

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):
DISK34-4

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

**Type of
Luminaire:** Downlights

Report Date: 2023-04-18

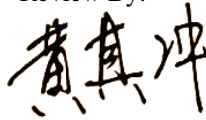
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	10.0 W
Rated Initial Lamp Lumen	700 lm
Declared CCT	2700K/3000K/3500K/4000K/5000K

1.2 Test Specifications:

Test item	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 25°C ±1°C. 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 25°C ±1°C. 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	2023-04-18	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DISK34-4	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202304150006	120.0	60	0.091	10.00	0.916

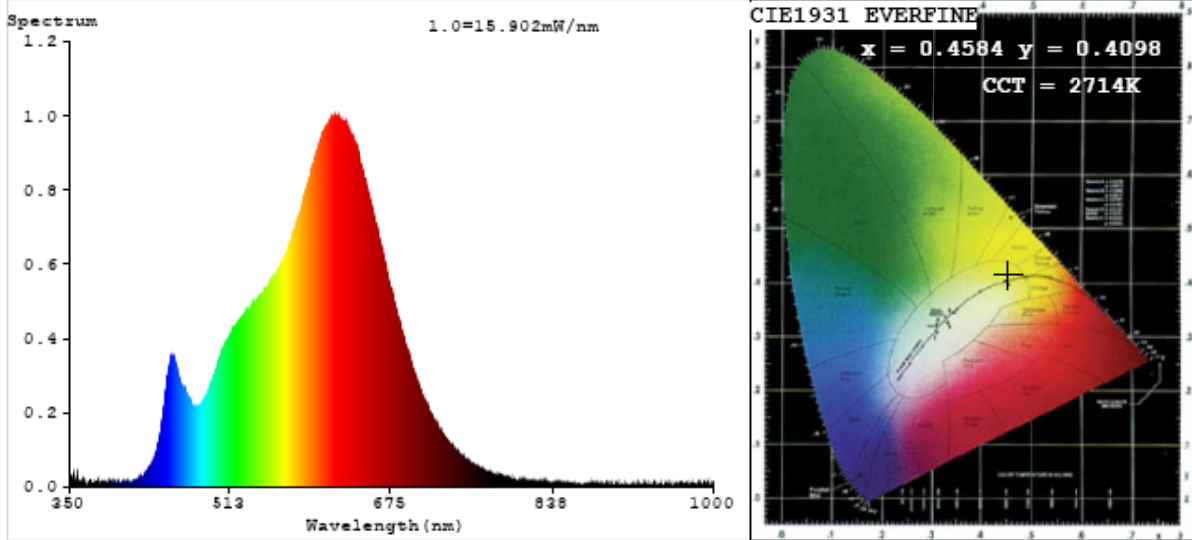
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	60
Frequency (Hz)	60	R2	99	R10	98
CCT (K)	2714	R3	97	R11	98
Duv	-0.0002	R4	95	R12	88
Chromaticity (x, y)	x=0.4584 y=0.4098	R5	96	R13	97
Chromaticity (u', v')	u'=0.2619 v'=0.5268	R6	97	R14	99
Color Rendering Index (CRI)	96.9	R7	90	R15	90
R9	60	R8	81	--	--

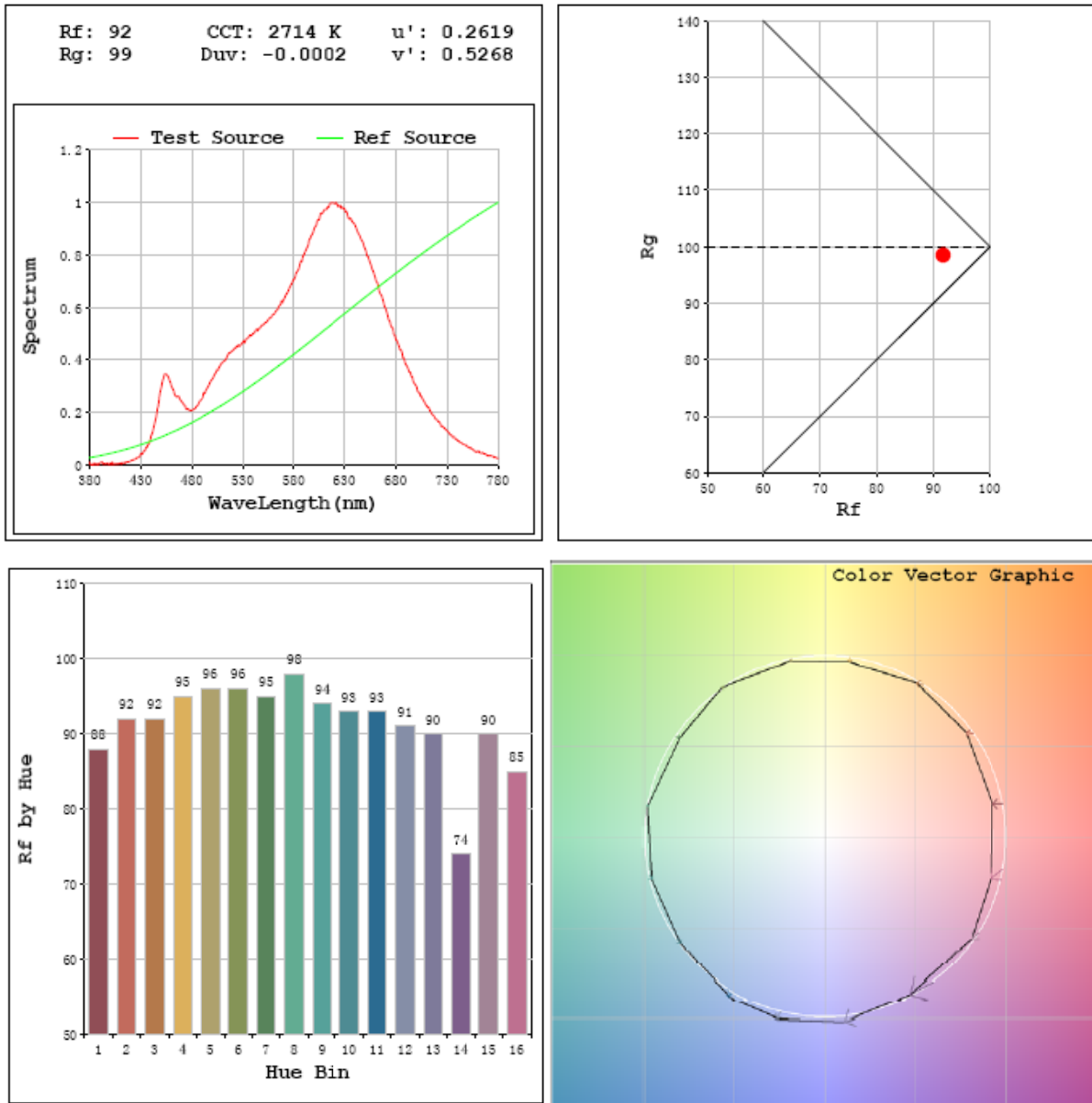
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	711.51
Luminous Efficacy (lm/W)	71.15
Beam Angle (°)	113.3
Center Beam Candle Power (cd)	233.0

Spectral Power Distribution & Chromaticity Diagram



TM30



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	180.2	25.3%
0-40	294.9	41.4%
0-60	523.3	73.5%
60-90	165.8	23.3%
70-100	86.8	12.2%
90-120	11.4	1.6%
0-90	689.1	96.8%
90-180	22.4	3.2%
0-180	711.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.0	3.1%	90-100	7.0	1.0%
10-20	63.0	8.8%	100-110	2.2	0.3%
20-30	95.2	13.4%	110-120	2.2	0.3%
30-40	114.7	16.1%	120-130	2.7	0.4%
40-50	119.3	16.8%	130-140	2.8	0.4%
50-60	109.1	15.3%	140-150	2.5	0.4%
60-70	86.0	12.1%	150-160	1.9	0.3%
70-80	54.9	7.7%	160-170	0.9	0.1%
80-90	24.9	3.5%	170-180	0.2	0.0%

Photometric Data

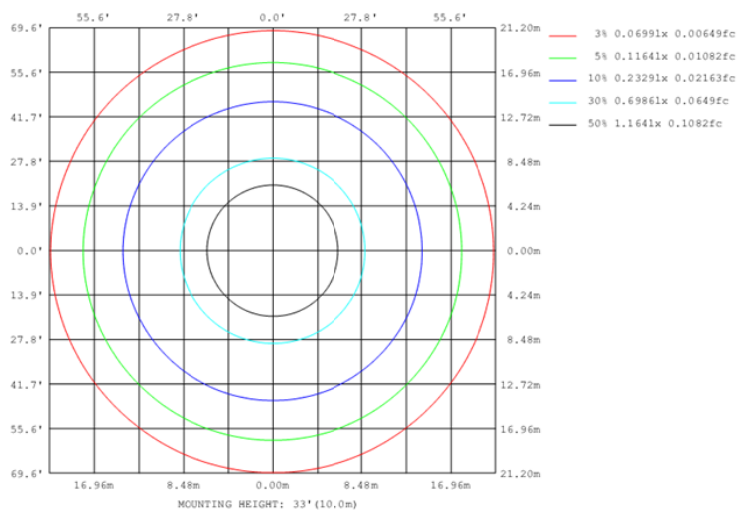
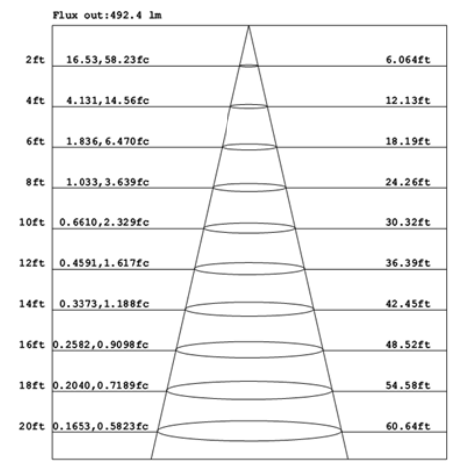
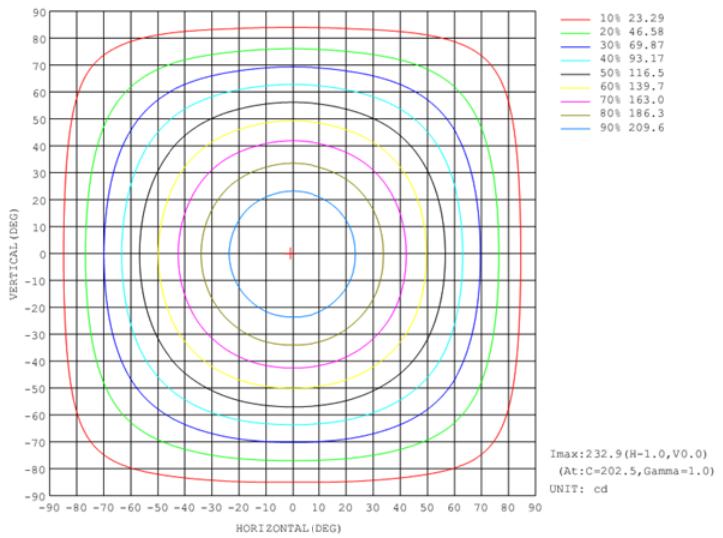
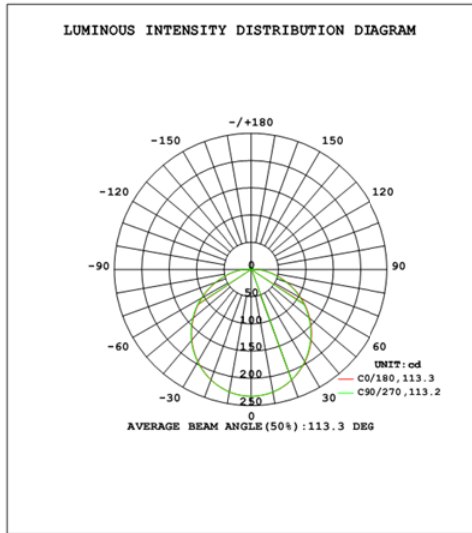


