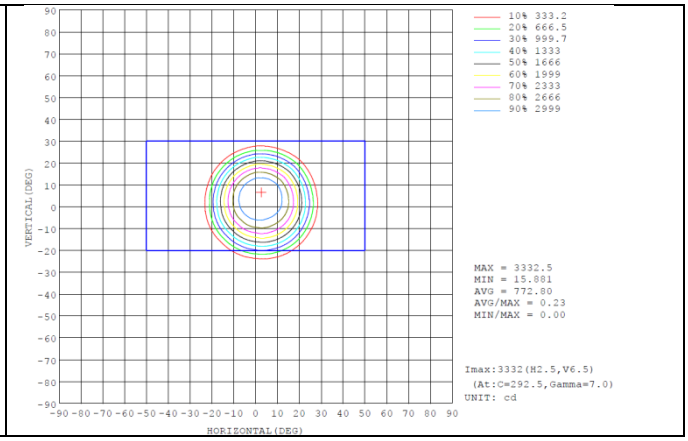
Zonal Lumen Tabulation

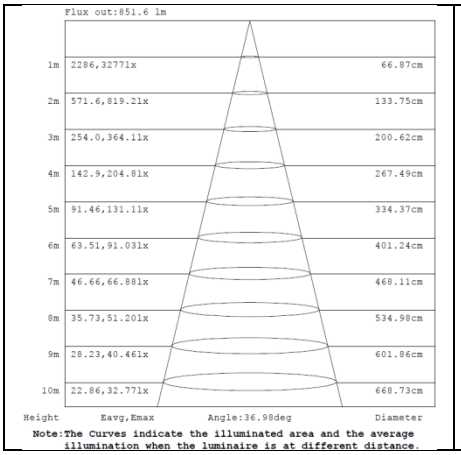
Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
0-30	1160.2	93.2%
0-40	1193.8	95.9%
0-60	1233.6	99.1%
60-90	11.2	0.8%
70-100	3.7	0.3%
90-120	0.0	0.0%
0-90	1244.8	100.0%
90-180	0.0	0.0%
0-180	1244.8	100.0%

Lumens Per Zone					
Zone	**Lumens**	**% Total**	**Zone**	**Lumens**	**% Total**
0-10	296.3	23.8%	90-100	0	0%
10-20	610.0	49.0%	100-110	0	0%
20-30	253.9	20.4%	110-120	0	0%
30-40	33.6	2.7%	120-130	0	0%
40-50	22.4	1.8%	130-140	0	0%
50-60	17.4	1.4%	140-150	0	0%
60-70	7.5	0.6%	150-160	0	0%
70-80	2.5	0.2%	160-170	0	0%
80-90	1.2	0.1%	170-180	0	0%

