TEST REPORT

For

RENO LED LIGHTING INC.

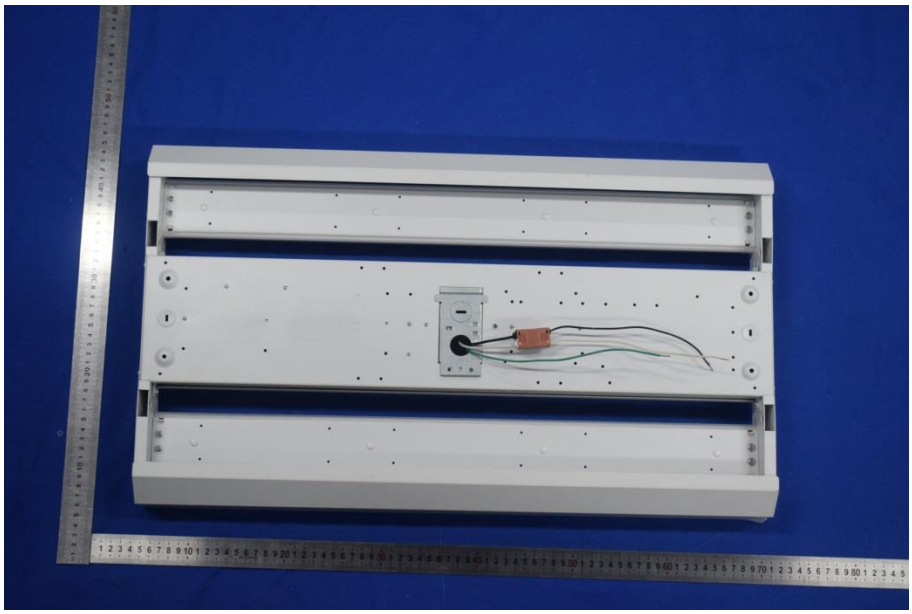
9133 Leslie St, Unit 120,Richmond Hill, ON L4B 4N1, Canada

Model Number:	RENO-LHB2-DV-MV-MCCT-R1	
Report Type:	Electrical, Photometric and ISTMT tests according to the following standards and show the compliance to DLC Program SSL Technical Requirements V5.1	
Standards:	ANSI/IES LM-79-19: Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting ANSI/UL 1598-2008: Standard for Safety of Luminaires *CIE 190:2010 Calculation and presentation of unified glare rating tables for indoor lighting luminaires(This method is not in NVLAP accreditation scope) *IES TM-30-18: IES Method for Evaluating Light Source Color Rendition(This method is not in NVLAP accreditation scope)	
Reviewed By:	Ezer Pan	Ezer Pan
Report Number:	KS2240320-14352E-EE	
Sample Size:	1 test samples were in good condition and received on 2024-03-20, and used for testing. The Product is Color Tunable and field-adjustable light output, all tests are conducted at the maximum light output and the least efficient white light setting.	
Test Date:	2024-03-27 to 2024-03-28	
Report Date:	2024-04-18	
Approved by:	Blake Zhang / EE Engineer	Blake zhang
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F (B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D Shihua Road, Futian Free Trade Zone Shenzhen 518038 China. Tel: +86-755-33320018 Fax: +86-755-33320008	
Test Location 1:	Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.	
Test Location 2:	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.	

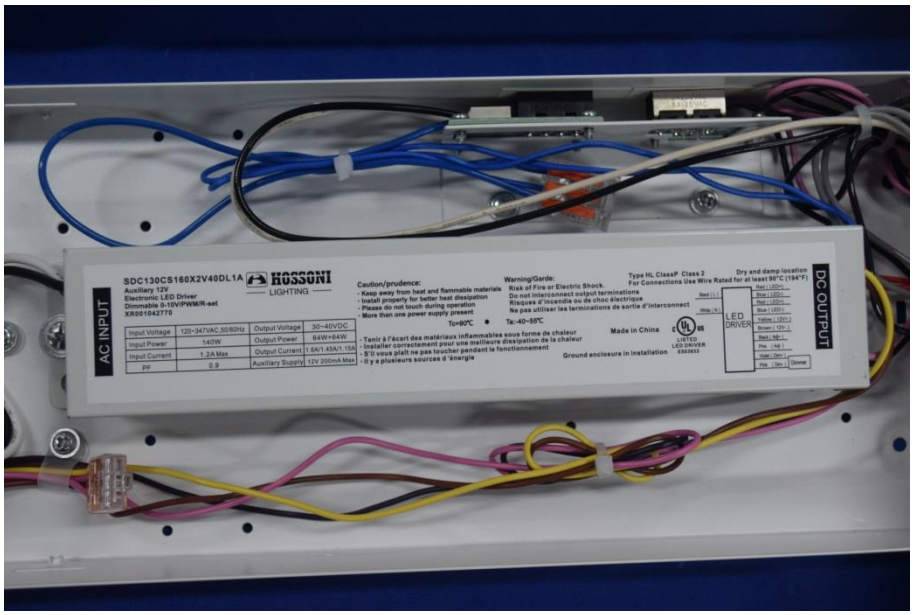
1. Product Description and Rating#

Test Model	Primary Use	Rated Voltage	Power(W)	Light Output(lm)	Efficacy (lm/W)	CCT(K)	LED Model	Driver Model	Test Item
RENO-LHB2-DV-MV-MCCT-R1	High-Bay Luminaires for Commercial and Industrial Buildings	120-347V AC 50/60Hz	100	17000	170	3500	L128-xx80RA3500xxx	SDC130CS160X2V40DL1A	All
				17700	177	4000			
				17100	171	5000			
			125	20625	165	3500			
				21625	173	4000			
				20750	166	5000			
			140	22470	160.5	3500			
				23800	170	4000			
				22540	161	5000			

2. Product Photo



3. Driver Photo



4. Test Result

Test power and CCT: 140W 3500K (Input Control Signal Applied: 0%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.1V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	22419	≥10000	≥9000	Pass
Power(W) ΔΔ	138.6	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	161.71	≥135	≥130.95	Pass
CCT(K) ΔΔ	3337	3220~3710	No tolerances	Pass
Duv ΔΔ	-0.00047	-0.0055~0.0065	No tolerances	Pass
IES R_f ΔΔ	83	70	69	Pass
IES R_g ΔΔ	100	89	88	Pass
IES Rcs,h1 ΔΔ	-10%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	83.5	≥70	≥69	Pass
R9 ΔΔ	32	≥-40	≥-41	Pass

Test Condition: Method: Goniophotometer; Orientation: Downward; Test Voltage: 120.1V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) Δ	22425.3	≥10000	≥9000	Pass
Power(W) Δ	137.31	None.	None.	N/A
Total Efficacy(lm/W) Δ	163.32	≥135	≥130.95	Pass
Zonal Lumen Distribution(20-50º) Δ	49.01%	20-50º≥30%	20-50º≥20%	Pass
Power Factor Δ	0.9970	≥0.9	≥0.87	Pass
THDi Δ	5.73%	≤20%	≤25%	Pass

Test Condition: Test Voltage: 120.1V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
TMP_{LED1}(°C) ΔΔ	78.2	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_{LED2}(°C) ΔΔ	74.8	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_c(°C) ΔΔ	57.8	≤85	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
Drive Current/Individual LED source(mA) ΔΔ	88.1	≤150	With +5% Tolerence	Pass
L_{90} Lumen Maintenance Life (Hours) ΔΔ	51000	≥36000	None.	Pass
Color Maintenance ΔΔ	0.002	≤0.007	≤0.0074	Pass

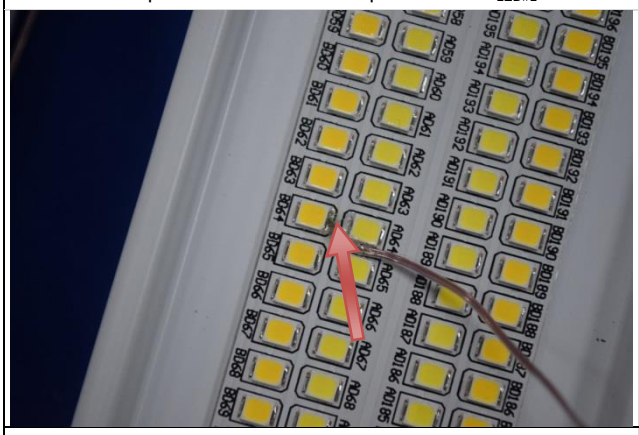
Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

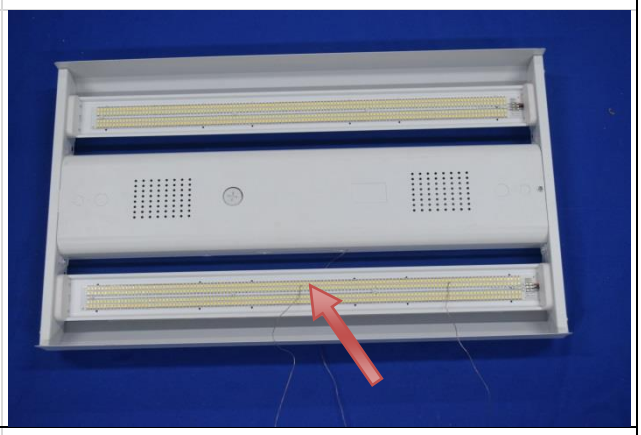
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9457	≥0.9	≥0.87	Pass
347	THDi ΔΔ	7.36%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9975	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.79%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9741	≥0.9	≥0.87	Pass
277	THDi ΔΔ	5.43%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. ▵ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ▵▵ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

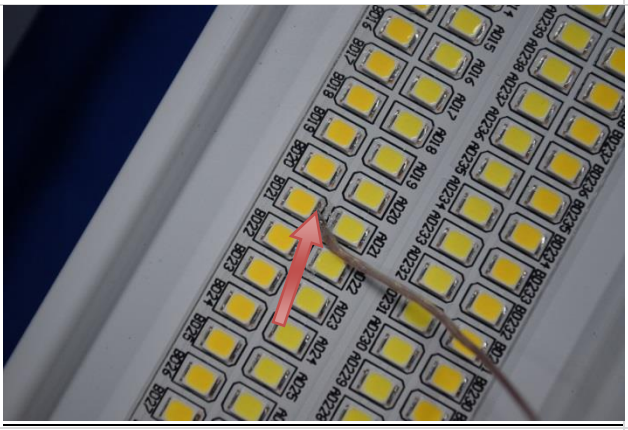
Test power and CCT: 140W 3500K (Input Control Signal Applied: 0%)

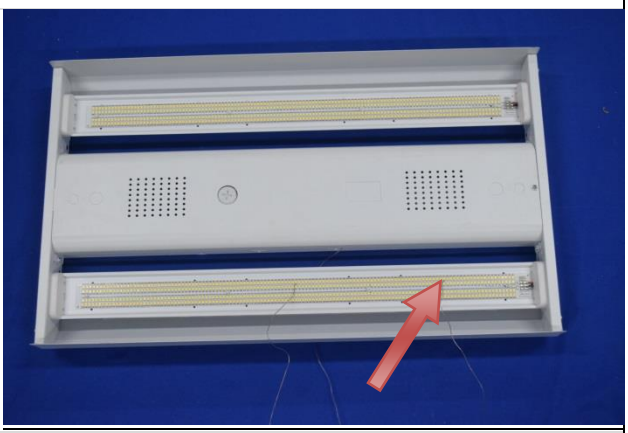
Temperature measurement point on $TMP_{LED\#1}$



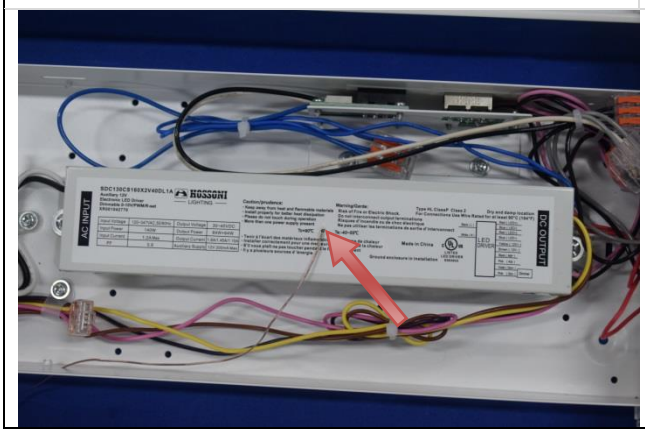


Temperature measurement point on $TMP_{LED\#2}$





Driver Case Measurement Point T_c



[Integrating Sphere System]

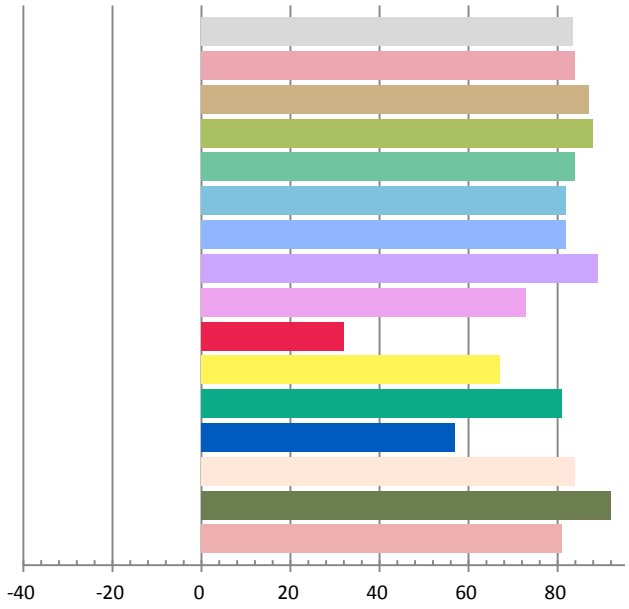
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	1.157	138.6	0.9975	22419	161.71