Table--1

UNIT: cd

y (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	231	232	232	232	232	232	232	232	232	232			
10	228	229	229	229	229	229	228	229	229	229	229	228	228	228	228				
15	223	223	223	224	223	223	223	223	223	223	223	223	223	223	223				
20	216	216	216	216	216	216	216	216	216	216	216	215	215	215	215				
25	206	207	207	207	207	207	207	207	207	207	206	206	206	206	206				
30	195	196	196	197	196	196	196	196	196	196	195	195	195	195	195				
35	183	184	184	184	184	184	184	184	184	183	183	182	182	182	183	183			
40	169	170	170	171	170	171	170	170	170	169	169	168	169	168	169	169			
45	154	155	156	156	156	156	155	155	155	154	154	153	153	153	154	154			
50	138	140	140	140	140	140	139	139	139	138	138	137	137	137	138	138			
55	122	123	123	124	123	124	123	123	123	122	121	120	120	120	121	121			
60	104	106	106	107	106	106	106	105	105	104	104	103	103	103	104	104			
65	86.4	87.7	88.0	88.7	88.4	88.6	87.7	87.5	87.6	86.3	86.0	85.0	85.3	84.9	85.9	86.1			
70	68.5	69.9	70.1	70.9	70.6	70.8	70.0	69.9	69.8	68.5	68.2	67.1	67.4	67.1	68.0	68.3			
75	51.3	52.6	52.8	53.6	53.3	53.5	52.6	52.5	52.5	51.2	50.9	49.9	50.0	49.8	50.8	51.1			
80	35.5	36.6	36.8	37.5	37.2	37.4	36.7	36.6	36.5	35.3	35.0	34.0	34.2	34.0	34.9	35.3			
85	22.1	23.0	23.1	23.6	23.4	23.6	23.0	23.0	22.9	21.9	21.6	20.8	20.9	20.6	21.5	21.8			
90	12.0	12.7	12.7	13.1	12.9	13.1	12.7	12.7	12.6	11.9	11.7	11.1	11.2	11.0	11.6	11.8			
95	5.67	6.08	6.10	6.26	6.15	6.32	6.11	6.10	6.04	5.72	5.66	5.36	5.37	5.24	5.45	5.55			
100	2.73	2.79	2.80	2.74	2.81	2.85	2.79	2.81	2.95	2.90	2.93	2.91	2.90	2.78	2.71	2.63			
105	1.84	1.68	1.60	1.57	1.71	1.71	1.68	1.76	1.99	2.06	2.17	2.29	2.32	2.16	2.03	1.86			
110	1.90	1.69	1.47	1.66	1.79	1.83	1.76	1.80	2.02	2.06	2.12	2.28	2.40	2.30	2.20	1.94			
115	2.27	1.96	1.74	2.09	2.20	2.26	2.10	2.25	2.25	2.15	1.99	2.20	2.37	2.44	2.25	2.17			
120	2.56	2.27	2.13	2.45	2.69	2.91	2.61	2.92	2.72	2.48	2.21	2.40	2.68	3.02	2.69	2.90			
125	2.67	2.60	2.61	2.79	3.17	3.67	3.08	3.50	3.08	2.80	2.59	2.71	3.19	3.54	3.10	3.56			
130	2.66	2.95	3.11	3.06	3.38	3.97	3.51	3.91	3.13	3.04	2.94	3.05	3.37	4.18	3.61	3.86			
135	3.10	3.38	3.46	3.25	3.40	4.12	3.86	3.77	3.41	3.26	3.29	3.28	3.53	4.36	3.98	4.09			
140	3.51	3.55	3.71	3.44	3.68	4.27	4.04	3.84	3.75	3.36	3.36	3.30	3.94	4.51	4.20	4.25			
145	4.03	3.62	3.69	3.53	4.20	4.35	4.19	4.02	4.23	3.41	2.99	3.45	4.09	4.77	4.42	4.54			
150	4.91	3.88	3.45	3.59	4.65	4.51	4.20	4.15	4.89	3.40	2.62	3.64	4.97	4.90	4.55	5.07			
155	4.63	4.04	3.08	3.18	4.68	5.20	4.27	4.45	3.30	3.06	2.60	3.42	4.41	5.64	4.82	6.39			
160	4.37	3.35	2.81	2.52	3.80	5.29	5.21	4.33	2.61	2.67	2.63	2.73	4.00	5.59	6.46	6.14			
165	3.20	2.81	2.63	2.47	2.41	2.61	2.73	2.63	2.67	2.70	2.69	2.53	2.66	3.53	4.46	3.81			
170	2.68	2.59	2.48	2.44	2.43	2.44	2.54	2.60	2.60	2.68	2.55	2.44	2.42	2.44	2.63	2.69			
175	2.51	2.50	2.48	2.50	2.49	2.49	2.48	2.50	2.50	2.48	2.49	2.49	2.48	2.48	2.50	2.56			
180	2.54	2.53	2.53	2.53	2.53	2.53	2.53	2.54	2.54	2.54	2.53	2.53	2.53	2.53	2.53	2.54			

Test date	2023-04-18	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DISK34-4	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202304180006	120.0	60	0.090	10.00	0.920

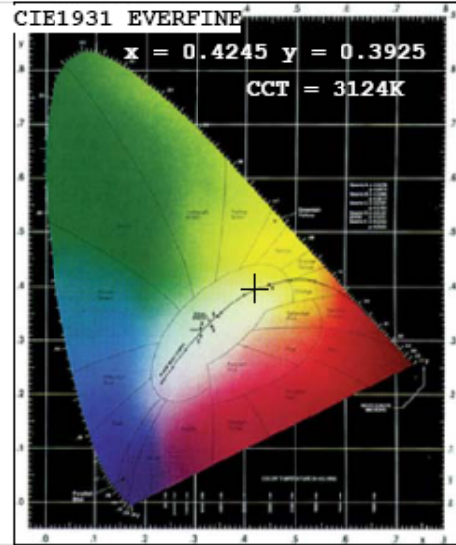
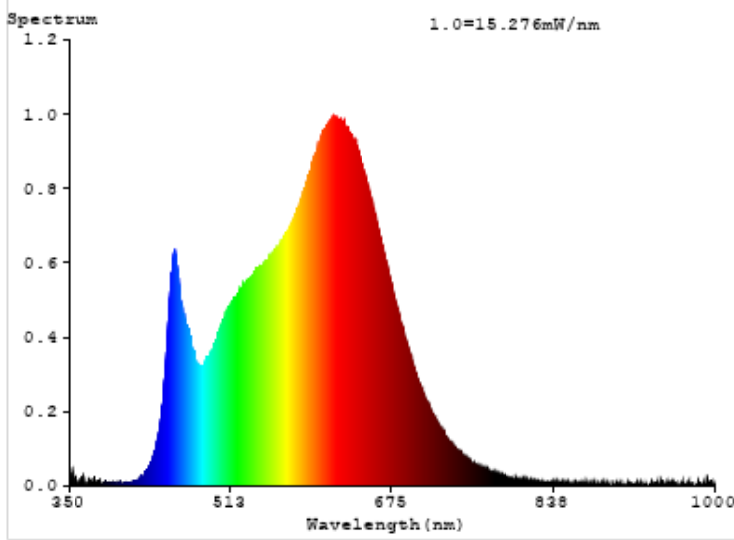
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	74
Frequency (Hz)	60	R2	98	R10	97
CCT (K)	3124	R3	96	R11	99
Duv	-0.0029	R4	96	R12	82
Chromaticity (x, y)	x=0.4245 y=0.3925	R5	97	R13	99
Chromaticity (u', v')	u'=0.2475 v'=0.5149	R6	94	R14	99
Color Rendering Index (CRI)	94.6	R7	91	R15	95
R9	74	R8	86	--	--