Photometric Data







Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

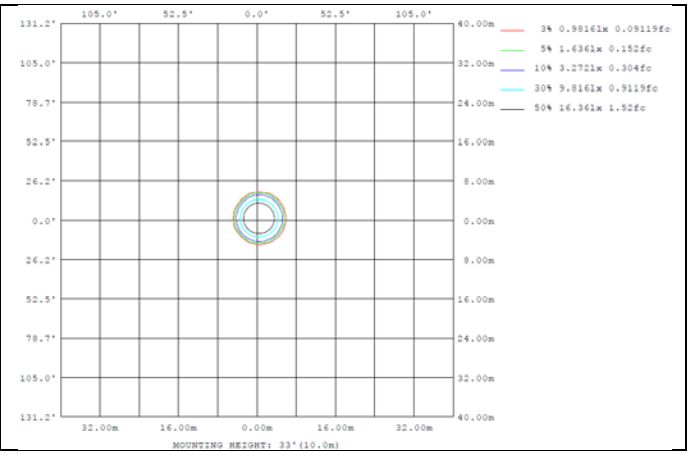


Table--1 UNIT: cd

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	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257	3257			
5	3259	3223	3161	3103	3063	3054	3060	3101	3131	3192	3252	3292	3310	3293	3268	3270			
10	3096	2969	2837	2714	2596	2563	2538	2610	2683	2833	2990	3123	3215	3273	3272	3186			
15	2652	2463	2245	2041	1847	1752	1702	1769	1848	2043	2292	2542	2767	2854	2902	2790			
20	1851	1642	1402	1166	961	841	772	808	861	1051	1300	1566	1851	1996	2089	1988			
25	916	699	491	315	183	136	125	119	134	196	351	572	805	964	1062	1007			
30	153	106	85.6	72.7	62.8	57.7	55.2	54.9	55.6	61.7	71.7	89.5	115	146	192	181			
35	57.0	53.0	50.0	46.3	43.7	42.4	41.2	41.4	40.6	42.1	44.5	47.9	52.8	57.2	60.9	59.9			
40	39.5	38.7	38.0	37.3	36.4	35.6	35.3	35.4	34.7	35.4	35.5	36.4	37.4	38.5	39.2	38.8			
45	30.2	30.7	30.7	30.4	30.5	30.5	30.6	30.8	29.7	29.5	29.4	29.6	29.9	29.7	29.6	29.6			
50	22.5	23.0	24.0	24.9	25.5	26.0	26.4	26.4	25.6	24.9	23.9	23.2	22.5	21.7	21.5	21.5			
55	17.2	17.5	18.1	18.7	19.3	19.8	20.2	20.1	19.4	18.9	18.2	17.9	17.4	16.9	16.3	16.7			
60	11.8	12.2	12.9	13.4	13.7	14.3	14.4	14.6	13.9	13.5	12.7	12.2	11.8	11.3	10.7	11.2			
65	6.71	6.94	7.28	7.59	7.72	7.99	7.97	8.04	7.73	7.52	7.13	6.94	6.68	6.51	6.21	6.36			
70	3.45	3.68	4.05	4.32	4.59	4.82	4.86	4.85	4.59	4.39	4.03	3.75	3.52	3.28	3.09	3.19			
75	2.25	2.44	2.77	3.07	3.38	3.59	3.70	3.66	3.47	3.24	2.91	2.63	2.35	2.19	1.88	2.08			
80	1.75	1.89	2.15	2.36	2.59	2.76	2.81	2.80	2.63	2.47	2.22	2.02	1.81	1.70	1.47	1.55			
85	0.79	0.83	1.00	1.10	1.25	1.33	1.37	1.34	1.24	1.17	0.99	0.92	0.78	0.61	0.62	0.63			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2023-6-17	Test Ambient:	25.3
Test Orientation	As intended	Stabilization Time (min)	15
Model Number	DLG0017(GR4)	CCT Setting	5000k

Electrical Measurement:

Sampel No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
#1	120	60	0.1201	14.23	0.9833

Chromaticity Measurement - Sphere-Spectroradiometer Method:

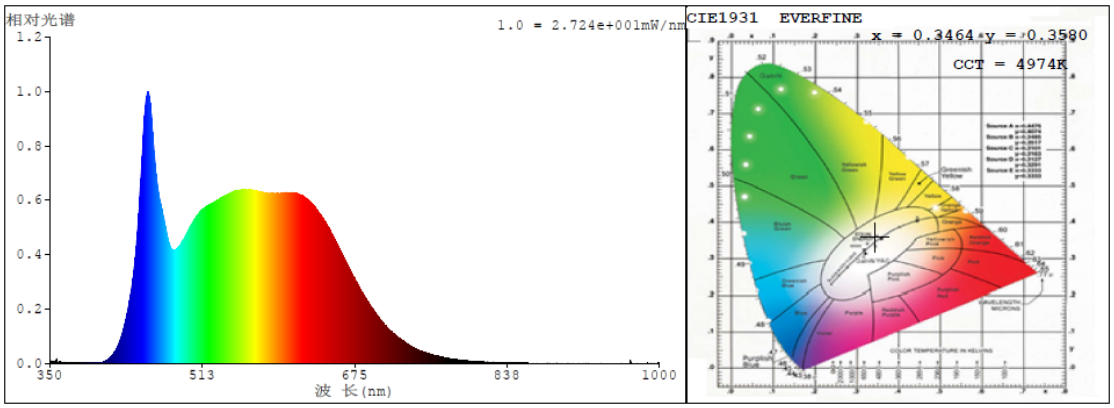
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4974
Duv	0.00266
Chromaticity (x, y)	x=0.3464, y=0.3580
Chromaticity (u', v')	u'=0.2098, v'=0.4879
Color Rendering Index (CRI)	92.7
R9	66

Special Color Rendering Indices			
R1	93	R9	66
R2	97	R10	91
R3	98	R11	90
R4	90	R12	68
R5	91	R13	94
R6	93	R14	99
R7	93	R15	90
R8	86	--	--

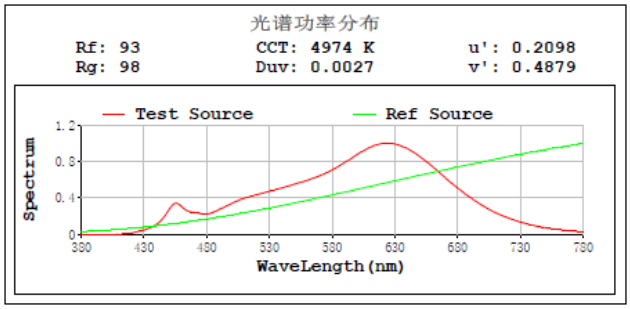
Photometric Measurement – Goniophotometer Method:

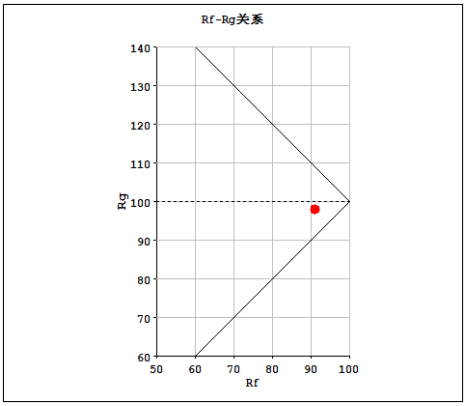
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1228.1
Luminous Efficacy (lm/W)	86.41
Beam Angle (°)	37.1
Center Beam Candle Power (cd)	3296

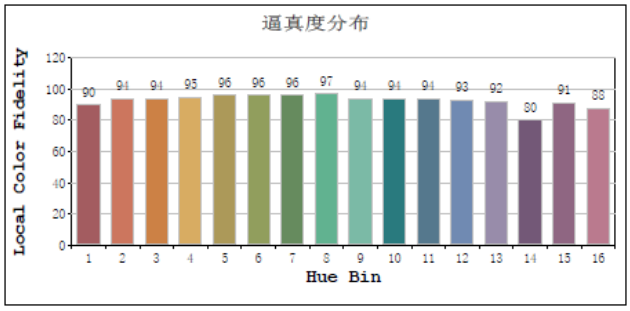
Spectral Power Distribution & Chromaticity Diagram

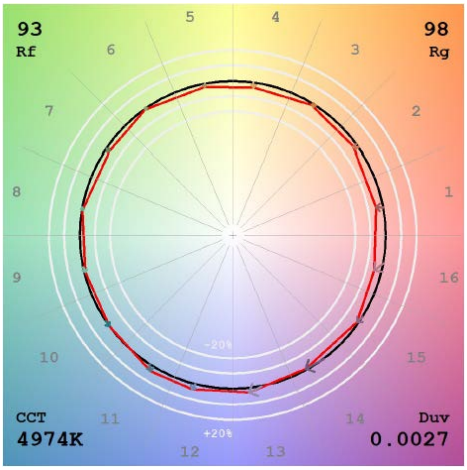


TM30







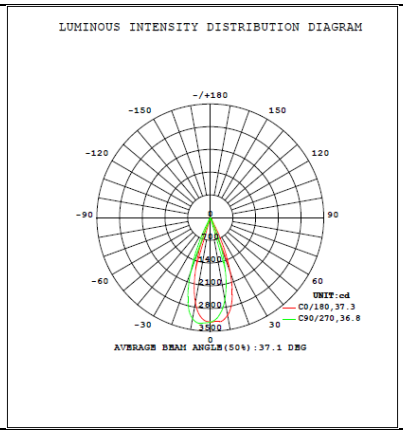


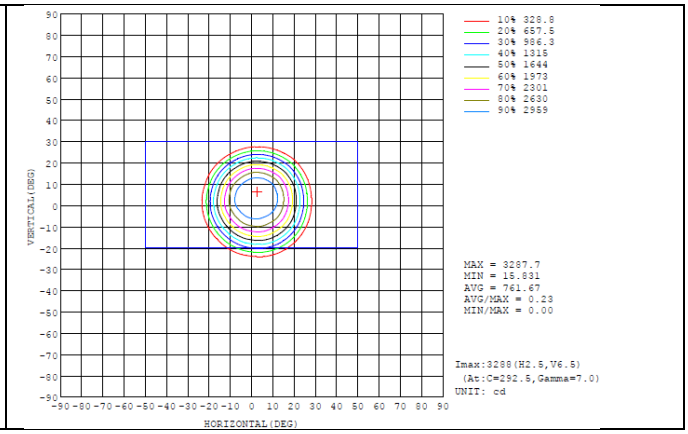
Zonal Lumen Tabulation

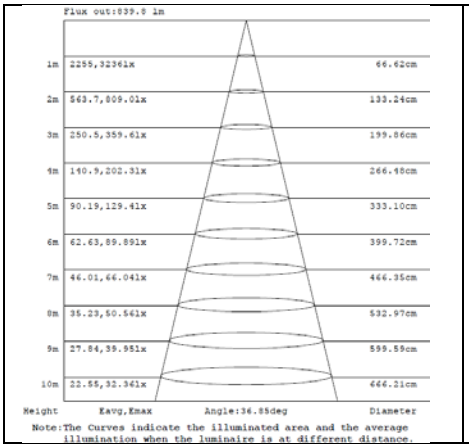
Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
0-30	1143.4	93.1%
0-40	1176.5	95.8%
0-60	1217.0	99.1%
60-90	11.1	0.8%
70-100	3.7	0.3%
90-120	0.0	0.0%
0-90	1228.1	100.0%
90-180	0.0	0.0%
0-180	1228.1	100.0%