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
64.4080	3337	-0.00047	0.4142	0.3939	0.2402	0.5139

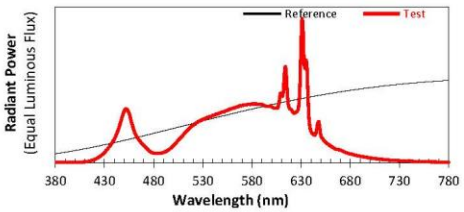
Color Rendering Index

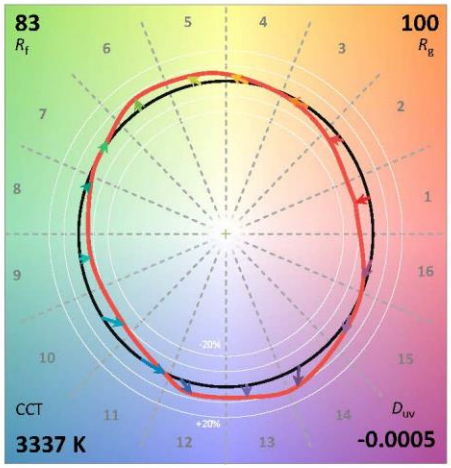
Ra			
83.5			
R1	R2	R3	R4
84	87	88	84
R5	R6	R7	R8
82	82	89	73
R9	R10	R11	R12
32	67	81	57
R13	R14	R15	
84	92	81	

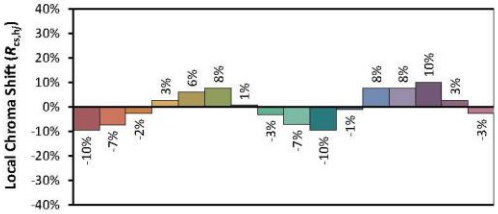


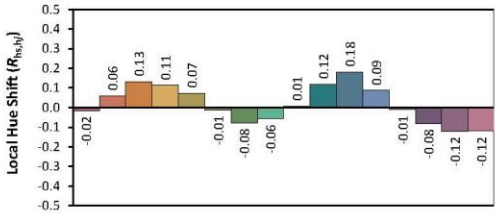
ANSI/IES TM-30-18 Color Rendition Report

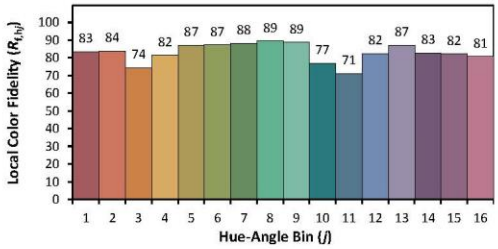
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

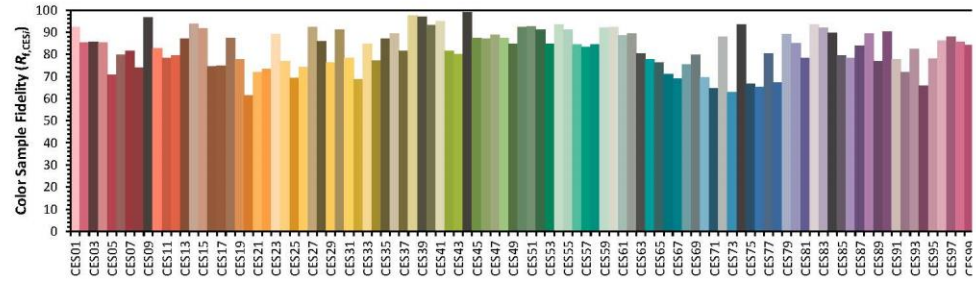












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

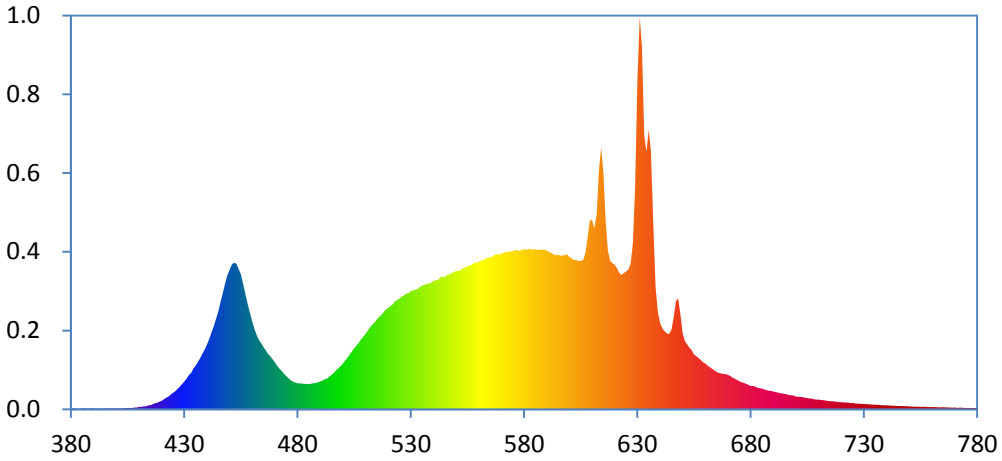
x	0.4142
y	0.3938
u'	0.2402
v'	0.5138

CIE 13.3-1995 (CRI)

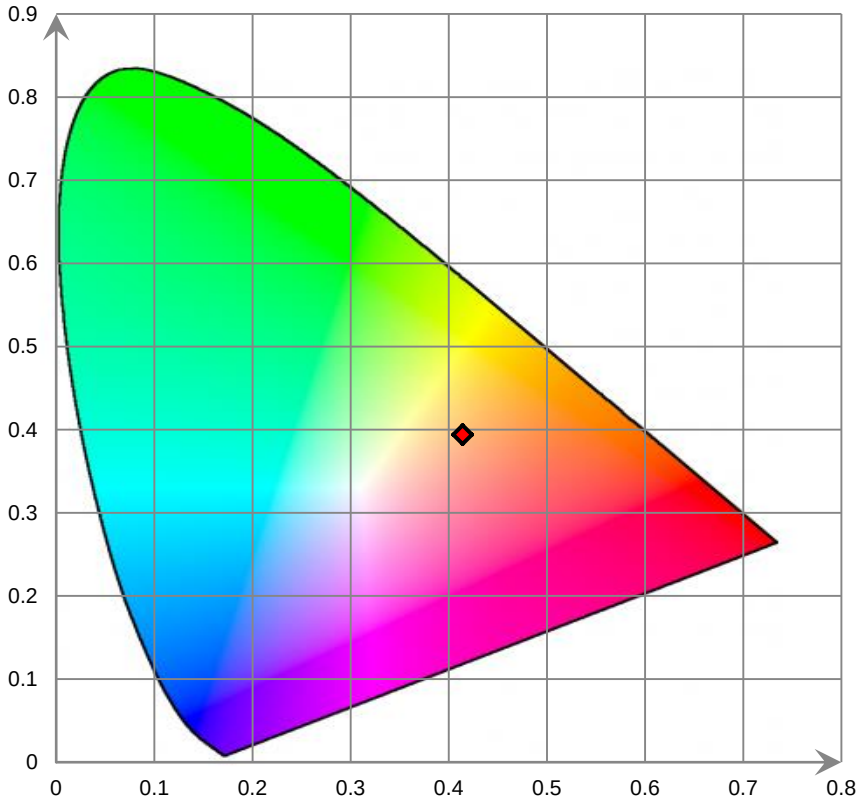
R_a	84
R_9	32

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

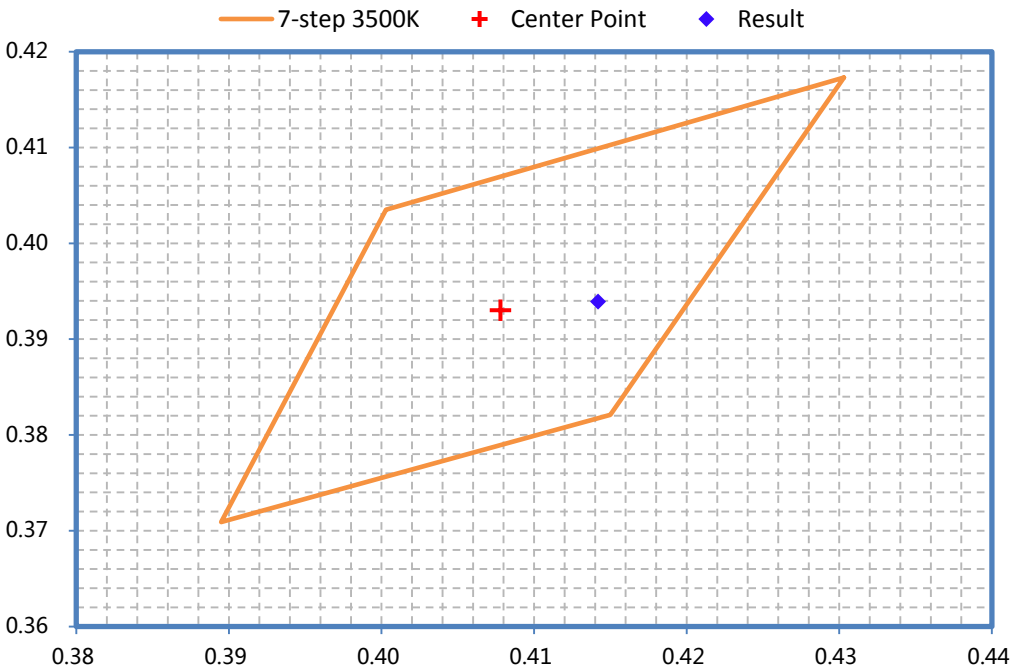
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



[Goniophotometer System]

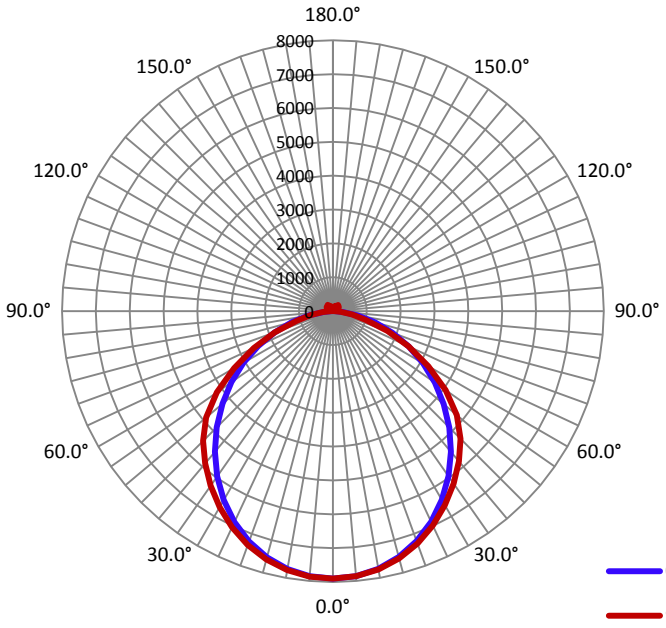
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.1	60	1.147	137.31	0.997

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I_{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
22425.3	163.32	7902.0	1.22	1.26

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I_{max}):	105.3	112.9	112.2	112.9	110.8
Field Angle (10% I_{max}):	158.8	158.1	155.5	158.1	157.6

Luminous Intensity (cd) Distribution Data

C / γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	7902	7902	7902	7902	7902	7902	7902	7902
5.0°	7859	7855	7857	7861	7861	7859	7856	7872
10.0°	7729	7729	7738	7746	7747	7742	7735	7756
15.0°	7518	7522	7539	7556	7563	7552	7538	7564
20.0°	7228	7241	7272	7296	7304	7290	7265	7297
25.0°	6869	6890	6934	6971	6984	6964	6926	6955
30.0°	6439	6475	6540	6598	6618	6590	6529	6547
35.0°	5953	6008	6101	6184	6219	6174	6087	6084
40.0°	5426	5498	5627	5747	5790	5734	5608	5573
45.0°	4861	4958	5130	5284	5334	5270	5107	5033
50.0°	4274	4399	4619	4779	4781	4762	4590	4471
55.0°	3677	3831	4089	4130	4064	4104	4059	3898
60.0°	3074	3260	3502	3368	3256	3333	3453	3319
65.0°	2471	2692	2811	2583	2472	2547	2750	2742
70.0°	1874	2132	2077	1828	1714	1786	2004	2175
75.0°	1295	1547	1344	1083	1000	1040	1264	1585
80.0°	753	924	684	609	574	579	629	953
85.0°	296	334	284	258	242	236	238	348
90.0°	41	59	64	39	38	31	48	60
95.0°	6	10	8	5	2	4	8	8
100.0°	12	27	31	37	38	39	37	24
105.0°	24	57	76	78	77	83	83	51
110.0°	33	71	123	125	126	129	129	68
115.0°	39	87	149	169	169	173	152	83
120.0°	40	108	166	193	201	196	168	99
125.0°	42	69	174	203	214	205	177	83
130.0°	52	106	189	208	220	211	193	114
135.0°	55	105	172	216	226	220	142	116
140.0°	55	95	162	238	238	241	124	103
145.0°	59	67	115	172	166	175	145	63
150.0°	65	60	153	124	141	126	145	73
155.0°	77	58	132	159	173	166	116	59
160.0°	79	66	76	137	150	138	80	73
165.0°	75	74	46	65	79	74	52	80
170.0°	69	73	62	60	58	55	69	72
175.0°	54	59	57	52	54	58	54	52
180.0°	53	46	45	53	63	48	47	42

Luminous Intensity (cd) Distribution Data (cont.)