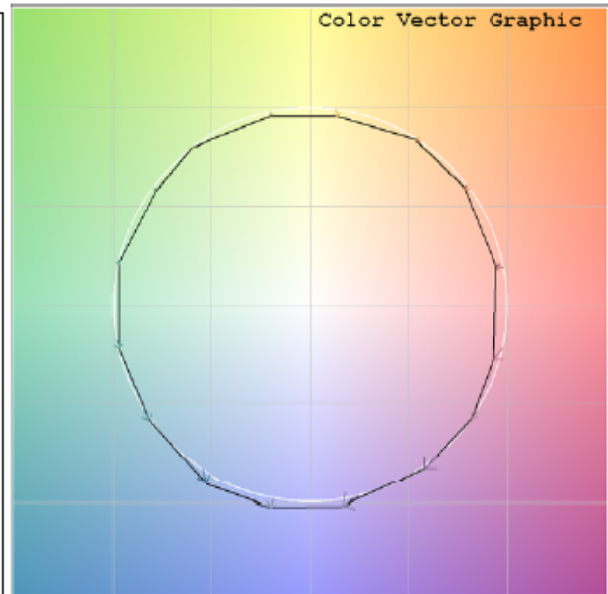
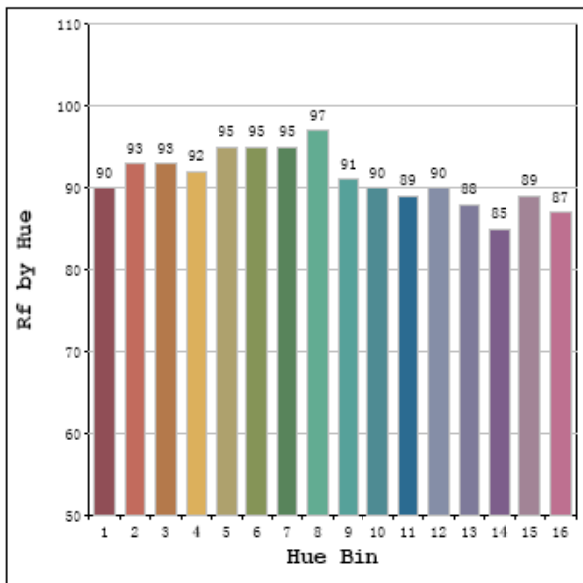
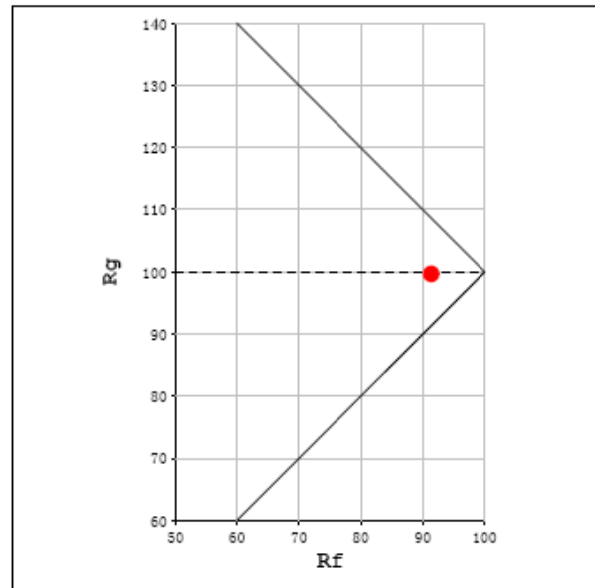
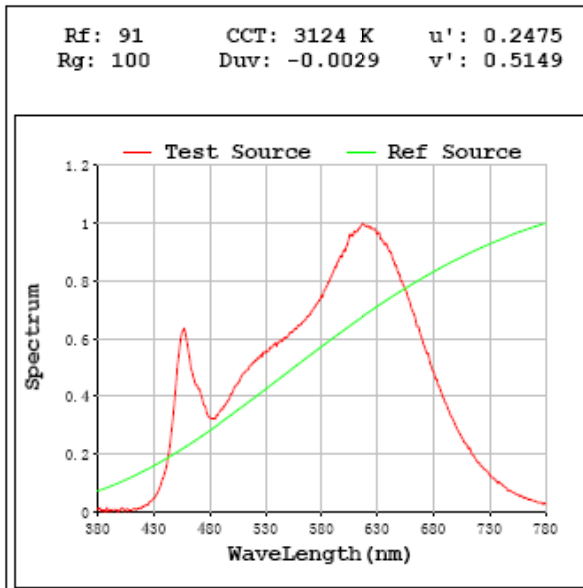
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	745.72
Luminous Efficacy (lm/W)	74.57
Beam Angle (°)	113.2
Center Beam Candle Power (cd)	244.2

Spectral Power Distribution & Chromaticity Diagram



TM30



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	189.0	25.3%
0-40	309.2	41.5%
0-60	548.6	73.6%
60-90	173.6	23.3%
70-100	90.9	12.2%
90-120	11.9	1.6%
0-90	722.2	96.8%
90-180	23.6	3.2%
0-180	745.7	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23.1	3.1%	90-100	7.4	1.0%
10-20	66.0	8.9%	100-110	2.3	0.3%
20-30	99.8	13.4%	110-120	2.3	0.3%
30-40	120.2	16.1%	120-130	2.9	0.4%
40-50	125.1	16.8%	130-140	2.9	0.4%
50-60	114.3	15.3%	140-150	2.6	0.4%
60-70	90.0	12.1%	150-160	2.0	0.3%
70-80	57.4	7.7%	160-170	1.0	0.1%
80-90	26.2	3.5%	170-180	0.3	0.0%

Photometric Data

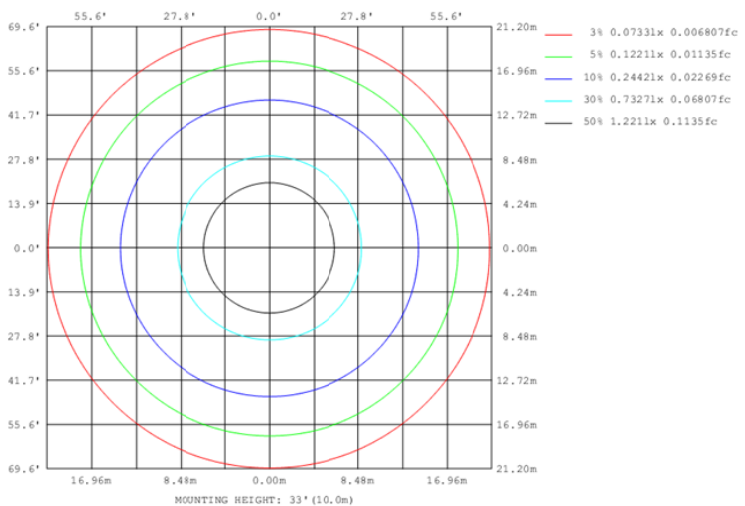
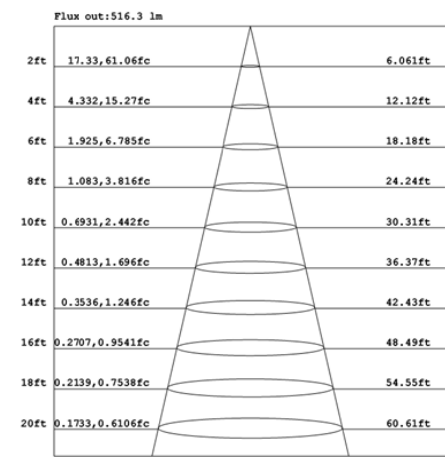
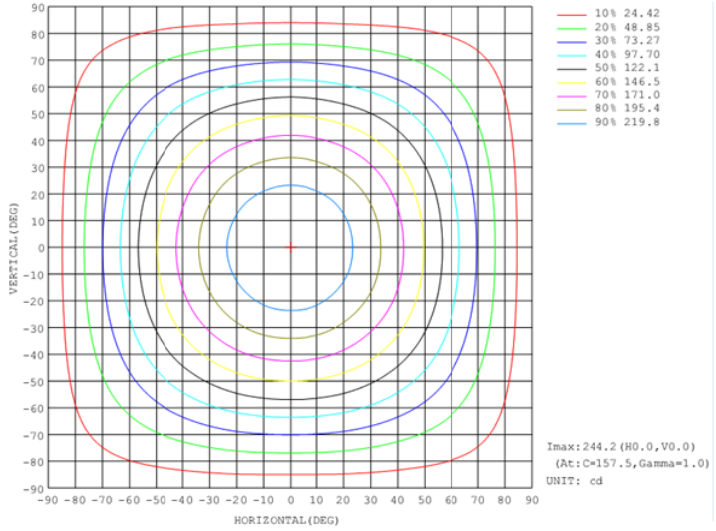
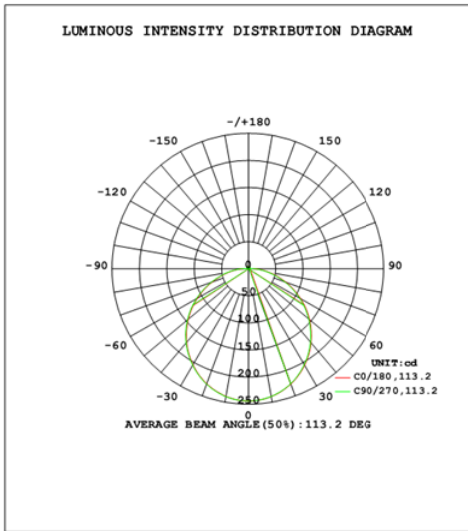


Table--1

UNIT: cd

y (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	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244				
5	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243				
10	239	240	240	240	240	240	240	240	240	240	239	239	239	239	240				
15	234	234	234	235	234	234	234	234	234	234	234	234	234	234	234				
20	226	227	226	227	227	227	226	226	226	226	226	226	226	226	226				
25	216	217	217	217	217	217	217	217	216	216	216	216	216	216	217				
30	205	206	206	206	206	206	205	206	206	205	205	204	204	204	205				
35	192	193	193	193	193	193	193	193	192	192	191	191	191	192	192				
40	177	179	178	179	179	179	178	178	177	177	177	177	177	177	177				
45	162	163	163	164	163	164	163	163	162	162	161	161	161	161	162				
50	145	146	146	147	147	147	146	146	145	145	144	144	144	145	145				
55	127	129	129	130	129	130	129	129	127	127	126	126	126	127	127				
60	109	110	110	111	111	111	110	110	109	109	108	108	108	109	109				
65	90.3	91.7	91.9	92.8	92.5	92.8	91.9	91.7	90.3	90.1	89.1	89.3	89.0	90.0	90.2				
70	71.6	73.0	73.1	74.1	73.7	74.2	73.2	73.1	73.0	71.6	71.4	70.4	70.6	70.3	71.2	71.6			
75	53.5	54.8	55.0	56.0	55.6	56.0	55.1	55.0	54.9	53.6	53.3	52.2	52.5	52.2	53.2	53.5			
80	37.0	38.2	38.3	39.1	38.9	39.2	38.5	38.4	38.2	36.9	36.6	35.7	35.9	35.6	36.6	36.9			
85	23.1	24.0	24.1	24.7	24.5	24.8	24.2	24.1	24.0	22.9	22.7	21.8	22.0	21.7	22.6	22.9			
90	12.6	13.3	13.3	13.8	13.6	13.9	13.5	13.4	13.3	12.5	12.3	11.7	11.8	11.7	12.2	12.4			
95	5.97	6.42	6.46	6.67	6.58	6.79	6.55	6.51	6.41	6.02	5.92	5.60	5.60	5.52	5.77	5.84			
100	2.83	2.93	2.97	2.96	3.03	3.08	2.99	3.01	3.12	3.02	3.00	2.94	2.92	2.80	2.78	2.71			
105	1.90	1.76	1.69	1.68	1.83	1.80	1.75	1.82	2.07	2.12	2.20	2.30	2.31	2.13	1.98	1.87			
110	1.97	1.80	1.54	1.75	1.90	1.90	1.82	1.87	2.10	2.16	2.18	2.34	2.42	2.28	2.16	1.97			
115	2.39	2.08	1.82	2.19	2.36	2.33	2.18	2.38	2.37	2.28	2.10	2.32	2.45	2.49	2.27	2.32			
120	2.73	2.39	2.22	2.59	2.90	3.22	2.71	3.09	2.90	2.63	2.35	2.60	2.88	3.20	2.78	3.08			
125	2.89	2.73	2.75	2.91	3.46	3.83	3.20	3.64	3.31	3.00	2.77	2.92	3.45	3.68	3.21	3.71			
130	2.81	3.12	3.26	3.27	3.65	4.06	3.65	4.01	3.38	3.26	3.15	3.28	3.61	4.25	3.75	3.94			
135	3.28	3.57	3.65	3.48	3.66	4.26	3.98	4.16	3.66	3.48	3.52	3.53	3.76	4.41	4.08	4.16			
140	3.75	3.74	3.96	3.68	4.02	4.31	4.18	4.23	4.07	3.59	3.59	3.55	4.22	4.58	4.30	4.33			
145	4.34	3.83	3.92	3.85	4.45	4.47	4.31	4.44	4.47	3.67	3.20	3.75	4.33	4.82	4.55	4.63			
150	5.03	4.22	3.61	3.99	4.84	4.63	4.12	4.61	4.96	3.81	2.76	3.93	5.06	4.96	4.68	5.08			
155	5.05	4.26	3.17	3.46	4.99	5.20	4.18	5.14	3.51	3.21	2.73	3.72	4.87	5.51	4.97	6.12			
160	5.05	3.59	2.96	2.72	3.96	5.24	5.08	4.67	2.79	2.83	2.79	2.99	4.41	5.49	6.13	6.02			
165	3.46	2.98	2.76	2.63	2.51	2.86	3.03	2.79	2.85	2.87	2.84	2.67	2.81	4.09	4.75	4.21			
170	2.81	2.73	2.61	2.56	2.56	2.56	2.69	2.75	2.75	2.82	2.68	2.56	2.55	2.57	2.77	2.81			
175	2.65	2.63	2.62	2.62	2.61	2.62	2.61	2.62	2.61	2.62	2.62	2.61	2.61	2.60	2.62	2.68			
180	2.66	2.66	2.66	2.66	2.66	2.65	2.66	2.66	2.66	2.66	2.66	2.66	2.65	2.66	2.65	2.67			