Lumens Per Zone					
Zone	**Lumens**	**% Total**	**Zone**	**Lumens**	**% Total**
0-10	292.3	23.8%	90-100	0	0%
10-20	600.5	48.9%	100-110	0	0%
20-30	250.5	20.4%	110-120	0	0%
30-40	33.2	2.7%	120-130	0	0%
40-50	23.3	1.9%	130-140	0	0%
50-60	17.2	1.4%	140-150	0	0%
60-70	7.4	0.6%	150-160	0	0%
70-80	2.5	0.2%	160-170	0	0%
80-90	1.2	0.1%	170-180	0	0%

Photometric Data







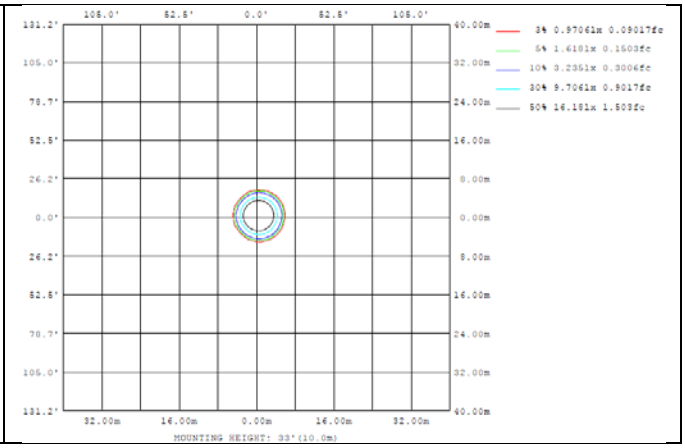


Table--1 UNIT: cd

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	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218	3218			
5	3219	3183	3119	3073	3033	3017	3023	3053	3105	3149	3205	3250	3269	3260	3227	3225			
10	3054	2930	2789	2695	2569	2528	2502	2559	2670	2787	2945	3062	3166	3226	3235	3157			
15	2598	2429	2209	2034	1839	1734	1676	1722	1860	2001	2245	2460	2693	2813	2862	2777			
20	1800	1624	1387	1188	973	837	753	772	882	1026	1266	1497	1781	1958	2072	2002			
25	873	697	493	339	192	136	122	114	143	188	337	526	758	947	1061	1032			
30	143	106	85.6	74.5	63.7	57.7	54.8	54.1	56.5	60.7	70.7	85.7	109	143	194	196			
35	55.8	52.9	50.0	46.8	43.8	42.3	41.1	41.1	40.8	41.8	44.2	47.0	51.7	56.7	61.0	61.0			
40	39.0	38.7	38.0	37.5	36.5	35.4	35.2	35.1	34.7	35.1	35.2	35.8	36.9	38.3	39.1	39.2			
45	29.8	30.8	30.7	30.5	30.5	30.4	30.4	30.5	29.7	29.2	29.1	29.2	29.4	29.4	29.5	29.8			
50	22.1	23.0	23.9	25.1	25.6	26.0	26.2	26.1	25.5	24.5	23.7	22.8	22.1	21.5	21.6	21.6			
55	16.9	17.4	18.1	18.9	19.3	19.8	20.0	19.8	19.4	18.5	17.9	17.5	17.2	16.7	16.7	16.7			
60	11.5	12.3	13.0	13.8	14.0	14.4	14.2	14.2	14.0	13.1	12.3	11.6	11.3	11.2	11.3	11.4			
65	6.53	6.99	7.38	7.82	7.84	8.00	7.87	7.83	7.80	7.31	6.94	6.61	6.41	6.39	6.52	6.52			
70	3.37	3.71	4.08	4.43	4.65	4.82	4.81	4.75	4.61	4.28	3.93	3.61	3.39	3.22	3.22	3.30			
75	2.22	2.44	2.78	3.09	3.39	3.58	3.68	3.60	3.45	3.19	2.86	2.58	2.30	2.16	2.05	2.12			
80	1.72	1.90	2.17	2.41	2.63	2.76	2.78	2.73	2.65	2.41	2.16	1.96	1.76	1.67	1.59	1.66			
85	0.75	0.86	1.04	1.17	1.30	1.35	1.34	1.29	1.27	1.13	0.95	0.85	0.72	0.72	0.67	0.74			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

Model Number	CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLG0017(GR4)	2700K setting	120	1029.2	14.17	72.65
	3000K setting	120	1122.6	13.88	80.91
	3500K setting	120	1215.4	13.52	89.90
	4000K setting	120	1244.8	13.63	91.36
	5000K setting	120	1228.1	14.21	86.41