C / γ	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	7902	7902	7902	7902	7902	7902	7902	7902
5.0°	7860	7862	7865	7869	7871	7870	7868	7846
10.0°	7735	7738	7753	7764	7769	7765	7757	7710
15.0°	7526	7536	7565	7584	7593	7588	7568	7493
20.0°	7239	7260	7300	7334	7348	7337	7307	7204
25.0°	6876	6911	6971	7023	7043	7026	6981	6846
30.0°	6444	6496	6582	6656	6686	6662	6594	6423
35.0°	5958	6029	6148	6248	6294	6256	6162	5950
40.0°	5421	5517	5676	5814	5871	5822	5694	5439
45.0°	4853	4974	5176	5352	5421	5364	5198	4896
50.0°	4260	4411	4662	4852	4885	4868	4686	4336
55.0°	3656	3837	4131	4212	4183	4240	4162	3766
60.0°	3044	3257	3537	3438	3367	3476	3585	3194
65.0°	2431	2681	2831	2643	2576	2686	2902	2626
70.0°	1826	2111	2084	1887	1828	1929	2162	2064
75.0°	1255	1518	1365	1155	1107	1200	1448	1481
80.0°	708	894	692	652	646	677	759	870
85.0°	255	310	295	295	300	316	338	296
90.0°	30	49	50	40	34	49	66	46
95.0°	3	8	9	9	4	9	9	10
100.0°	13	30	33	36	35	34	28	31
105.0°	24	64	80	80	74	75	73	55
110.0°	33	75	131	129	125	124	121	70
115.0°	40	89	162	175	169	170	155	86
120.0°	40	114	169	209	213	205	165	86
125.0°	46	95	175	210	223	208	172	78
130.0°	49	73	189	210	222	208	182	102
135.0°	59	113	214	221	230	218	170	99
140.0°	64	108	134	235	240	229	134	89
145.0°	64	70	95	169	207	163	111	76
150.0°	63	64	129	118	182	130	151	71
155.0°	62	54	102	149	169	152	141	57
160.0°	67	70	69	120	145	143	115	58
165.0°	71	71	55	60	86	87	62	54
170.0°	63	63	64	52	44	56	50	55
175.0°	45	45	48	54	53	49	50	49
180.0°	48	48	47	46	48	55	50	46

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	188.4	0.84
5-10	558.3	2.49
10-15	907.3	4.05
15-20	1222.4	5.45
20-25	1492.4	6.65
25-30	1708.6	7.62
30-35	1865.5	8.32
35-40	1960.9	8.74
40-45	1995.1	8.90
45-50	1968.4	8.78
50-55	1871.9	8.34
55-60	1698.2	7.58
60-65	1456.0	6.49
65-70	1168.3	5.21
70-75	850.2	3.79
75-80	533.3	2.38
80-85	270.7	1.21
85-90	78.7	0.35
90-95	9.0	0.04
95-100	8.7	0.04
100-105	25.6	0.11
105-110	43.8	0.20
110-115	58.4	0.26
115-120	68.1	0.30
120-125	68.9	0.31
125-130	65.9	0.29
130-135	65.9	0.30
135-140	57.9	0.25
140-145	46.0	0.21
145-150	35.6	0.16
150-155	27.9	0.12
155-160	22.3	0.10
160-165	13.7	0.06
165-170	7.6	0.04
170-175	4.1	0.01
175-180	1.2	0.01

Deg	Flux (lm)	%
0-5	188.4	0.84
0-10	746.7	3.33
0-15	1654.0	7.38
0-20	2876.4	12.83
0-25	4368.8	19.48
0-30	6077.5	27.10
0-35	7942.9	35.42
0-40	9903.9	44.16
0-45	11899.0	53.06
0-50	13867.3	61.84
0-55	15739.2	70.18
0-60	17437.4	77.76
0-65	18893.5	84.25
0-70	20061.7	89.46
0-75	20911.9	93.25
0-80	21445.2	95.63
0-85	21715.9	96.84
0-90	21794.6	97.19
0-95	21803.6	97.23
0-100	21812.3	97.27
0-105	21838.0	97.38
0-110	21881.8	97.58
0-115	21940.2	97.84
0-120	22008.2	98.14
0-125	22077.1	98.45
0-130	22143.1	98.74
0-135	22209.0	99.04
0-140	22266.9	99.29
0-145	22312.9	99.50
0-150	22348.5	99.66
0-155	22376.4	99.78
0-160	22398.8	99.88
0-165	22412.5	99.94
0-170	22420.0	99.98
0-175	22424.2	99.99
0-180	22425.3	100.00

Test power and CCT: 140W 4000K (Input Control Signal Applied: 50%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 119.9V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	23069	≥10000	≥9000	Pass
Power(W) ΔΔ	134.4	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	171.66	≥135	≥130.95	Pass
CCT(K) ΔΔ	3881	3710~4260	No tolerances	Pass
Duv ΔΔ	-0.00092	-0.005~0.007	No tolerances	Pass
IES R_f ΔΔ	83	70	69	Pass
IES R_g ΔΔ	100	89	88	Pass
IES Rcs,h1 ΔΔ	-8%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	84.8	≥70	≥69	Pass
R9 ΔΔ	41	≥-40	≥-41	Pass

Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9461	≥0.9	≥0.87	Pass
347	THDi ΔΔ	7.42%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9976	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.82%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9748	≥0.9	≥0.87	Pass
277	THDi ΔΔ	5.48%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. Δ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ΔΔ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

[Integrating Sphere System]

Photometric and Electrical Measurement Result

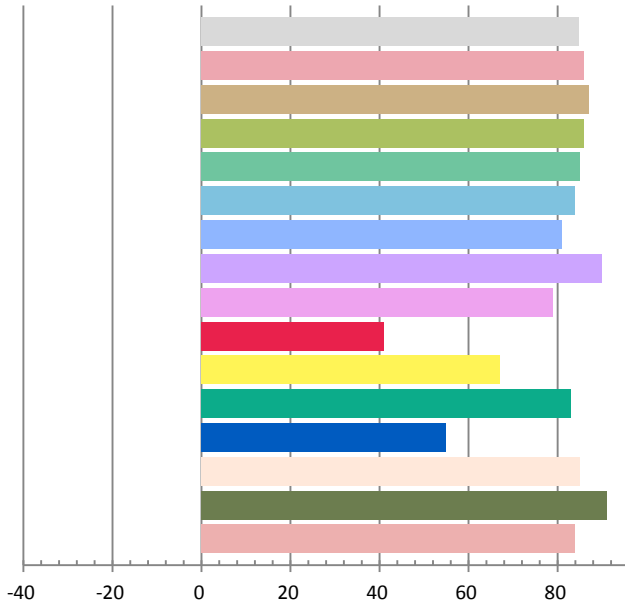
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
119.9	60	1.123	134.4	0.9976	23069	171.66

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
67.6450	3881	-0.00092	0.3852	0.3777	0.2278	0.5027

Color Rendering Index

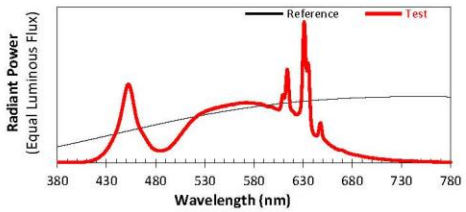
Ra
84.8

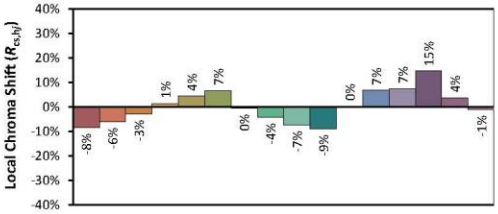
R1	R2	R3	R4
86	87	86	85
R5	R6	R7	R8
84	81	90	79
R9	R10	R11	R12
41	67	83	55
R13	R14	R15	
85	91	84	

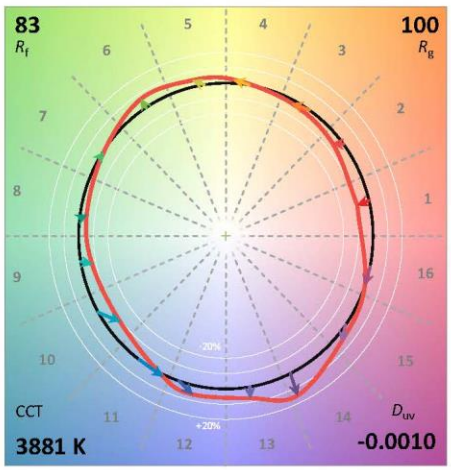


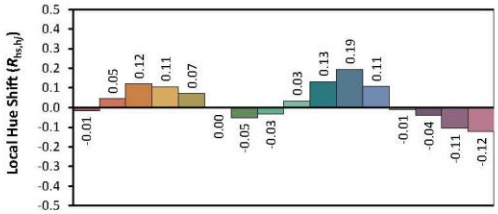
ANSI/IES TM-30-18 Color Rendition Report

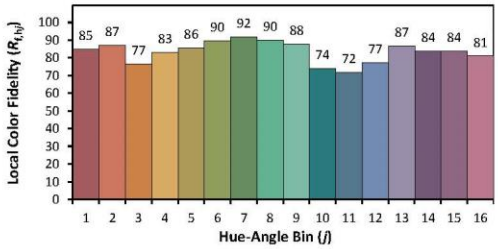
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

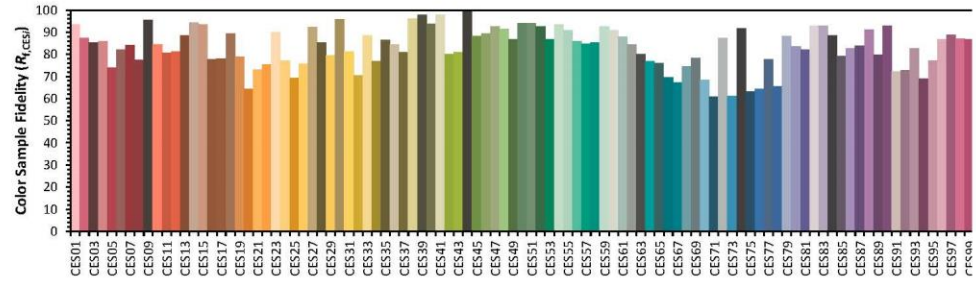












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

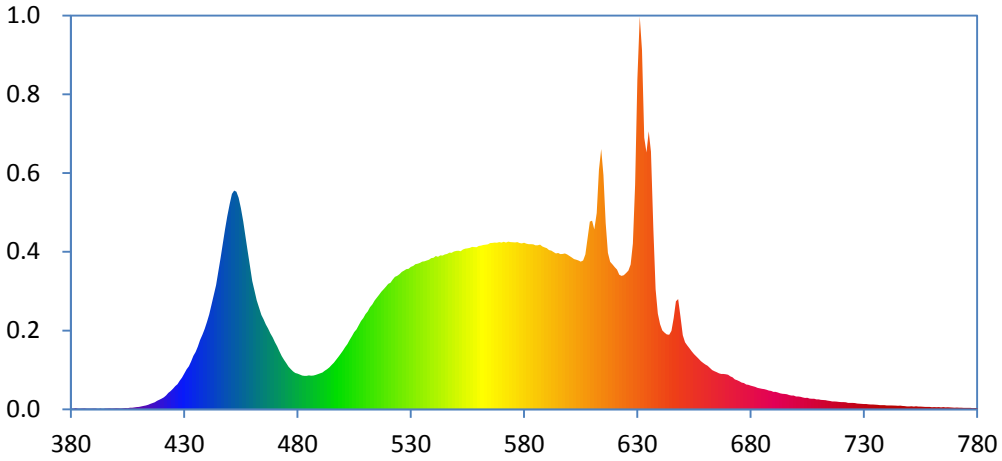
x	0.3851
y	0.3775
u'	0.2279
v'	0.5026

CIE 13.3-1995 (CRI)