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2023-04-18	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DISK34-4	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202304180006	120.0	60	0.089	9.93	0.924

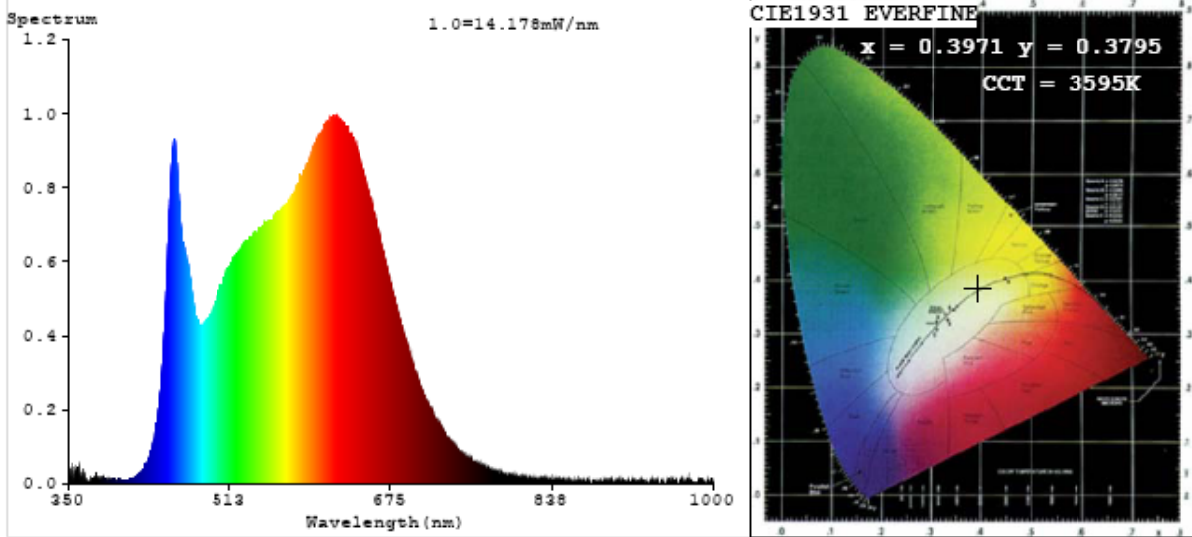
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	81
Frequency (Hz)	60	R2	97	R10	96
CCT (K)	3595	R3	97	R11	98
Duv	-0.0032	R4	96	R12	78
Chromaticity (x, y)	x=0.3971 y=0.3795	R5	97	R13	98
Chromaticity (u', v')	u'=0.2350 v'=0.5053	R6	94	R14	99
Color Rendering Index (CRI)	95.0	R7	92	R15	97
R9	81	R8	90	--	--

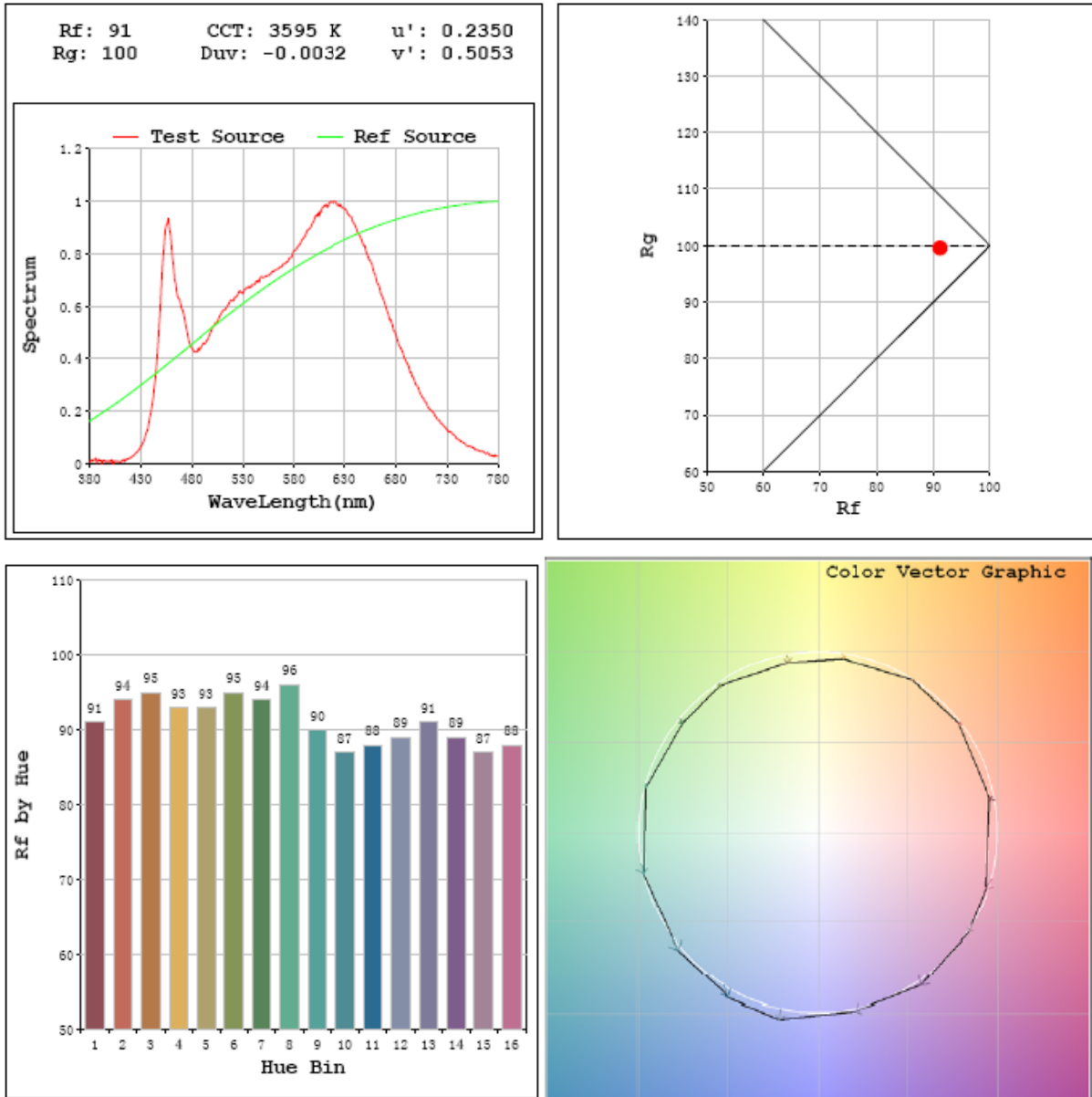
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	762.43
Luminous Efficacy (lm/W)	76.78
Beam Angle (°)	113.2
Center Beam Candle Power (cd)	249.6

Spectral Power Distribution & Chromaticity Diagram



TM30

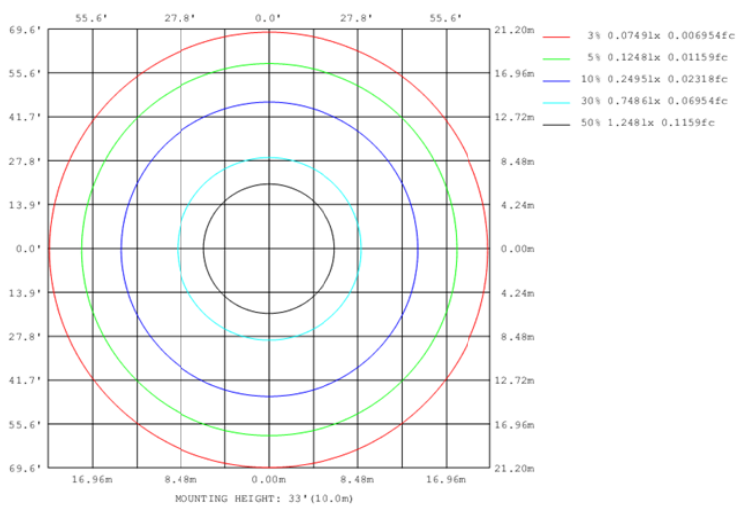
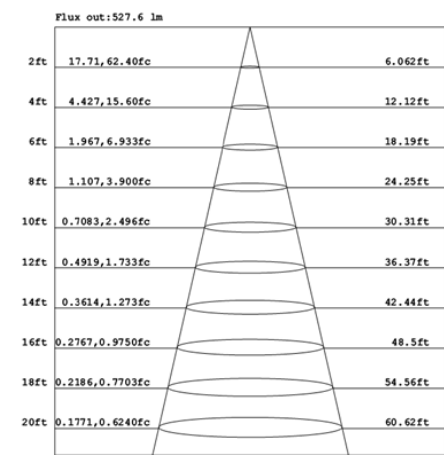
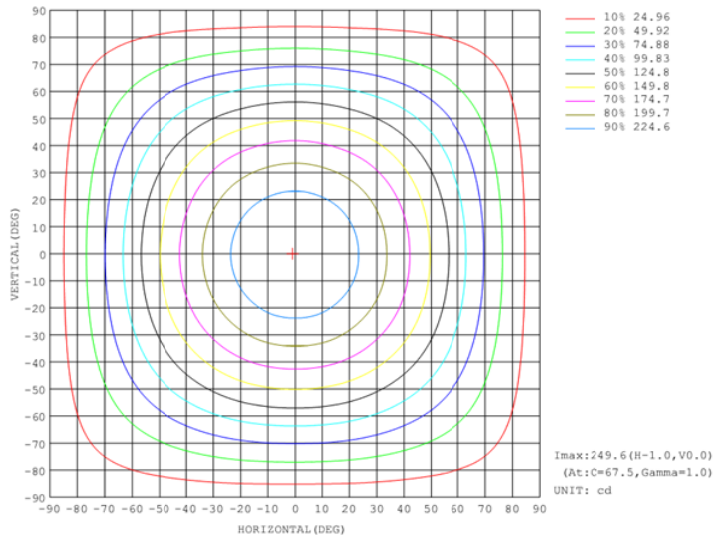
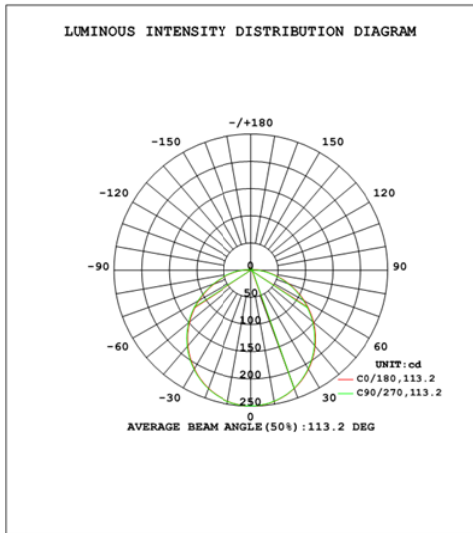