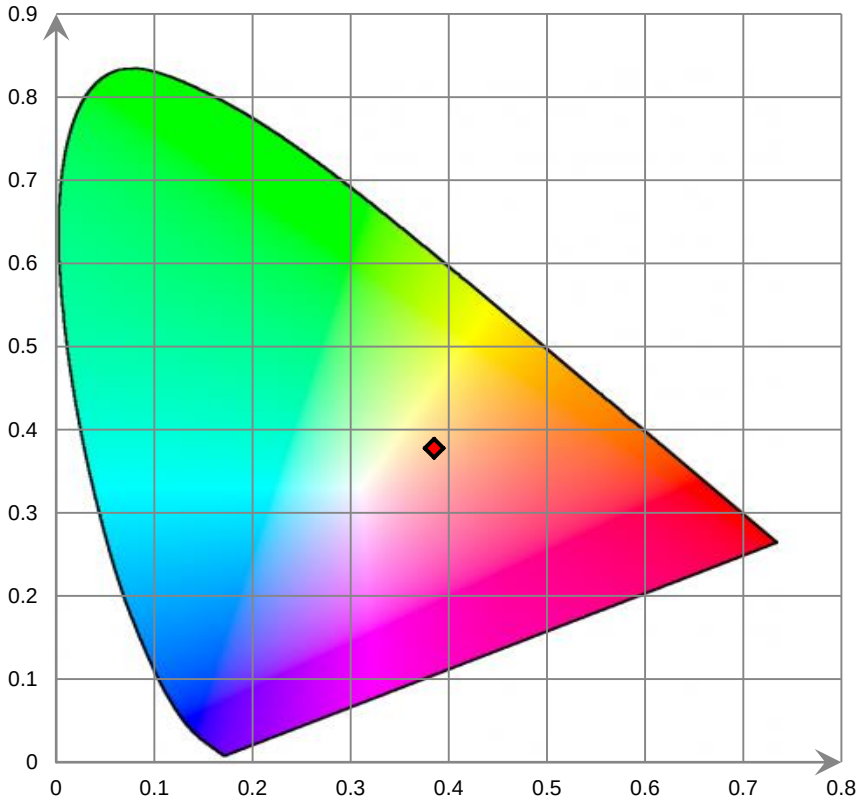
R_a	85
R_9	41

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

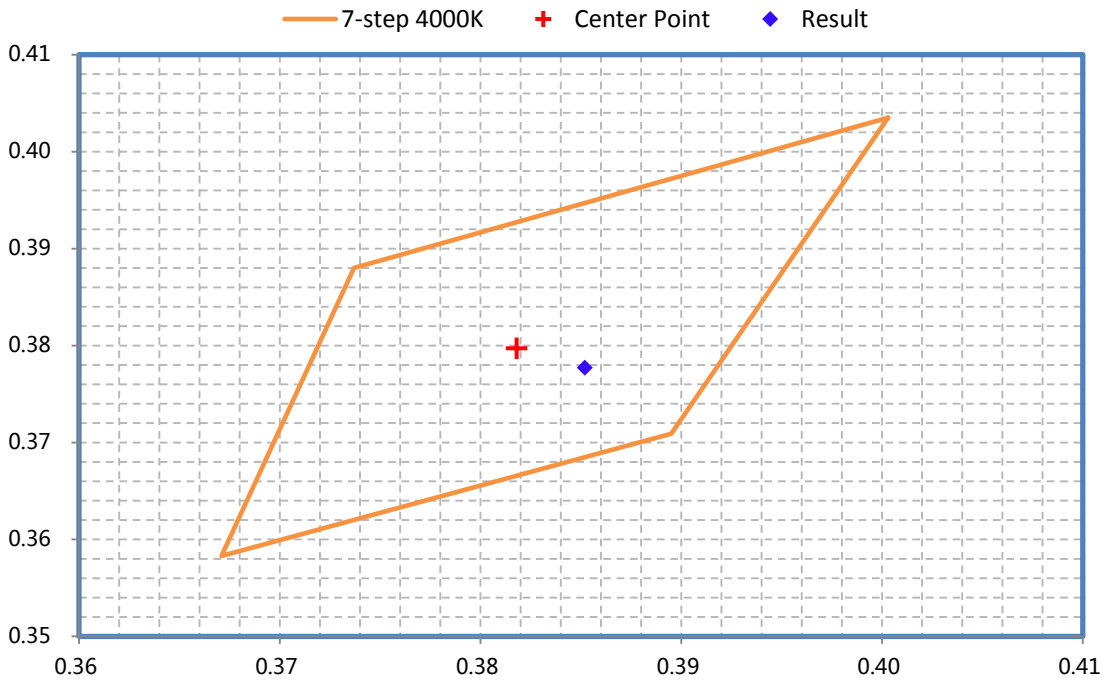
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



Test power and CCT: 140W 5000K (Input Control Signal Applied: 100%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	22631	≥10000	≥9000	Pass
Power(W) ΔΔ	139.1	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	162.71	≥135	≥130.95	Pass
CCT(K) ΔΔ	4757	4746~5312	No tolerances	Pass
Duv ΔΔ	-0.00018	-0.004~0.008	No tolerances	Pass
IES R_f ΔΔ	82	70	69	Pass
IES R_g ΔΔ	100	89	88	Pass
IES Rcs,h1 ΔΔ	-9%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	84	≥70	≥69	Pass
R9 ΔΔ	43	≥-40	≥-41	Pass

Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9468	≥0.9	≥0.87	Pass
347	THDi ΔΔ	7.48%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9975	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.90%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9751	≥0.9	≥0.87	Pass
277	THDi ΔΔ	5.53%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. Δ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ΔΔ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

[Integrating Sphere System]

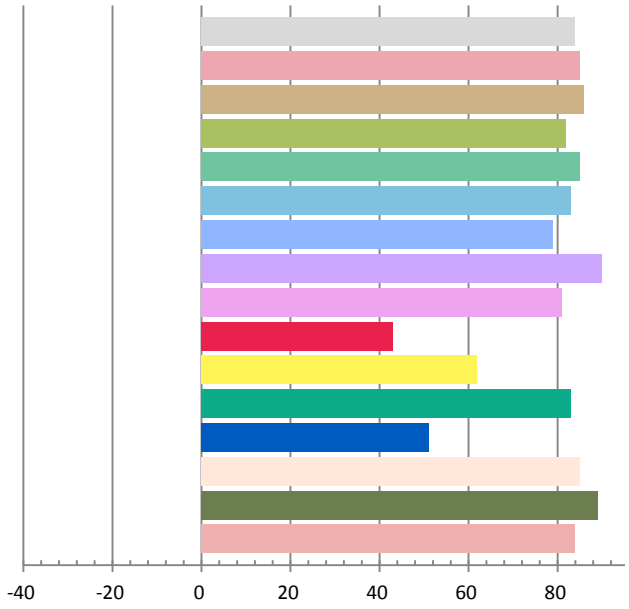
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	1.162	139.1	0.9975	22631	162.71

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
68.3830	4757	-0.00018	0.3522	0.3568	0.2142	0.4883

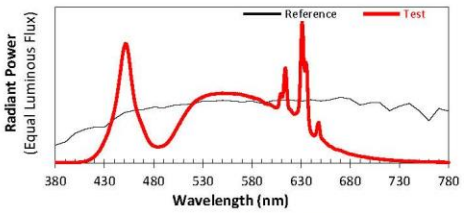
Color Rendering Index

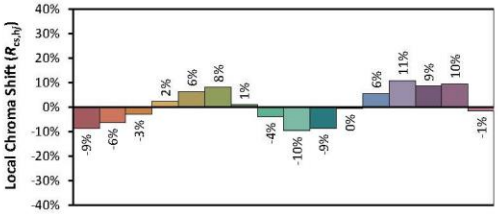
Ra			
84.0			
R1	R2	R3	R4
85	86	82	85
R5	R6	R7	R8
83	79	90	81
R9	R10	R11	R12
43	62	83	51
R13	R14	R15	
85	89	84	

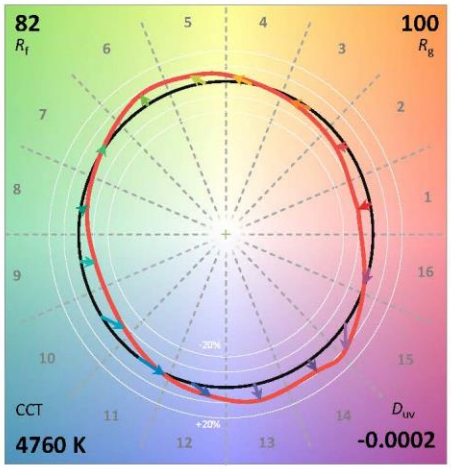


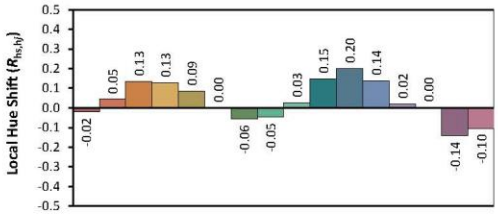
ANSI/IES TM-30-18 Color Rendition Report

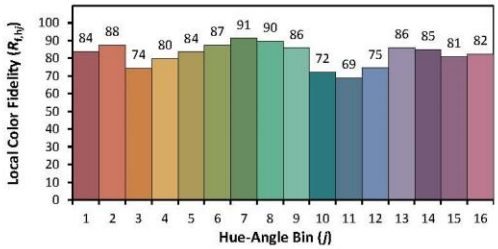
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

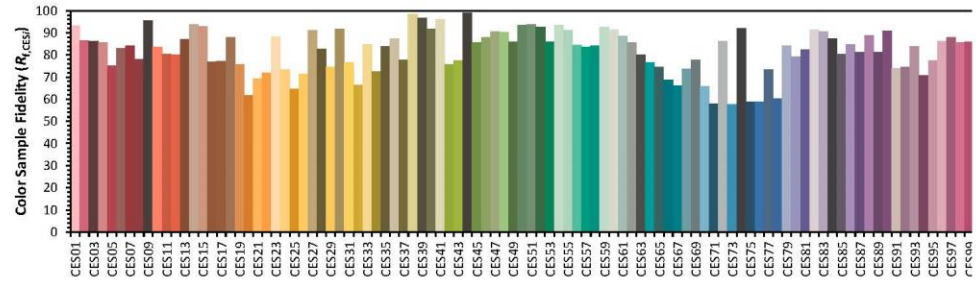












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

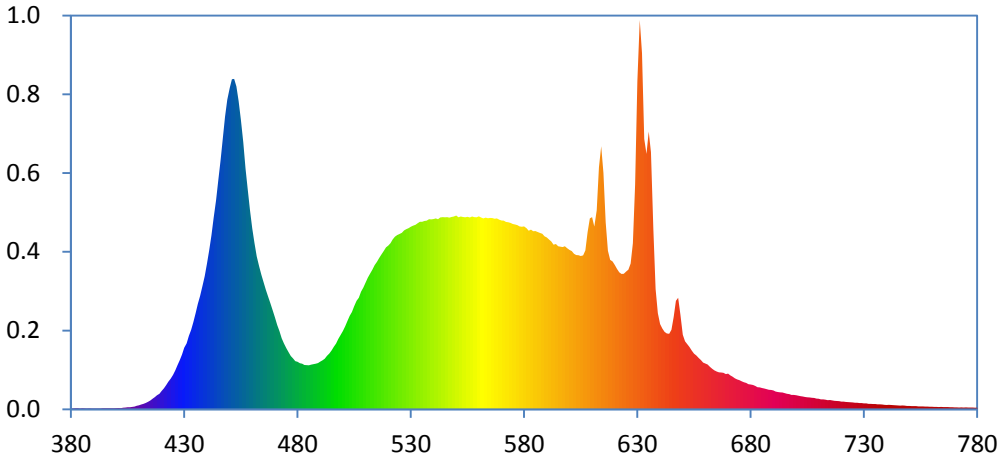
x	0.3521
y	0.3567
u'	0.2142
v'	0.4882

CIE 13.3-1995 (CRI)

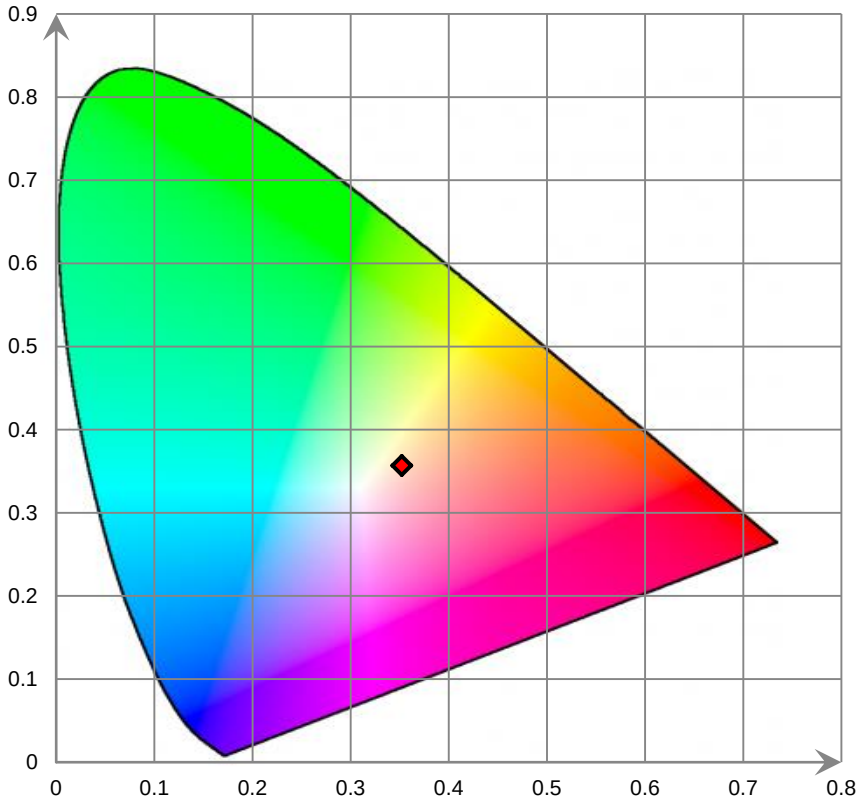
R_a	84
R_9	44

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

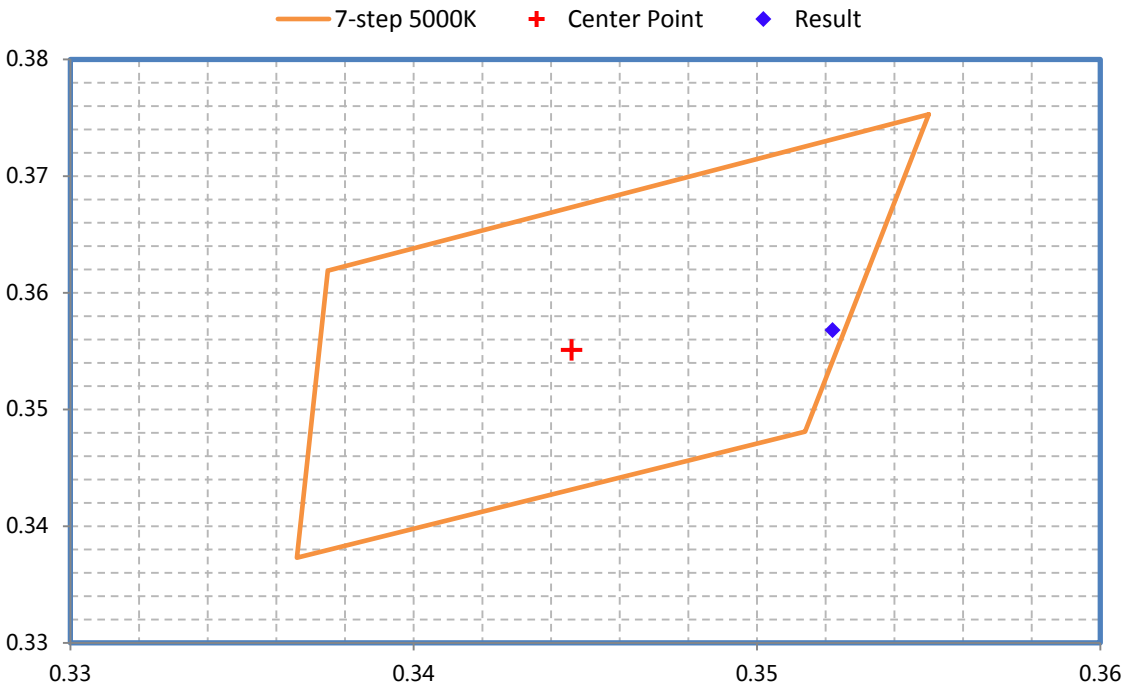
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



Test power and CCT: 100W 3500K (Input Control Signal Applied: 0%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	16559	≥10000	≥9000	Pass
Power(W) ΔΔ	96.36	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	171.84	≥135	≥130.95	Pass
CCT(K) ΔΔ	3350	3220~3710	No tolerances	Pass
Duv ΔΔ	0.00052	-0.0055~0.0065	No tolerances	Pass
IES R_f ΔΔ	83	70	69	Pass
IES R_g ΔΔ	99	89	88	Pass
IES Rcs,h1 ΔΔ	-10%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	83.2	≥70	≥69	Pass
R9 ΔΔ	30	≥-40	≥-41	Pass

Test Condition: Method: Goniophotometer; Orientation: Downward; Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) Δ	16562.6	≥10000	≥9000	Pass
Power(W) Δ	96.57	None.	None.	N/A
Total Efficacy(lm/W) Δ	171.51	≥135	≥130.95	Pass
Zonal Lumen Distribution(20-50º) Δ	49.00%	20-50º≥30%	20-50º≥20%	Pass
Power Factor Δ	0.9957	≥0.9	≥0.87	Pass
THDi Δ	5.38%	≤20%	≤25%	Pass

Test Condition: Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
TMP_{LED1}(°C) ΔΔ	64.8	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_{LED2}(°C) ΔΔ	62	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_c(°C) ΔΔ	50.5	≤85	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
Drive Current/Individual LED source(mA) ΔΔ	63.9	≤150	With +5% Tolerence	Pass
L_{90} Lumen Maintenance Life (Hours) ΔΔ	51000	≥36000	None.	Pass
Color Maintenance ΔΔ	0.002	≤0.007	≤0.0074	Pass

Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

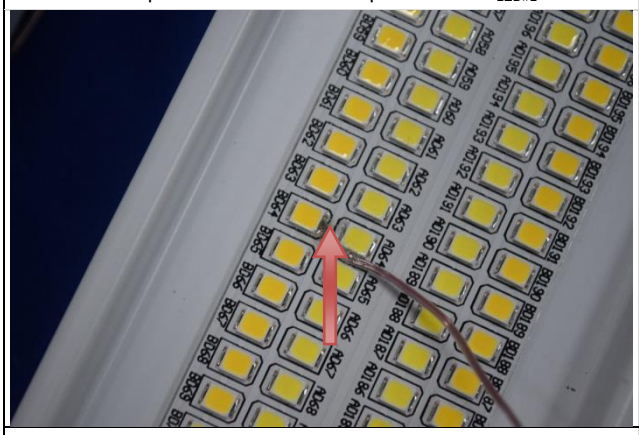
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9085	≥0.9	≥0.87	Pass
347	THDi ΔΔ	9.51%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9960	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.43%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9542	≥0.9	≥0.87	Pass
277	THDi ΔΔ	6.11%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.

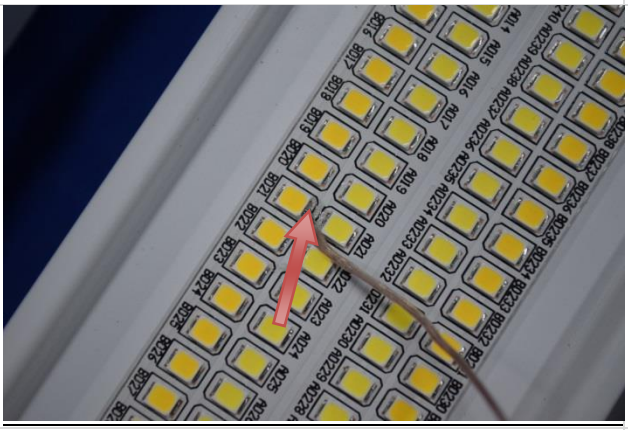
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. ▵ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ▵▵ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

Test power and CCT: 100W 3500K (Input Control Signal Applied: 0%)

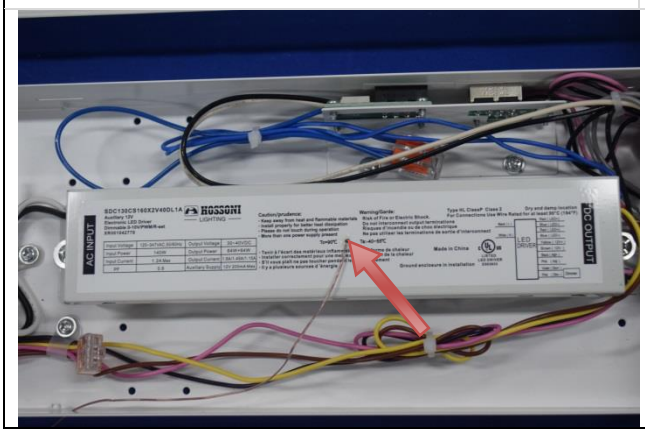
Temperature measurement point on $TMP_{LED\#1}$



Temperature measurement point on $TMP_{LED\#2}$



Driver Case Measurement Point T_c



[Integrating Sphere System]

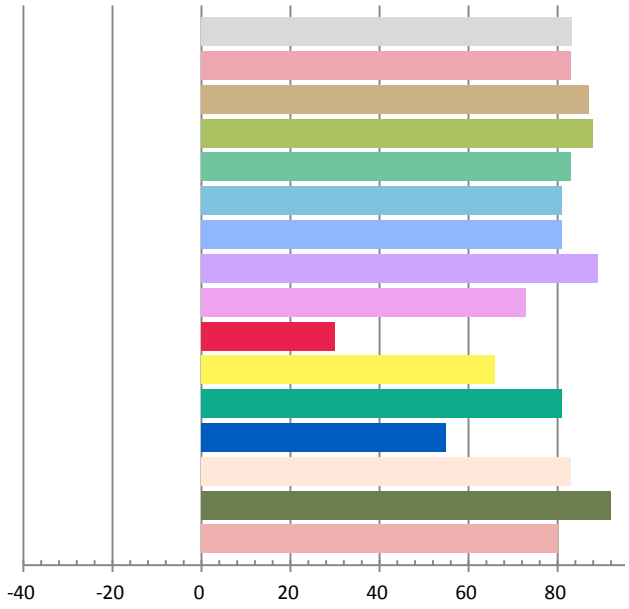
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.806	96.36	0.996	16559	171.84

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
47.2150	3350	0.00052	0.4146	0.3964	0.2394	0.5150

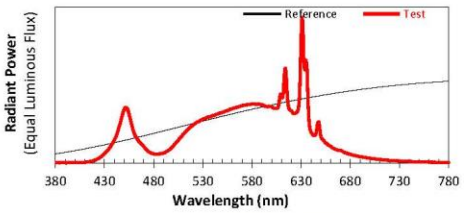
Color Rendering Index

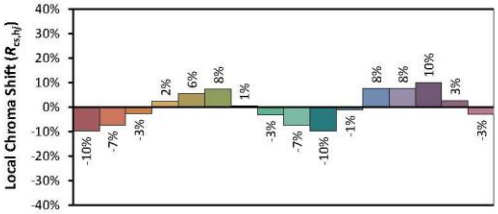
Ra			
83.2			
R1	R2	R3	R4
83	87	88	83
R5	R6	R7	R8
81	81	89	73
R9	R10	R11	R12
30	66	81	55
R13	R14	R15	
83	92	80	

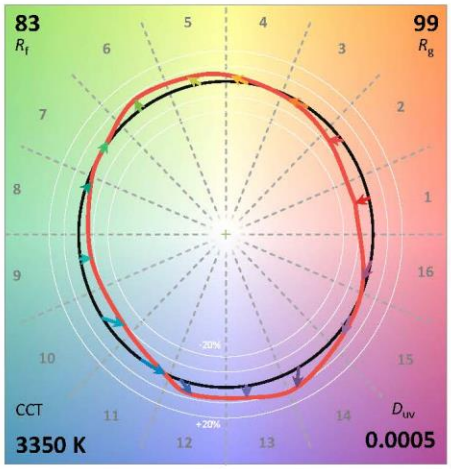


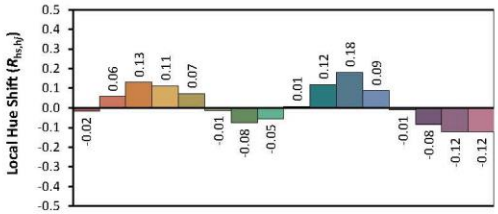
ANSI/IES TM-30-18 Color Rendition Report

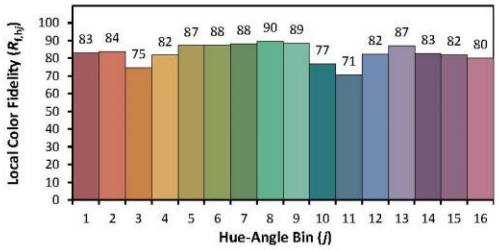
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

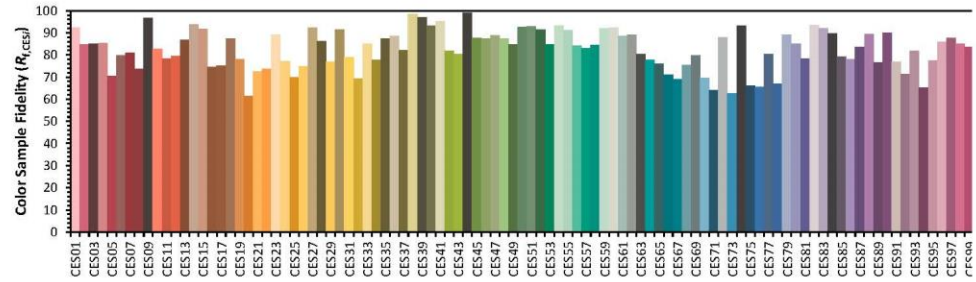












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

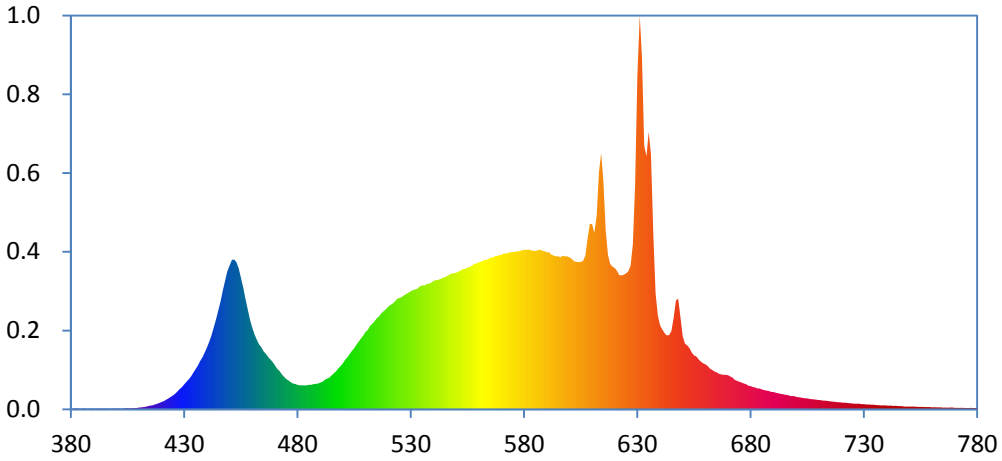
x	0.4146
y	0.3962
u'	0.2394
v'	0.5149

CIE 13.3-1995 (CRI)