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	193.1	25.3%
0-40	316.0	41.5%
0-60	560.6	73.5%
60-90	177.5	23.3%
70-100	93.2	12.2%
90-120	12.5	1.6%
0-90	738.1	96.8%
90-180	24.4	3.2%
0-180	762.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23.6	3.1%	90-100	7.7	1.0%
10-20	67.5	8.9%	100-110	2.4	0.3%
20-30	102.1	13.4%	110-120	2.4	0.3%
30-40	122.9	16.1%	120-130	2.9	0.4%
40-50	127.8	16.8%	130-140	3.0	0.4%
50-60	116.8	15.3%	140-150	2.7	0.4%
60-70	92.0	12.1%	150-160	2.1	0.3%
70-80	58.6	7.7%	160-170	1.0	0.1%
80-90	26.9	3.5%	170-180	0.3	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

y (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	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250				
5	248	248	249	249	249	249	248	248	248	248	248	248	248	248	248				
10	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245				
15	239	239	239	240	239	240	239	239	239	239	239	239	239	239	239				
20	231	232	232	232	232	232	232	231	231	231	231	231	231	231	231				
25	221	222	222	222	222	222	222	222	221	221	221	221	221	221	221				
30	209	210	210	211	211	211	210	210	209	209	209	209	209	209	209				
35	196	197	197	198	198	198	197	197	196	196	195	195	195	196	196				
40	181	182	183	183	183	183	182	182	181	181	180	180	180	181	181				
45	165	167	167	168	167	167	167	166	166	165	165	164	164	164	165	165			
50	148	149	150	151	150	150	150	149	149	148	148	147	147	146	147	148			
55	130	131	132	133	132	133	132	131	131	130	130	129	129	128	129	130			
60	111	113	113	114	114	114	113	113	111	111	110	110	110	110	111	111			
65	92.3	93.7	94.2	95.1	94.9	95.2	94.2	93.8	93.7	92.1	91.6	90.7	90.9	90.5	91.6	91.9			
70	73.2	74.6	75.0	76.1	75.8	76.0	75.1	74.8	74.5	73.0	72.6	71.6	71.7	71.5	72.5	72.8			
75	54.8	56.1	56.4	57.5	57.2	57.5	56.6	56.3	56.0	54.6	54.1	53.0	53.3	53.0	54.0	54.4			
80	37.9	39.1	39.4	40.3	40.1	40.4	39.5	39.3	39.0	37.6	37.2	36.2	36.4	36.2	37.2	37.5			
85	23.8	24.7	24.9	25.6	25.5	25.7	25.1	24.9	24.6	23.4	23.1	22.2	22.4	22.1	23.0	23.4			
90	13.1	13.8	14.0	14.4	14.3	14.5	14.1	14.0	13.7	12.9	12.6	12.0	12.1	12.0	12.6	12.9			
95	6.30	6.76	6.89	7.08	7.02	7.18	6.90	6.84	6.70	6.30	6.17	5.86	5.85	5.77	6.02	6.10			
100	3.00	3.10	3.16	3.17	3.23	3.26	3.14	3.15	3.27	3.18	3.17	3.09	3.09	2.98	2.96	2.88			
105	2.00	1.87	1.74	1.75	1.89	1.85	1.82	1.90	2.15	2.21	2.31	2.41	2.44	2.25	2.11	1.97			
110	2.09	1.84	1.59	1.78	1.94	1.95	1.87	1.93	2.18	2.26	2.28	2.45	2.53	2.40	2.25	2.07			
115	2.50	2.11	1.88	2.27	2.44	2.40	2.20	2.43	2.46	2.37	2.17	2.40	2.56	2.60	2.33	2.38			
120	2.80	2.46	2.30	2.71	3.05	3.31	2.76	3.17	3.03	2.74	2.43	2.71	3.00	3.32	2.82	3.17			
125	2.92	2.79	2.83	3.07	3.63	3.88	3.22	3.67	3.49	3.11	2.86	3.05	3.63	3.75	3.25	3.74			
130	2.93	3.25	3.38	3.42	3.81	4.01	3.67	3.98	3.61	3.40	3.24	3.43	3.79	4.23	3.81	3.93			
135	3.44	3.69	3.79	3.65	3.80	4.17	3.99	4.14	3.81	3.62	3.63	3.69	3.92	4.37	4.11	4.12			
140	3.98	3.86	4.11	3.84	4.21	4.28	4.21	4.25	4.28	3.71	3.71	3.69	4.42	4.53	4.32	4.33			
145	4.65	3.94	4.07	4.07	4.60	4.44	4.36	4.45	4.62	3.84	3.29	3.97	4.46	4.77	4.56	4.60			
150	5.09	4.43	3.69	4.28	4.86	4.59	4.12	4.64	4.94	4.09	2.81	4.10	5.10	4.93	4.74	4.99			
155	5.37	4.42	3.20	3.61	5.19	5.04	4.31	5.02	3.64	3.29	2.79	3.91	5.22	5.27	5.02	5.78			
160	5.60	3.77	3.08	2.85	4.03	5.02	4.88	4.54	2.90	2.92	2.85	3.17	4.71	5.27	5.72	5.76			
165	3.67	3.08	2.87	2.72	2.58	3.04	3.20	2.86	2.93	2.95	2.91	2.75	2.93	4.51	4.89	4.51			
170	2.88	2.82	2.66	2.62	2.62	2.62	2.76	2.82	2.82	2.88	2.75	2.63	2.60	2.62	2.85	2.87			
175	2.71	2.69	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.69	2.68	2.67	2.67	2.67	2.67	2.73			
180	2.73	2.72	2.72	2.72	2.72	2.71	2.71	2.73	2.73	2.73	2.72	2.73	2.72	2.71	2.72	2.73			

2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2023-04-18	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DISK34-4	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202304180006	120.0	60	0.090	10.00	0.920

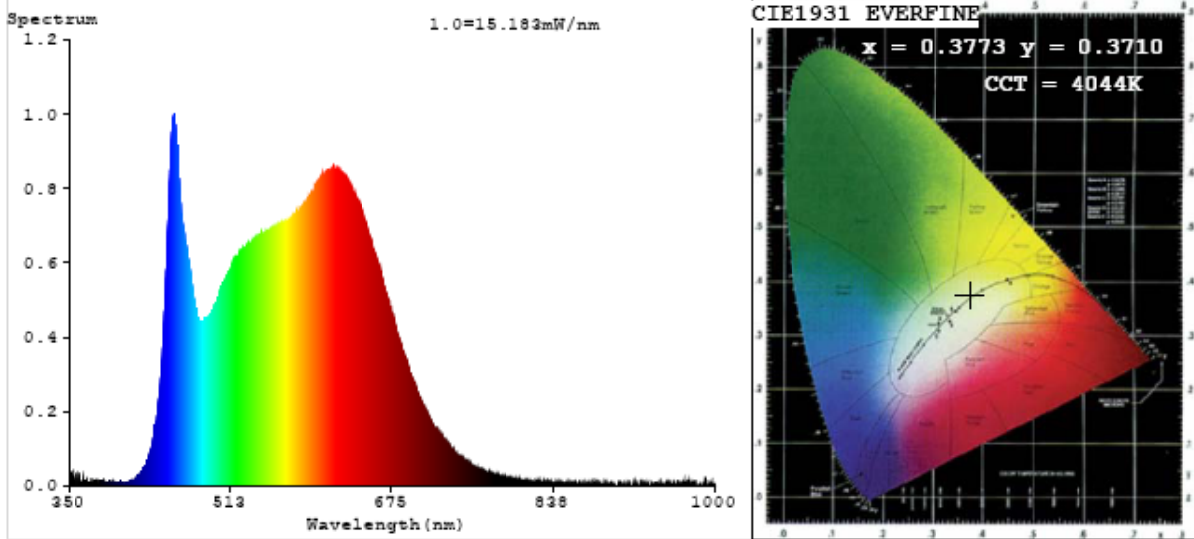
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	83
Frequency (Hz)	60	R2	98	R10	98
CCT (K)	4044	R3	98	R11	97
Duv	-0.0018	R4	94	R12	74
Chromaticity (x, y)	x=0.3773 y=0.3710	R5	96	R13	99
Chromaticity (u', v')	u'=0.2253 v'=0.4986	R6	95	R14	100
Color Rendering Index (CRI)	95.2	R7	93	R15	96
R9	83	R8	91	--	--

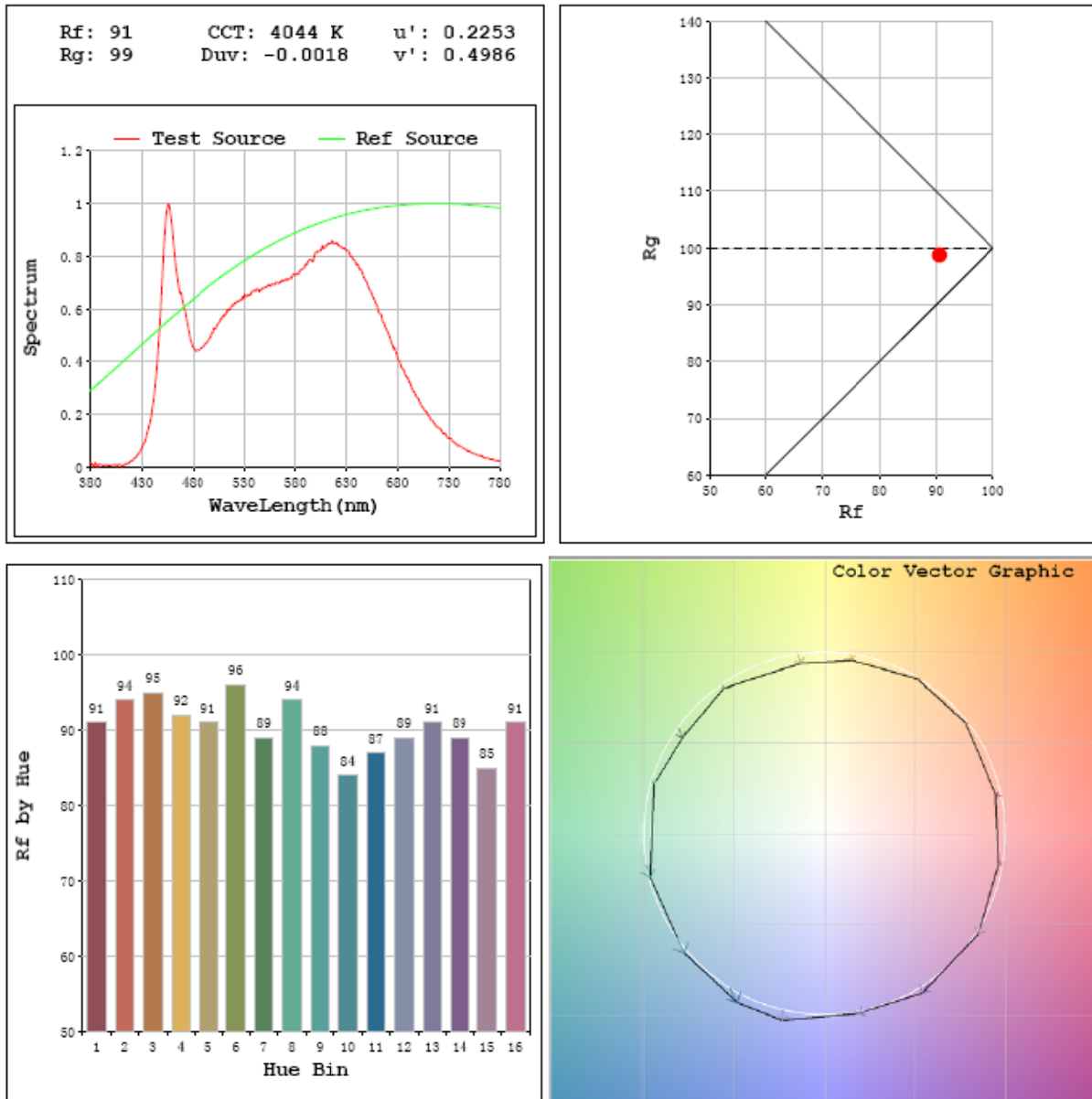
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	762.56
Luminous Efficacy (lm/W)	76.26
Beam Angle (°)	113.1
Center Beam Candle Power (cd)	249.9

Spectral Power Distribution & Chromaticity Diagram



TM30

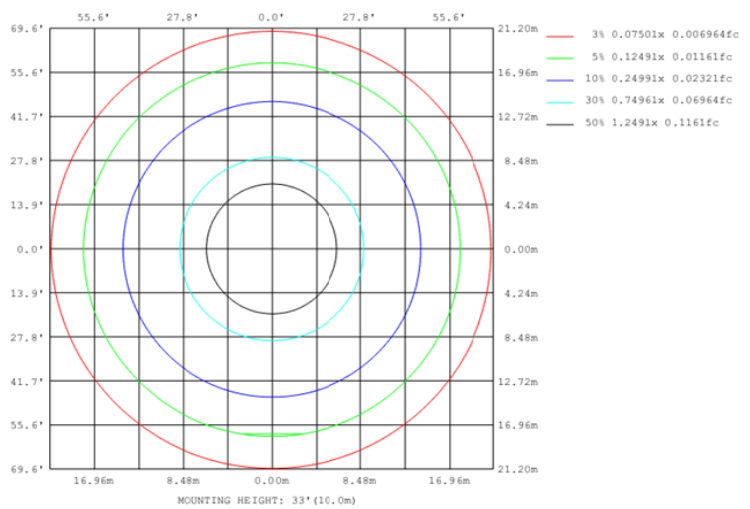
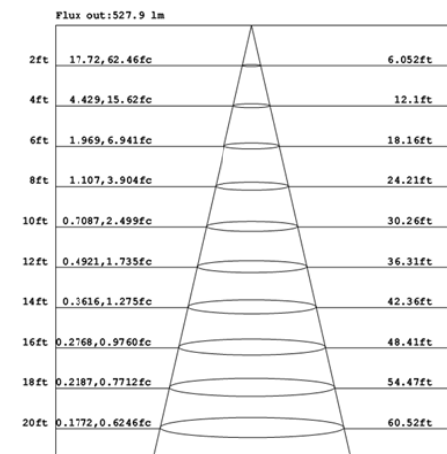
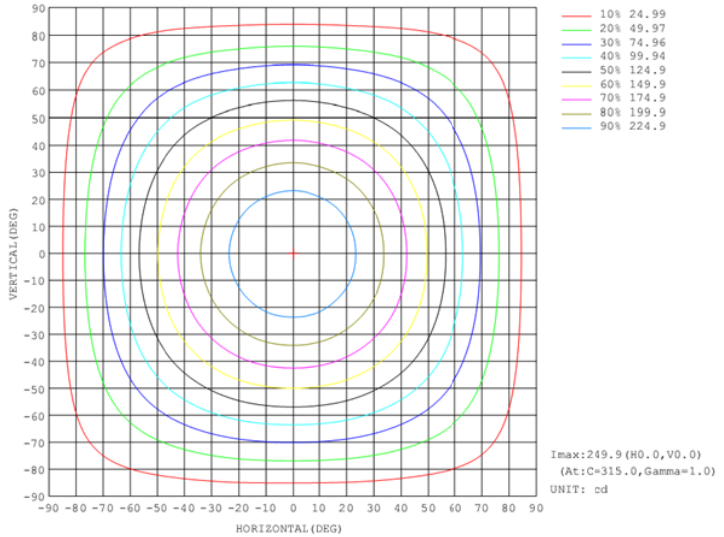
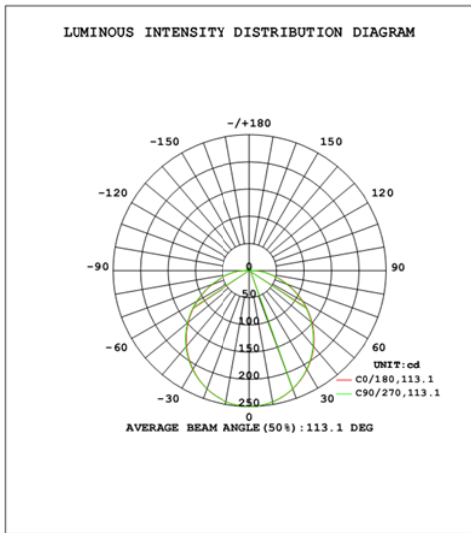


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	193.3	25.3%
0-40	316.3	41.5%
0-60	560.9	73.6%
60-90	177.3	23.3%
70-100	93.2	12.2%
90-120	12.5	1.6%
0-90	738.2	96.8%
90-180	24.4	3.2%
0-180	762.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23.6	3.1%	90-100	7.8	1.0%
10-20	67.5	8.9%	100-110	2.3	0.3%
20-30	102.1	13.4%	110-120	2.4	0.3%
30-40	123.0	16.1%	120-130	3.0	0.4%
40-50	127.9	16.8%	130-140	3.0	0.4%
50-60	116.8	15.3%	140-150	2.7	0.4%
60-70	91.9	12.1%	150-160	2.0	0.3%
70-80	58.6	7.7%	160-170	1.0	0.1%
80-90	26.9	3.5%	170-180	0.3	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	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250				
5	248	249	249	249	249	249	249	249	249	249	249	248	248	248	248	248				
10	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245				
15	239	239	240	240	240	240	240	240	240	239	239	239	239	239	239	239				
20	231	232	232	232	232	232	232	232	232	231	231	231	231	231	231	231				
25	221	222	222	222	222	222	222	222	222	221	221	221	221	221	221	221				
30	209	210	210	211	211	211	210	210	210	210	210	209	209	209	210	209				
35	196	197	197	198	198	198	197	197	197	196	196	196	196	195	196	196				
40	181	182	182	183	183	183	182	182	182	181	181	181	181	180	181	181				
45	165	166	167	167	167	167	167	166	166	165	165	164	165	164	165	165				
50	148	149	150	150	150	150	150	149	149	148	148	147	147	147	147	148				
55	130	131	132	133	132	133	132	131	131	130	130	129	129	129	130	130				
60	111	113	113	114	114	114	113	113	113	111	111	110	110	110	111	111				
65	92.0	93.5	93.9	94.8	94.5	94.9	93.9	93.6	93.7	92.3	92.0	90.9	91.1	90.7	91.8	92.0				
70	72.9	74.3	74.7	75.6	75.4	75.7	74.8	74.6	74.6	73.1	72.8	71.7	71.9	71.7	72.7	72.9				
75	54.5	55.8	56.1	57.1	56.9	57.2	56.4	56.2	56.1	54.6	54.3	53.2	53.5	53.2	54.2	54.4				
80	37.7	38.9	39.1	40.0	39.8	40.2	39.4	39.2	39.0	37.7	37.4	36.3	36.6	36.4	37.4	37.6				
85	23.7	24.6	24.7	25.4	25.3	25.7	25.0	24.8	24.6	23.5	23.2	22.3	22.5	22.3	23.2	23.5				
90	13.1	13.8	13.9	14.4	14.3	14.5	14.1	14.0	13.8	13.0	12.7	12.1	12.2	12.1	12.7	12.9				
95	6.28	6.78	6.89	7.10	7.03	7.24	6.96	6.90	6.78	6.35	6.21	5.85	5.87	5.79	6.08	6.14				
100	2.96	3.10	3.17	3.20	3.27	3.32	3.17	3.18	3.29	3.16	3.12	3.01	3.00	2.89	2.90	2.86				
105	1.97	1.85	1.77	1.77	1.91	1.87	1.81	1.89	2.14	2.18	2.24	2.32	2.32	2.15	2.00	1.89				
110	2.07	1.87	1.59	1.82	1.97	1.96	1.85	1.92	2.17	2.22	2.22	2.38	2.45	2.28	2.13	2.00				
115	2.55	2.15	1.90	2.30	2.47	2.42	2.20	2.43	2.47	2.36	2.15	2.39	2.53	2.54	2.25	2.38				
120	2.97	2.51	2.31	2.73	3.09	3.35	2.73	3.19	3.06	2.76	2.44	2.74	3.06	3.33	2.79	3.18				
125	3.08	2.81	2.85	3.11	3.71	3.84	3.19	3.63	3.54	3.13	2.86	3.10	3.71	3.72	3.22	3.73				
130	2.94	3.26	3.39	3.49	3.87	3.92	3.62	3.90	3.71	3.43	3.26	3.49	3.86	4.13	3.80	3.85				
135	3.49	3.70	3.81	3.71	3.84	4.10	3.92	4.05	3.86	3.64	3.66	3.74	3.96	4.25	4.07	4.05				
140	3.97	3.87	4.16	3.92	4.30	4.16	4.14	4.18	4.36	3.73	3.74	3.73	4.49	4.41	4.25	4.25				
145	4.59	3.99	4.12	4.17	4.62	4.35	4.31	4.38	4.64	3.88	3.31	4.03	4.50	4.65	4.50	4.52				
150	4.91	4.56	3.69	4.42	4.80	4.52	4.11	4.57	4.79	4.22	2.79	4.17	5.00	4.81	4.70	4.83				
155	5.52	4.46	3.17	3.67	5.27	4.88	4.30	4.86	3.69	3.29	2.78	3.98	5.38	5.00	4.98	5.40				
160	5.94	3.81	3.11	2.89	4.00	4.77	4.67	4.32	2.93	2.91	2.86	3.22	4.85	5.03	5.30	5.47				
165	3.74	3.10	2.87	2.72	2.58	3.08	3.26	2.88	2.94	2.96	2.93	2.76	2.96	4.78	4.99	4.69				
170	2.89	2.80	2.66	2.63	2.61	2.63	2.77	2.82	2.82	2.89	2.76	2.63	2.61	2.62	2.85	2.88				
175	2.72	2.69	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.67	2.67	2.67	2.67	2.68	2.74				
180	2.73	2.72	2.72	2.72	2.72	2.72	2.72	2.73	2.74	2.73	2.72	2.72	2.72	2.72	2.72	2.73				