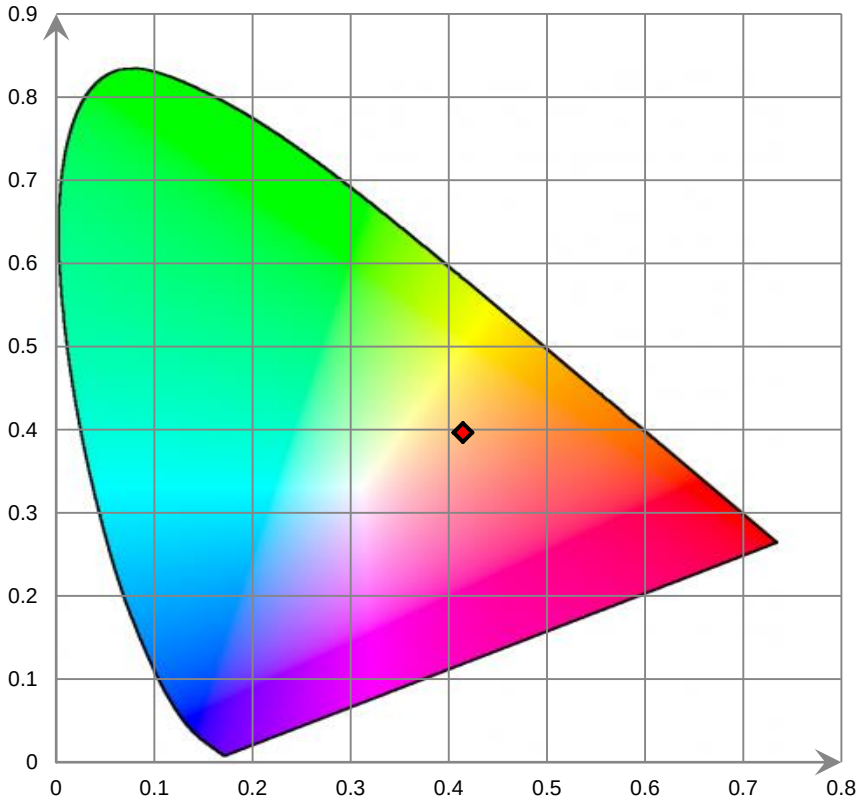
R_a	83
R_9	30

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

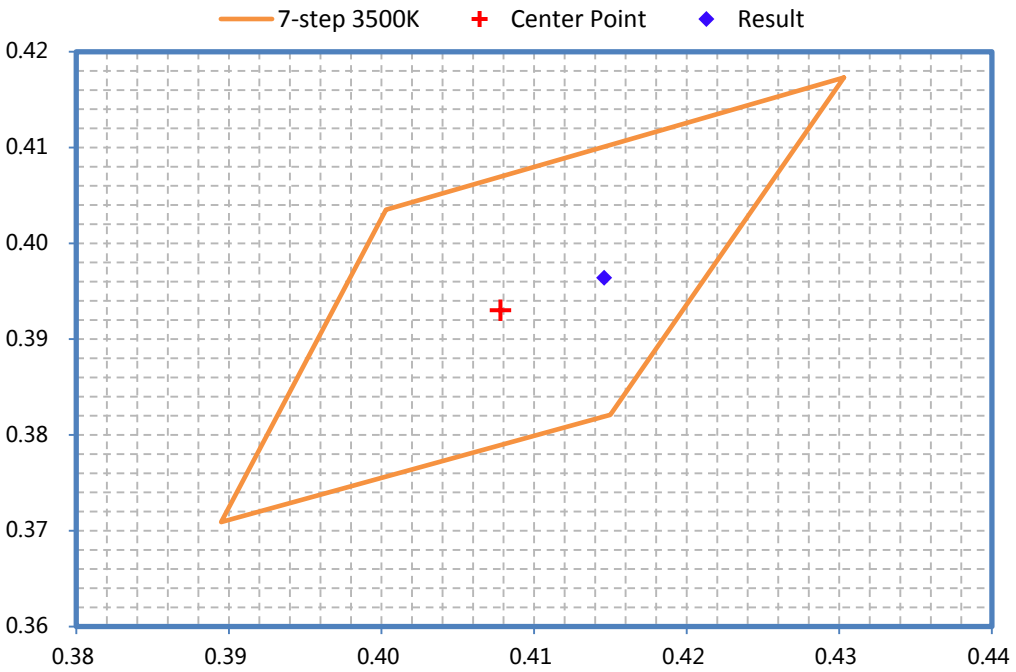
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



[Goniophotometer System]

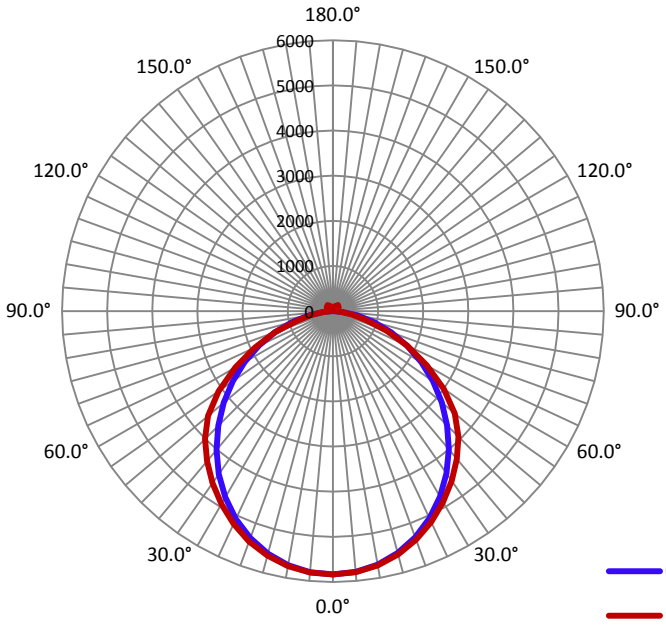
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.8083	96.57	0.9957

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I_{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
16562.6	171.51	5834.0	1.22	1.26

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I_{max}):	105.3	112.9	112.2	112.9	110.8
Field Angle (10% I_{max}):	158.9	158.2	155.7	158.3	157.8

Luminous Intensity (cd) Distribution Data

C / γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	5834	5834	5834	5834	5834	5834	5834	5834
5.0°	5799	5799	5801	5804	5803	5803	5799	5810
10.0°	5704	5706	5711	5718	5720	5718	5711	5726
15.0°	5546	5553	5564	5577	5581	5576	5563	5584
20.0°	5332	5344	5367	5383	5390	5382	5362	5384
25.0°	5062	5082	5118	5145	5154	5143	5111	5130
30.0°	4747	4776	4828	4869	4883	4866	4819	4829
35.0°	4388	4429	4501	4562	4588	4559	4491	4486
40.0°	3997	4053	4151	4238	4271	4234	4137	4109
45.0°	3580	3655	3783	3896	3934	3891	3769	3711
50.0°	3148	3243	3405	3522	3526	3514	3386	3295
55.0°	2707	2824	3017	3048	2999	3031	2995	2872
60.0°	2262	2401	2584	2482	2402	2461	2548	2443
65.0°	1816	1982	2074	1908	1825	1880	2027	2019
70.0°	1376	1569	1534	1351	1266	1320	1477	1599
75.0°	949	1138	993	801	739	769	932	1162
80.0°	553	691	501	446	423	427	456	695
85.0°	213	245	210	192	180	175	176	252
90.0°	29	47	47	29	36	10	31	47
95.0°	5	7	6	4	2	3	5	6
100.0°	9	21	23	27	28	29	27	18
105.0°	17	42	56	58	56	61	62	38
110.0°	24	52	91	92	93	95	96	51
115.0°	29	64	110	123	123	127	112	61
120.0°	29	78	121	141	147	143	123	72
125.0°	31	53	128	149	157	150	129	62
130.0°	38	78	139	152	162	154	141	85
135.0°	41	77	121	159	166	162	100	85
140.0°	40	69	114	175	175	177	90	75
145.0°	43	48	88	126	121	127	108	45
150.0°	48	45	112	92	104	93	105	53
155.0°	57	44	94	116	127	121	83	45
160.0°	58	49	45	99	110	99	47	56
165.0°	56	54	36	48	55	55	40	59
170.0°	51	54	46	44	41	41	51	52
175.0°	39	43	42	38	40	43	39	38
180.0°	38	34	33	39	45	35	35	32

Luminous Intensity (cd) Distribution Data (cont.)

C / γ	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	5834	5834	5834	5834	5834	5834	5834	5834
5.0°	5804	5807	5808	5811	5811	5810	5807	5795
10.0°	5712	5717	5725	5735	5736	5735	5728	5695
15.0°	5560	5569	5587	5602	5607	5604	5588	5536
20.0°	5347	5364	5393	5418	5428	5419	5397	5323
25.0°	5082	5107	5151	5188	5200	5189	5155	5058
30.0°	4764	4801	4865	4917	4938	4920	4871	4748
35.0°	4406	4456	4542	4618	4649	4620	4553	4399
40.0°	4011	4080	4194	4296	4337	4301	4206	4020
45.0°	3592	3678	3825	3956	4003	3961	3841	3620
50.0°	3154	3263	3445	3587	3612	3595	3463	3208
55.0°	2706	2838	3053	3117	3092	3133	3075	2787
60.0°	2255	2411	2616	2546	2493	2571	2650	2364
65.0°	1803	1985	2097	1959	1906	1989	2148	1945
70.0°	1369	1566	1552	1412	1364	1443	1605	1533
75.0°	933	1135	1016	860	824	893	1079	1112
80.0°	527	663	515	486	482	504	566	651
85.0°	198	232	221	215	217	238	254	225
90.0°	22	36	37	30	25	34	50	35
95.0°	2	5	5	5	3	5	3	5
100.0°	10	22	24	26	25	25	21	22
105.0°	18	47	58	58	53	55	53	40
110.0°	25	55	96	95	92	91	89	51
115.0°	29	66	119	129	124	125	114	63
120.0°	30	84	124	154	157	151	121	63
125.0°	34	70	129	155	164	152	126	58
130.0°	37	54	140	154	163	153	133	75
135.0°	44	83	138	163	169	160	128	73
140.0°	47	80	105	173	176	168	117	66
145.0°	48	53	69	123	145	119	82	57
150.0°	47	47	95	86	138	95	111	53
155.0°	46	39	75	109	120	116	104	43
160.0°	49	51	50	88	107	105	86	40
165.0°	52	53	40	41	63	65	48	39
170.0°	46	46	47	38	34	41	36	40
175.0°	34	34	36	40	39	36	37	36
180.0°	35	35	34	34	36	41	37	34

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	139.1	0.84
5-10	412.2	2.49
10-15	669.9	4.04
15-20	902.5	5.45
20-25	1101.9	6.66
25-30	1261.5	7.61
30-35	1377.3	8.32
35-40	1447.8	8.74
40-45	1472.9	8.89
45-50	1453.3	8.78
50-55	1382.2	8.34
55-60	1254.4	7.58
60-65	1075.7	6.49
65-70	863.9	5.22
70-75	631.3	3.81
75-80	395.6	2.39
80-85	200.7	1.21
85-90	57.8	0.35
90-95	6.5	0.04
95-100	6.3	0.03
100-105	18.8	0.12
105-110	32.2	0.19
110-115	42.9	0.26
115-120	50.0	0.30
120-125	50.5	0.31
125-130	48.4	0.29
130-135	48.3	0.29
135-140	42.4	0.26
140-145	33.6	0.20
145-150	26.1	0.16
150-155	20.6	0.12
155-160	16.4	0.10
160-165	10.0	0.06
165-170	5.6	0.04
170-175	3.0	0.01
175-180	0.9	0.01

Deg	Flux (lm)	%
0-5	139.1	0.84
0-10	551.3	3.33
0-15	1221.2	7.37
0-20	2123.8	12.82
0-25	3225.7	19.48
0-30	4487.2	27.09
0-35	5864.5	35.41
0-40	7312.4	44.15
0-45	8785.3	53.04
0-50	10238.6	61.82
0-55	11620.8	70.16
0-60	12875.2	77.74
0-65	13950.9	84.23
0-70	14814.8	89.45
0-75	15446.1	93.26
0-80	15841.7	95.65
0-85	16042.4	96.86
0-90	16100.1	97.21
0-95	16106.6	97.25
0-100	16112.9	97.28
0-105	16131.7	97.40
0-110	16163.9	97.59
0-115	16206.8	97.85
0-120	16256.8	98.15
0-125	16307.4	98.46
0-130	16355.8	98.75
0-135	16404.1	99.04
0-140	16446.6	99.30
0-145	16480.2	99.50
0-150	16506.2	99.66
0-155	16526.8	99.78
0-160	16543.2	99.88
0-165	16553.2	99.94
0-170	16558.8	99.98
0-175	16561.8	99.99
0-180	16562.6	100.00