2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2023-04-18	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DISK34-4	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202304180006	120.0	60	0.091	10.00	0.916

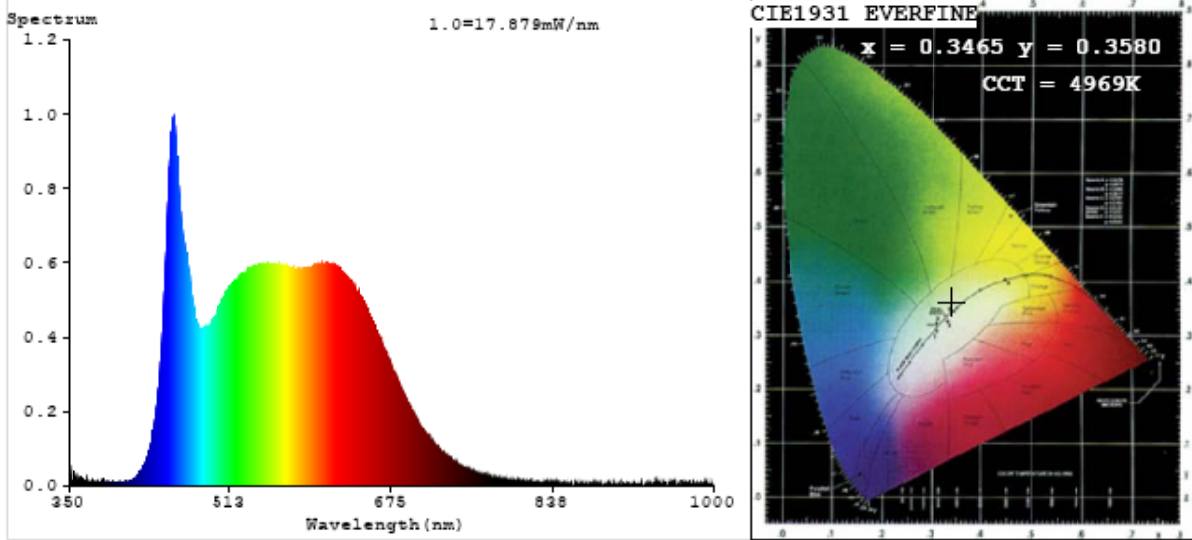
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	95	R9	75
Frequency (Hz)	60	R2	99	R10	96
CCT (K)	4969	R3	98	R11	91
Duv	0.0026	R4	90	R12	67
Chromaticity (x, y)	x=0.3465 y=0.3580	R5	92	R13	97
Chromaticity (u', v')	u'=0.2099 v'=0.4879	R6	95	R14	99
Color Rendering Index (CRI)	93.7	R7	92	R15	92
R9	75	R8	88	--	--

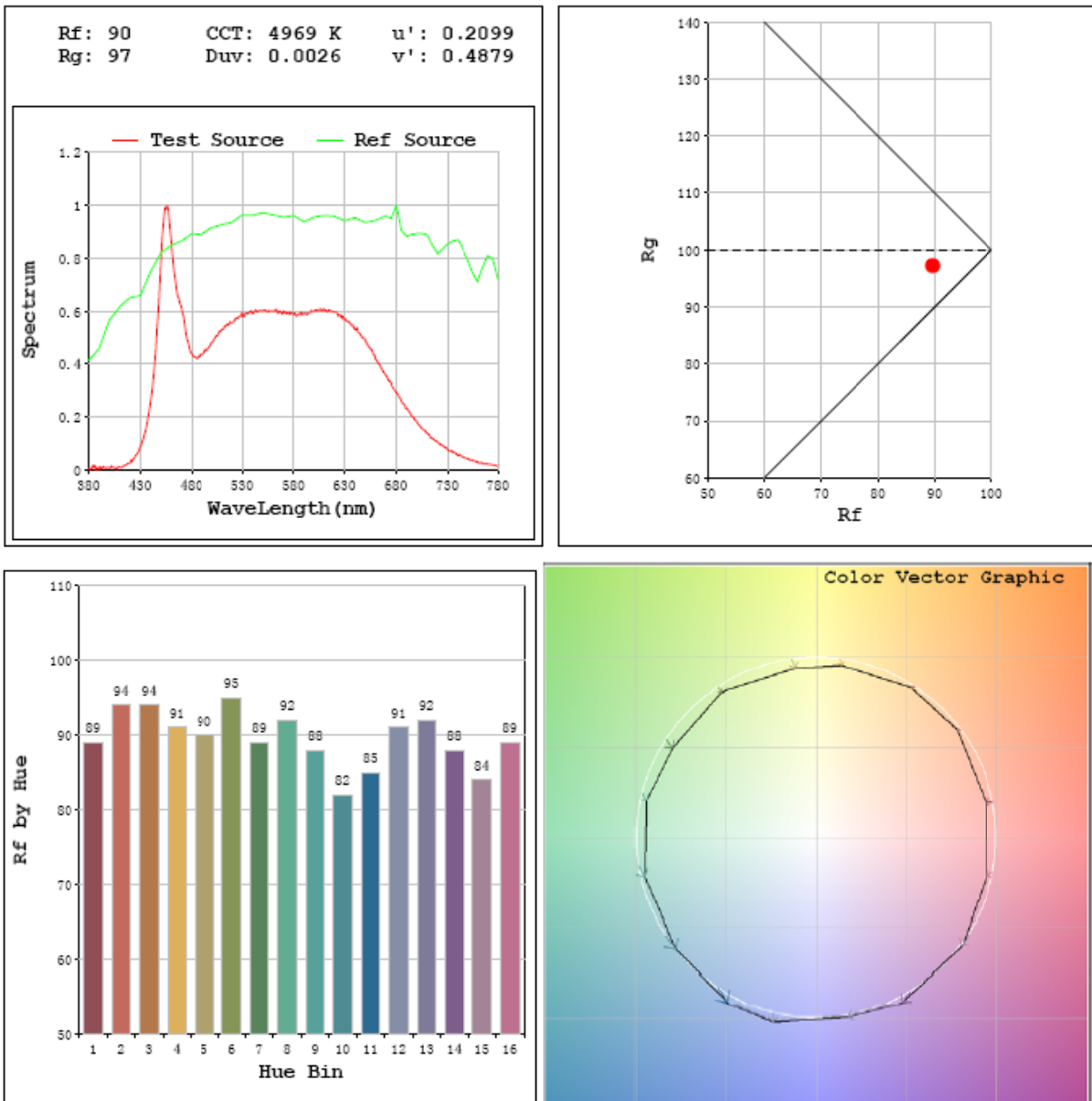
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	737.60
Luminous Efficacy (lm/W)	73.76
Beam Angle (°)	113.1
Center Beam Candle Power (cd)	241.4

Spectral Power Distribution & Chromaticity Diagram



TM30



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	186.7	25.3%
0-40	305.5	41.4%
0-60	541.8	73.5%
60-90	171.7	23.3%
70-100	90.8	12.3%
90-120	12.6	1.7%
0-90	713.5	96.7%
90-180	24.1	3.3%
0-180	737.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.8	3.1%	90-100	7.9	1.1%
10-20	65.2	8.8%	100-110	2.4	0.3%
20-30	98.6	13.4%	110-120	2.4	0.3%
30-40	118.8	16.1%	120-130	2.9	0.4%
40-50	123.5	16.7%	130-140	2.9	0.4%
50-60	112.8	15.3%	140-150	2.6	0.4%
60-70	88.8	12.0%	150-160	1.9	0.3%
70-80	56.7	7.7%	160-170	1.0	0.1%
80-90	26.2	3.6%	170-180	0.3	0.0%