Test power and CCT: 100W 4000K (Input Control Signal Applied: 50%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	16823	≥10000	≥9000	Pass
Power(W) ΔΔ	94.16	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	178.66	≥135	≥130.95	Pass
CCT(K) ΔΔ	3886	3710~4260	No tolerances	Pass
Duv ΔΔ	0.00007	-0.005~0.007	No tolerances	Pass
IES R_f ΔΔ	83	70	69	Pass
IES R_g ΔΔ	99	89	88	Pass
IES Rcs,h1 ΔΔ	-9%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	84.2	≥70	≥69	Pass
R9 ΔΔ	38	≥-40	≥-41	Pass

Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9089	≥0.9	≥0.87	Pass
347	THDi ΔΔ	9.58%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9959	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.56%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9547	≥0.9	≥0.87	Pass
277	THDi ΔΔ	6.21%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. Δ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ΔΔ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

[Integrating Sphere System]

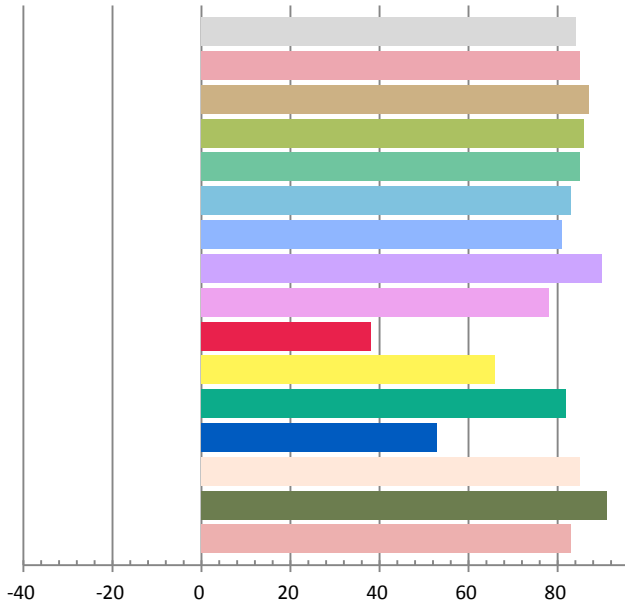
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.7876	94.16	0.9959	16823	178.66

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
48.9800	3886	0.00007	0.3857	0.3801	0.2272	0.5038

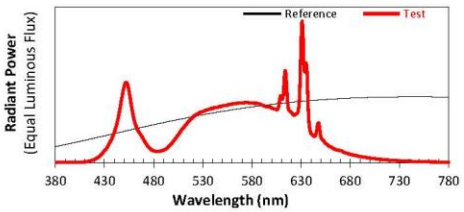
Color Rendering Index

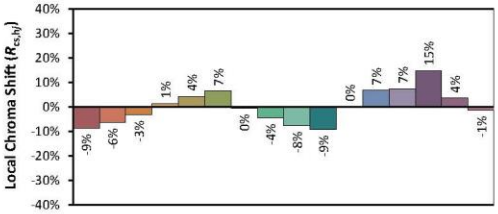
Ra			
84.2			
R1	R2	R3	R4
85	87	86	85
R5	R6	R7	R8
83	81	90	78
R9	R10	R11	R12
38	66	82	53
R13	R14	R15	
85	91	83	

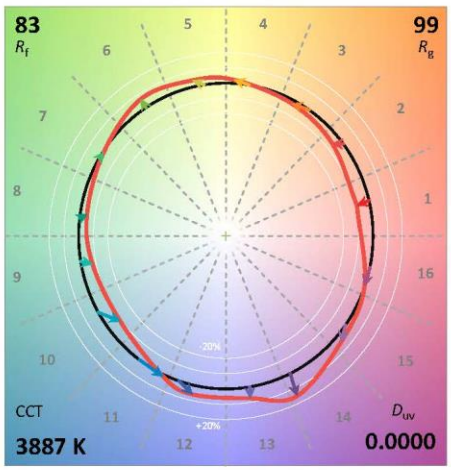


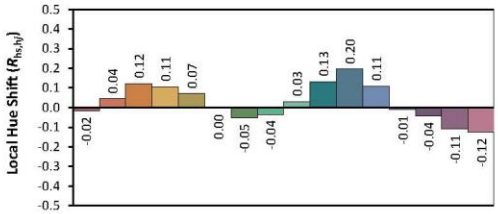
ANSI/IES TM-30-18 Color Rendition Report

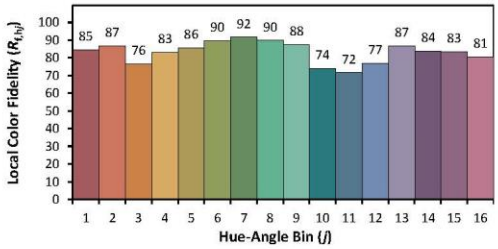
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

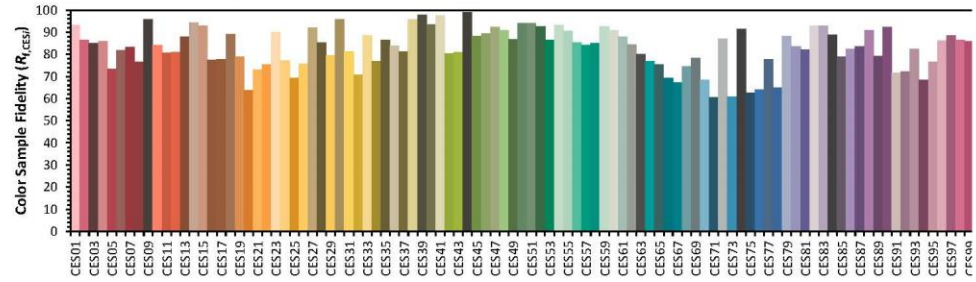












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

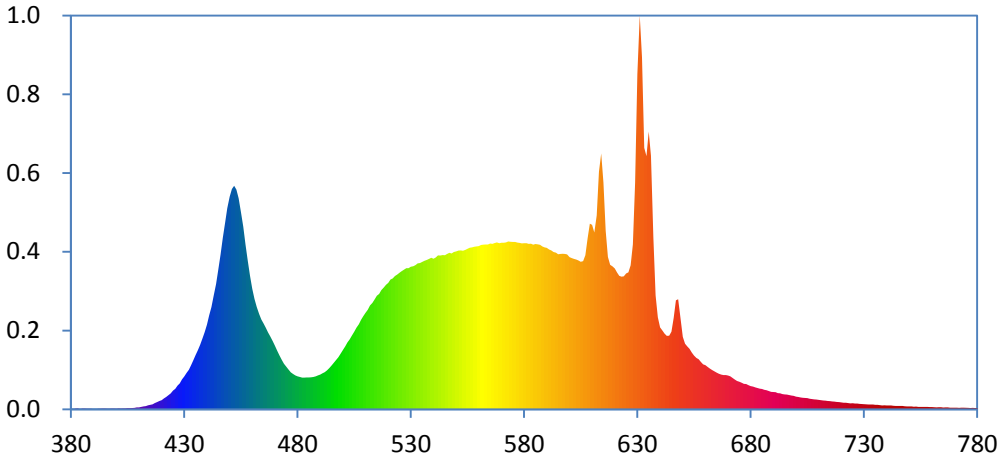
x	0.3856
y	0.3799
u'	0.2272
v'	0.5037

CIE 13.3-1995 (CRI)

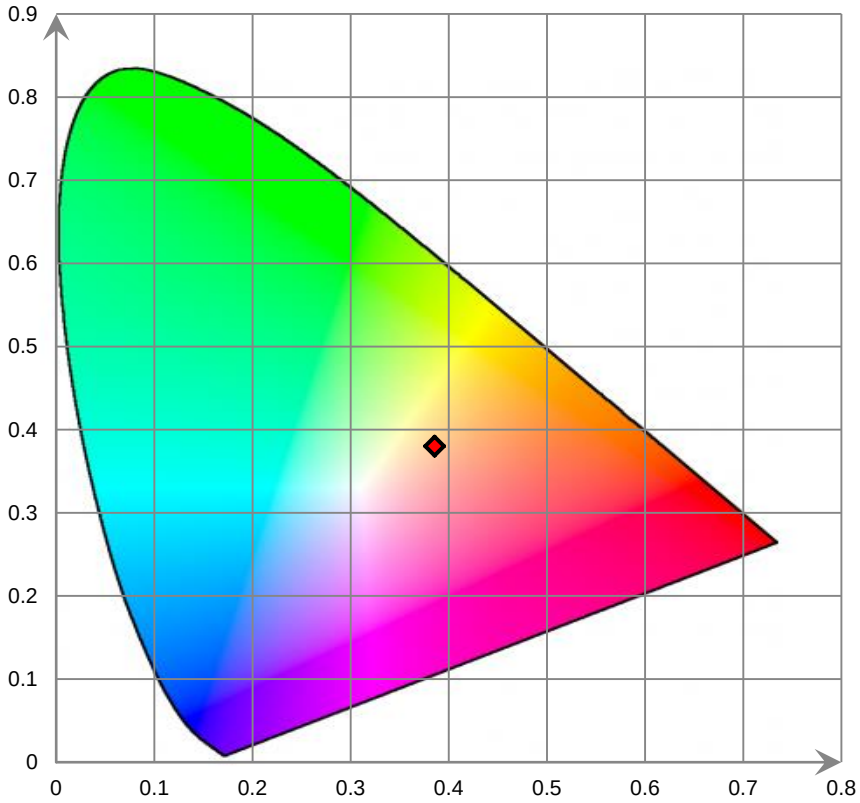
R_a	84
R_9	38

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

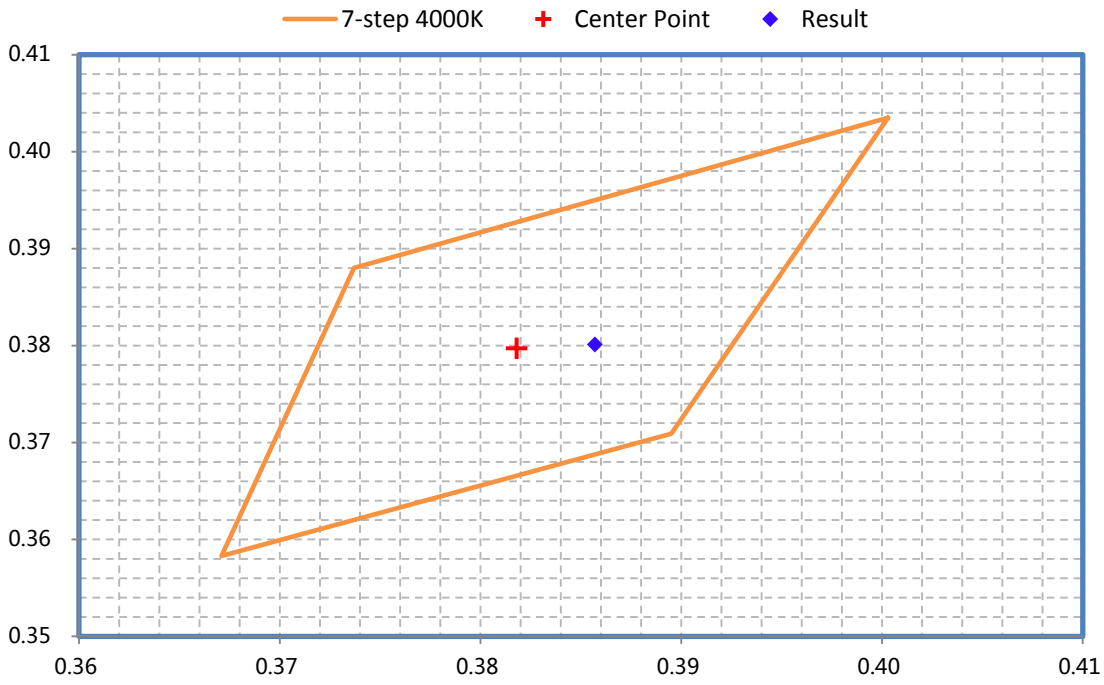
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



Test power and CCT: 100W 5000K (Input Control Signal Applied: 100%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.0V 60Hz; Housing: None. Driver model: SDC130CS160X2V40DL1A

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm) ΔΔ	16708	≥10000	≥9000	Pass
Power(W) ΔΔ	96.68	None.	None.	N/A
Total Efficacy(lm/W) ΔΔ	172.82	≥135	≥130.95	Pass
CCT(K) ΔΔ	4762	4746~5312	No tolerances	Pass
Duv ΔΔ	0.00098	-0.004~0.008	No tolerances	Pass
IES R_f ΔΔ	82	70	69	Pass
IES R_g ΔΔ	100	89	88	Pass
IES Rcs,h1 ΔΔ	-9%	-18%~23%	-19%~22%	Pass
R_a ΔΔ	83.4	≥70	≥69	Pass
R9 ΔΔ	40	≥-40	≥-41	Pass

Test Condition: Method: Integrating THDi、PF Test ; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
347	Power Factor ΔΔ	0.9101	≥0.9	≥0.87	Pass
347	THDi ΔΔ	9.64%	≤20%	≤25%	Pass
120	Power Factor ΔΔ	0.9960	≥0.9	≥0.87	Pass
120	THDi ΔΔ	5.62%	≤20%	≤25%	Pass
277	Power Factor ΔΔ	0.9556	≥0.9	≥0.87	Pass
277	THDi ΔΔ	6.27%	≤20%	≤25%	Pass

Note:
1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is only for information. When determining the compliance of the result, tolerances and/or allowances may be applied to the measured value.
4. Δ Test facility was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.
5. ΔΔ Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

[Integrating Sphere System]

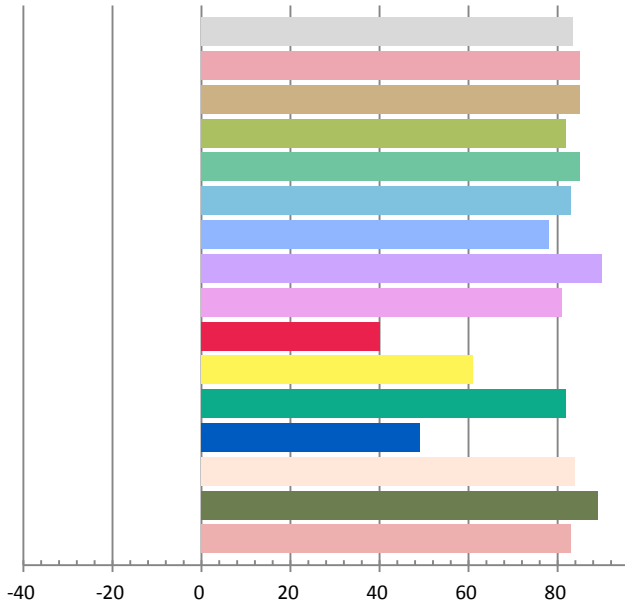
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.8086	96.68	0.996	16708	172.82

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
50.0890	4762	0.00098	0.3524	0.3593	0.2134	0.4895

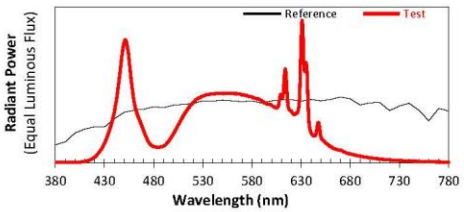
Color Rendering Index

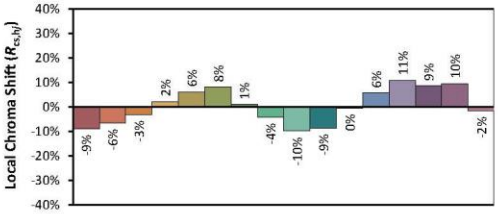
Ra			
83.4			
R1	R2	R3	R4
85	85	82	85
R5	R6	R7	R8
83	78	90	81
R9	R10	R11	R12
40	61	82	49
R13	R14	R15	
84	89	83	

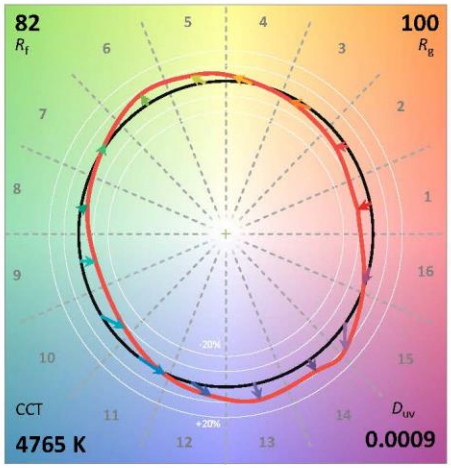


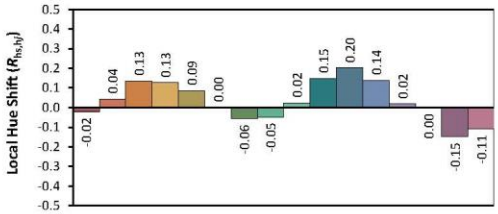
ANSI/IES TM-30-18 Color Rendition Report

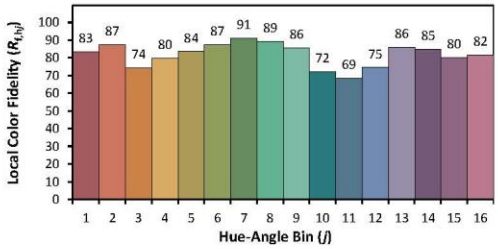
Source:	User SPD	**Manufacturer:**	RENO LED LIGHTING INC.
Date:	2024/3/28	**Model:**	RENO-LHB2-DV-MV-MCCT-R1

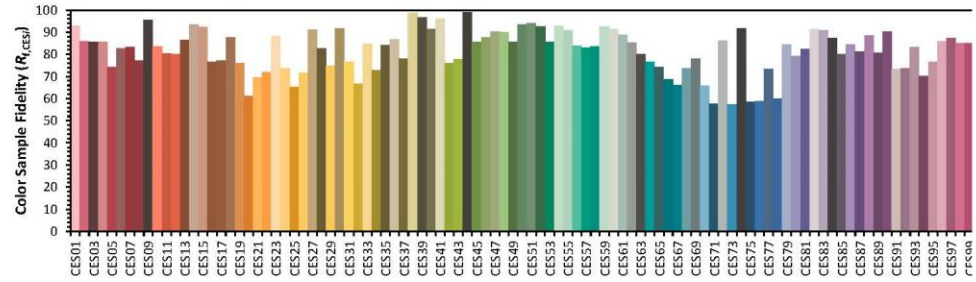












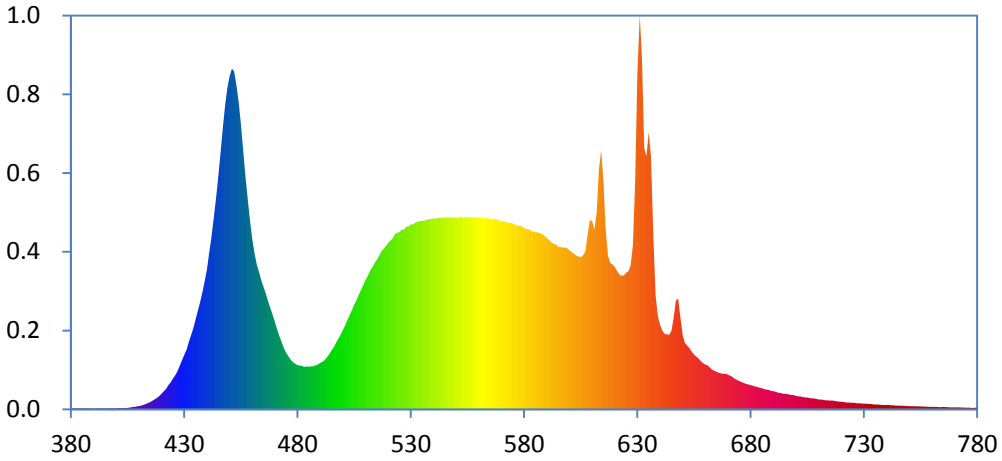
Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3523
y	0.3591
u'	0.2134
v'	0.4894

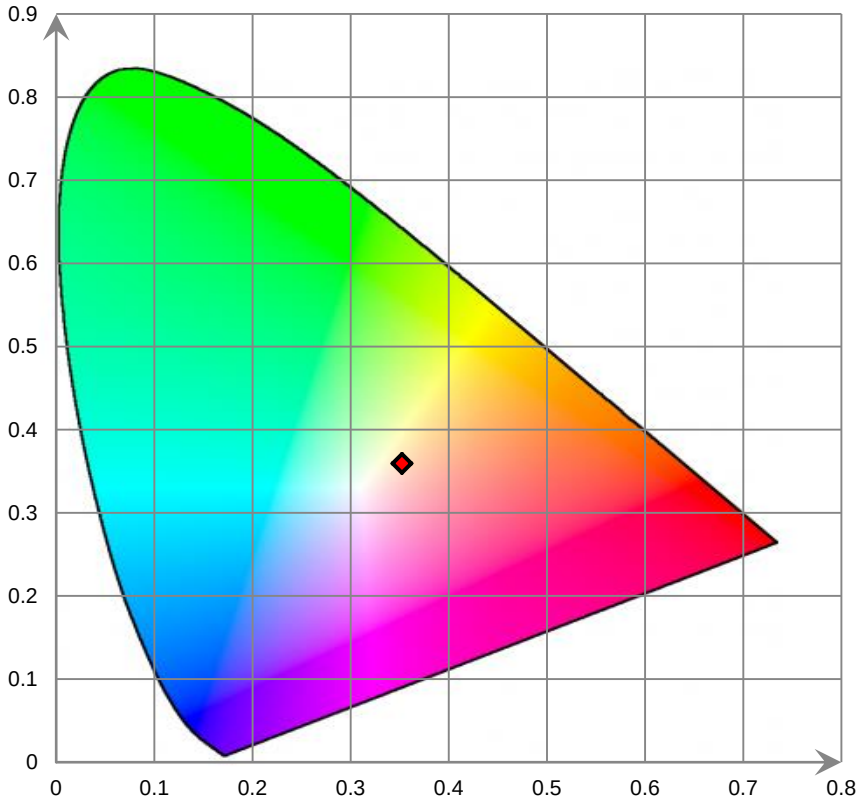
CIE 13.3-1995 (CRI)	
R_a	83
R_9	41

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

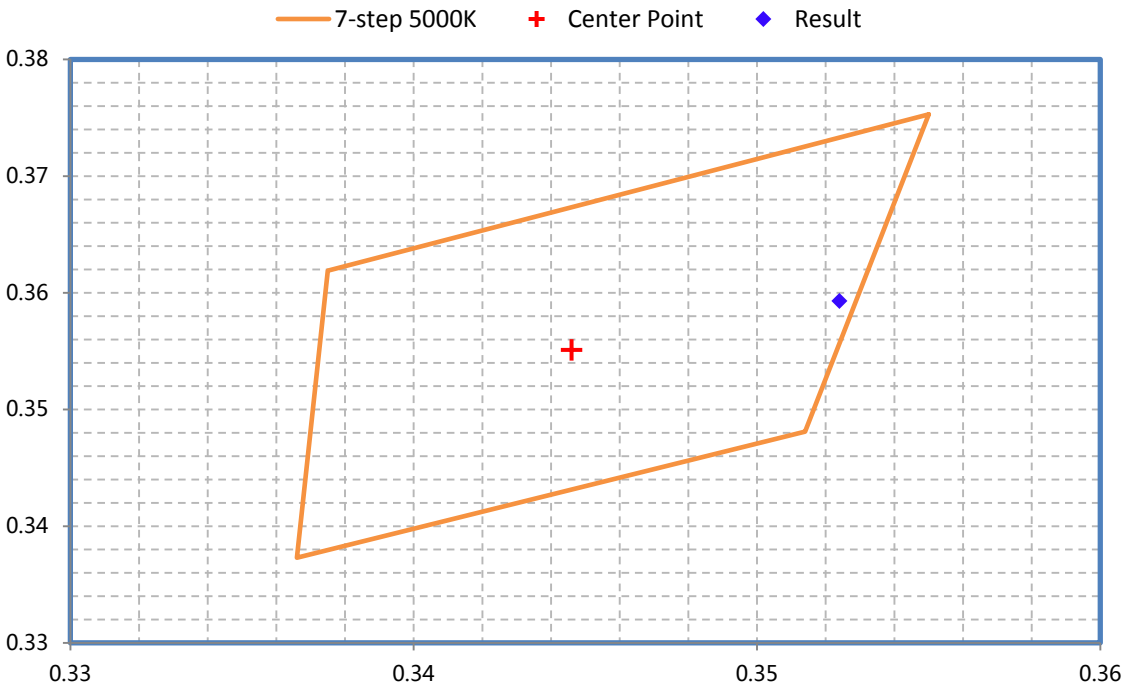
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



5. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
Multimeter	FLUKE	115C	N/A	2023-09-02	2024-09-01
Hybrid Recorder	YOKOGAWA	DR240	10#	2023-11-19	2024-11-08
AC POWER SUPPLY	HengPu	HPA 1103	0003394	2023-09-02	2024-09-01
1.5m temperature integrating sphere	SENSING	SPR-600	S09008	2023-09-02	2024-09-01
High-precision rapid spectral analysis system	EVERFINE	HAAS-2000	M112048CA1361125	2023-09-02	2024-09-01
Digital power meter	YOKOGAWA	WT310	13398	2023-10-13	2024-10-12
Programmable Precision DC Power Supply	EVERFINE	WY5015	11060010	2023-09-02	2024-09-01
thermometer	SENSING	N/A	N/A	2023-10-13	2024-10-12
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Precision frequency power supply	ALL Power	APW-105N	970613	2023-09-02	2024-09-01
AC POWER SUPPLY	EVERFINE	VPS1030 PWM	1012017	2023-09-02	2024-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY12010	1009009	2023-09-02	2024-09-01
Digital power meter	YOKOGAWA	WT-210	91j926132	2023-09-02	2024-09-01
full-field speed goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	2023-09-02	2024-09-01
wireless remote thermohygrometer	N/A	AOK-5017B	N/A	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D908	N/A	2023-05-12	2025-05-11

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

6. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The ambient temperature of the sample was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%. The product was operated in its intended orientation in application during all testing.

Integrating Sphere System
The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement. 4π geometry was used during measurement.

Goniophotometer System
Type C goniophotometer was used for measuring luminous intensity distribution. The vertical angle (γ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

ISTMT Test
The LED which has the highest temperature was measured at the location of LED case which is specified by LED source manufacturer and detailed by LM-80 report. The drive current of LED package/module/ array was calculated as the total output current of the driver measured by multimeter, divided by the number of branches in parallel of LEDs.

Directions

1. The information marked “superscript #” is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report includes some test methods are not in NVLAP accreditation scope marked *.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K=2 with the 95% confidence interval.
6. This report cannot be reproduced except in full, without prior written approval of the Company.
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**********END OF REPORT**********