Photometric Data

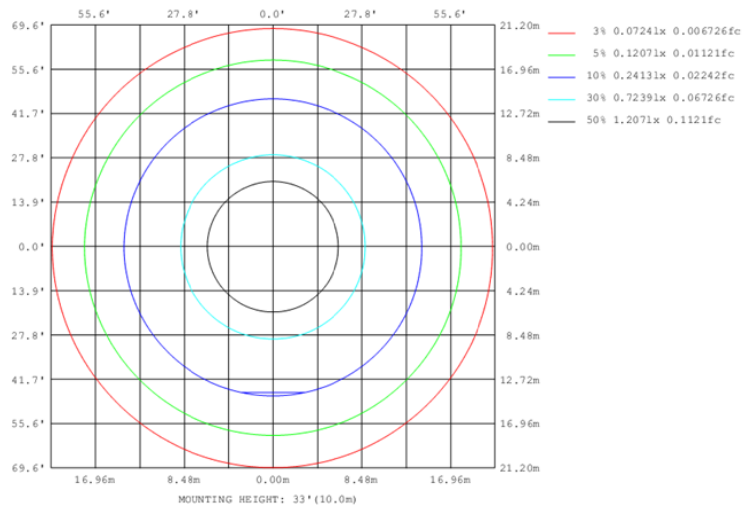
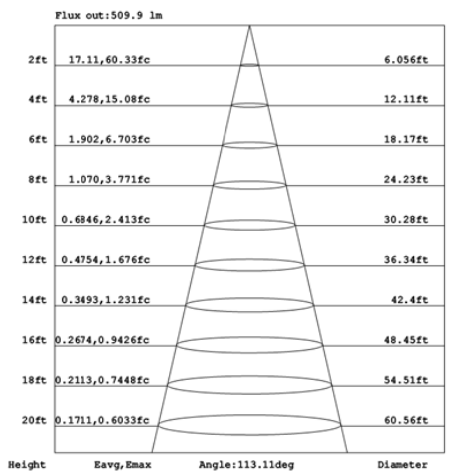
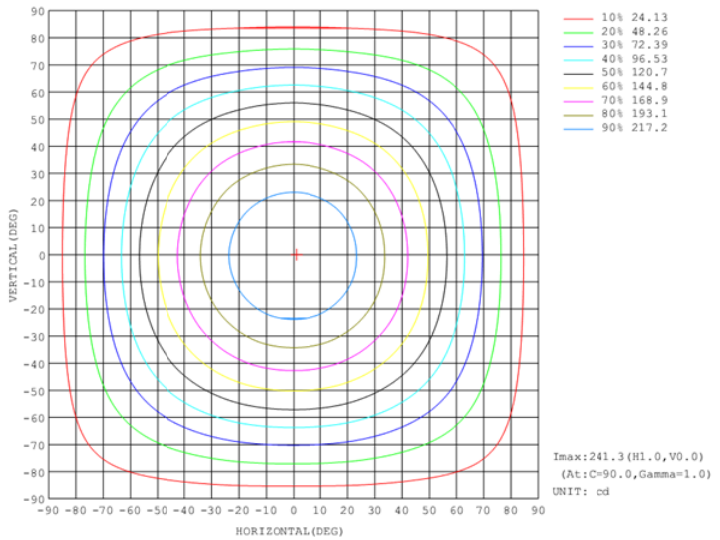
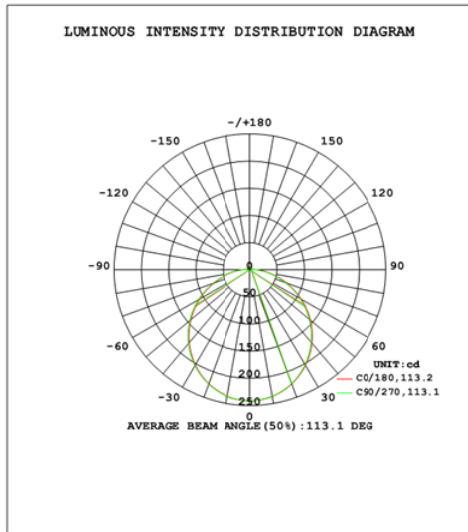


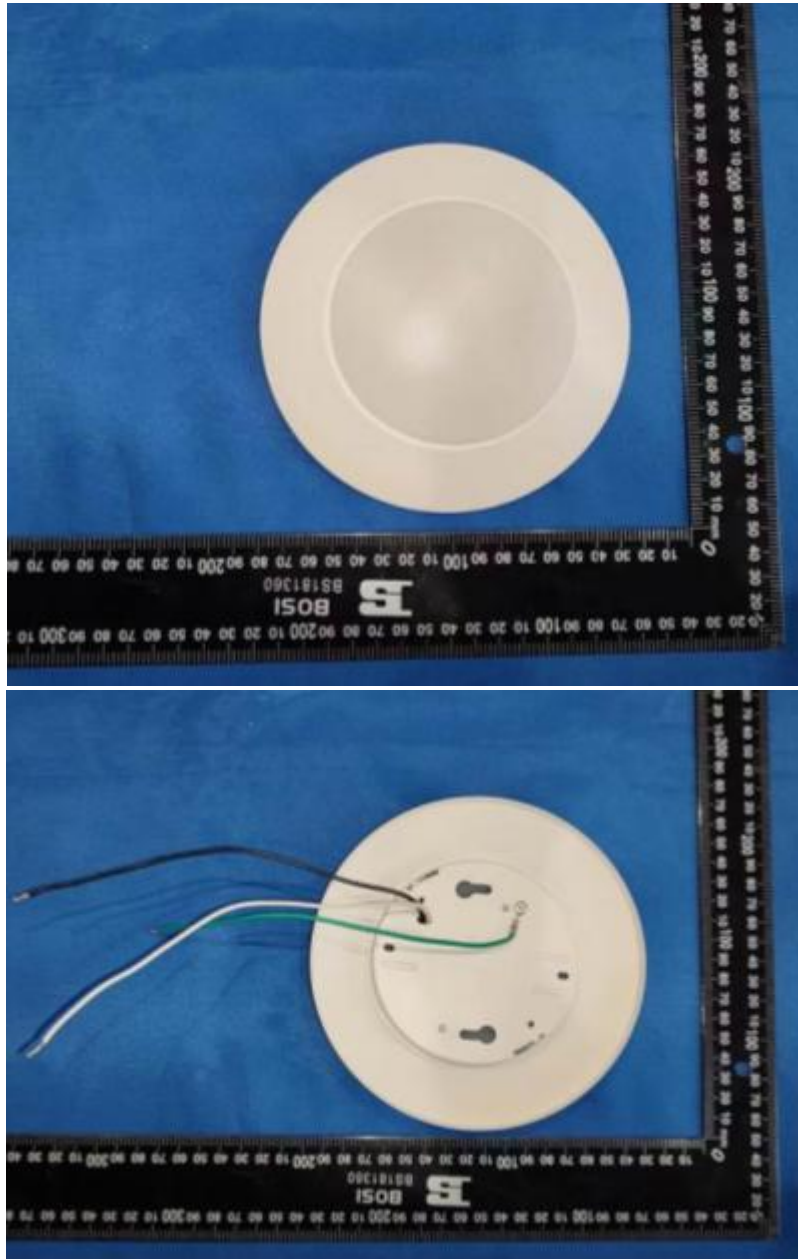
Table--1

UNIT: cd

Y (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	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241			
5	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240			
10	237	237	237	237	237	237	237	237	237	237	237	236	236	236	237	237			
15	231	232	231	232	232	232	232	231	231	231	231	231	231	230	231	231			
20	223	224	224	224	224	224	224	224	224	223	223	223	223	223	223	223			
25	214	214	215	215	215	215	214	215	214	214	213	213	213	213	214	213			
30	202	203	203	204	204	204	203	203	203	202	202	201	202	201	202	202			
35	189	190	191	191	191	191	191	191	190	189	189	188	189	188	189	189			
40	175	176	177	178	177	177	177	176	176	175	175	174	174	174	175	175			
45	160	161	161	162	162	162	162	161	161	159	159	158	158	158	159	159			
50	143	144	145	146	146	146	145	144	144	143	142	141	142	141	142	143			
55	125	127	128	129	128	129	128	127	127	125	125	124	124	124	125	125			
60	107	109	110	111	110	111	110	109	109	107	107	106	106	106	107	107			
65	89.0	90.5	91.0	92.2	92.0	92.3	91.2	90.7	90.5	88.8	88.3	87.2	87.4	87.1	88.2	88.7			
70	70.5	72.1	72.5	73.7	73.5	73.8	72.8	72.4	72.0	70.4	69.8	68.7	69.0	68.7	69.8	70.2			
75	52.8	54.3	54.7	55.8	55.6	55.9	54.9	54.5	54.1	52.6	52.0	50.9	51.1	50.8	52.0	52.5			
80	36.6	38.0	38.3	39.3	39.0	39.4	38.5	38.2	37.8	36.4	35.9	34.8	35.0	34.8	35.9	36.3			
85	23.2	24.3	24.5	25.2	25.1	25.3	24.6	24.3	24.1	22.9	22.5	21.6	21.7	21.5	22.4	22.8			
90	13.1	13.8	14.0	14.5	14.3	14.5	14.1	13.9	13.7	12.9	12.5	11.9	12.0	11.9	12.5	12.8			
95	6.48	6.99	7.09	7.29	7.17	7.31	7.02	6.96	6.88	6.46	6.33	5.98	5.98	5.90	6.20	6.29			
100	3.12	3.25	3.28	3.29	3.30	3.33	3.21	3.24	3.38	3.28	3.27	3.21	3.24	3.14	3.12	3.04			
105	2.07	1.87	1.74	1.74	1.88	1.84	1.78	1.89	2.19	2.25	2.36	2.49	2.54	2.39	2.21	2.05			
110	2.11	1.83	1.54	1.76	1.91	1.89	1.79	1.90	2.19	2.26	2.31	2.50	2.63	2.47	2.30	2.10			
115	2.48	2.09	1.84	2.26	2.41	2.29	2.10	2.36	2.44	2.35	2.18	2.43	2.62	2.60	2.28	2.31			
120	2.86	2.45	2.27	2.71	3.05	3.26	2.60	3.10	3.06	2.71	2.38	2.72	3.05	3.26	2.69	3.07			
125	2.94	2.73	2.77	3.07	3.70	3.65	3.02	3.45	3.55	3.07	2.81	3.07	3.74	3.57	3.10	3.56			
130	2.87	3.20	3.30	3.48	3.83	3.61	3.42	3.64	3.65	3.37	3.19	3.46	3.85	3.84	3.67	3.59			
135	3.43	3.62	3.71	3.69	3.76	3.81	3.67	3.78	3.81	3.58	3.58	3.70	3.94	3.93	3.85	3.76			
140	3.96	3.77	4.08	3.87	4.25	3.86	3.92	3.95	4.34	3.65	3.66	3.69	4.51	4.08	4.00	3.97			
145	4.70	3.88	4.07	4.17	4.54	4.06	4.13	4.13	4.51	3.87	3.23	4.04	4.38	4.30	4.24	4.21			
150	4.67	4.50	3.56	4.55	4.51	4.20	3.93	4.32	4.46	4.37	2.67	4.15	4.74	4.48	4.46	4.43			
155	5.59	4.34	3.02	3.65	5.17	4.35	4.18	4.39	3.62	3.20	2.67	3.98	5.52	4.39	4.74	4.64			
160	6.28	3.75	3.05	2.86	3.84	4.10	4.21	3.88	2.89	2.85	2.78	3.26	4.95	4.45	4.46	4.86			
165	3.78	3.01	2.82	2.67	2.50	3.01	3.27	2.79	2.85	2.88	2.85	2.71	2.89	5.09	4.86	4.83			
170	2.80	2.73	2.59	2.54	2.53	2.53	2.66	2.72	2.73	2.80	2.66	2.55	2.52	2.54	2.78	2.81			
175	2.62	2.60	2.59	2.60	2.60	2.60	2.60	2.60	2.59	2.59	2.60	2.59	2.59	2.58	2.60	2.65			
180	2.64	2.63	2.64	2.63	2.63	2.62	2.64	2.65	2.64	2.64	2.63	2.63	2.63	2.63	2.63	2.65			

Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DISK34-4	2700K setting	120.0	711.51	10.00	71.15
	3000K setting	120.0	745.72	10.00	74.57
	3500K setting	120.0	762.43	9.93	76.78
	4000K setting	120.0	762.56	10.00	76.26
	5000K setting	120.0	737.60	10.00	73.76

3. Product Photo



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