TEST REPORT

For

RENO LED LIGHTING INC

615 Denison unit 7 Canada Markham, ON L3R1B8 CANADA

Model Number:	RENO-HWR2-DV-MW-MCCT-ECO-MS	
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:	Hexy He	
Report Number:	KS2240108-01644E-EE	
Sample Size:	One test sample was in good condition and received on 2023-12-04, 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:	2023-12-12	
Report Date:	2024-01-08	
Approved by:	Blake Zhang / EE Engineer	
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, 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.	

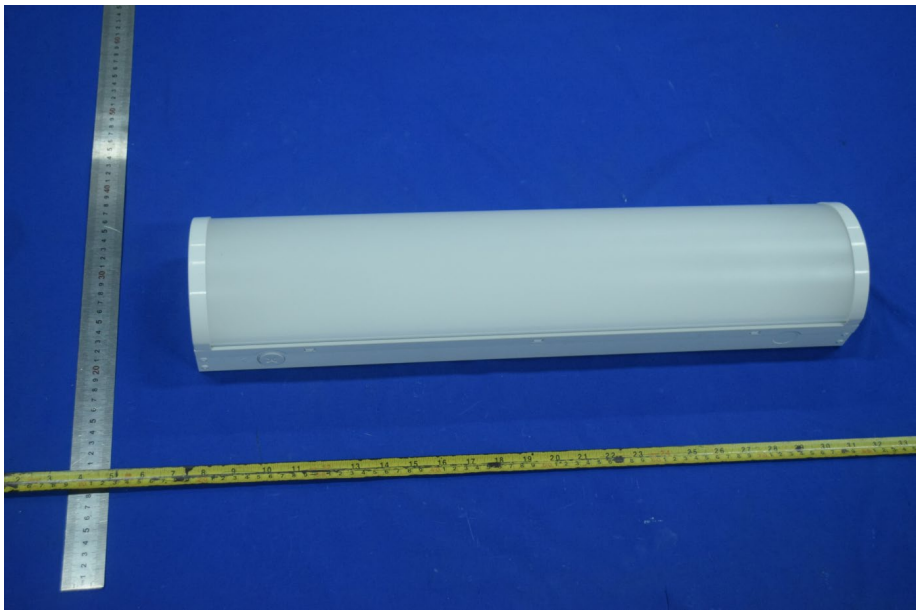
1. Product Description and Rating

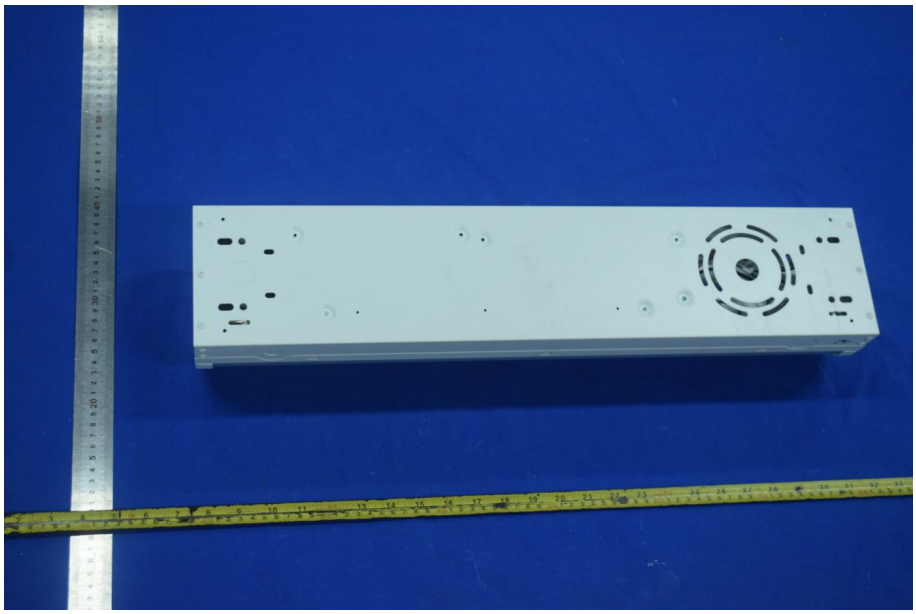
Test Model	Primary Use	#Rated Voltage	#Power(W)	#CCT(K)	LED Model	Driver Model	Test Item
RENO-HWR2-DV-MW-MCCT-ECO-MS	Stairwell and Passageway Luminaires	120-347VAC 50/60Hz	30/25/20/15	3500/4000/5000	L128-xx80RA3500xxx	SDC30CS060V48DN3A	All

Test Model	CCT(K)	Light Output (lm)	Power(W)	Luminous Efficacy (lm/W)
RENO-HWR2-DV-MW-MCCT-ECO-MS	3500	3936	30	131.2
		3300	25	132
		2660	20	133
		2010	15	134
	4000	4200	30	140
		3525	25	141
		2840	20	142
		2145	15	143
	5000	3960	30	132
		3325	25	133
		2680	20	134
		2025	15	135

Note:
1、The applicant RENO LED LIGHTING INC declare that their products with model RENO-HWR2-DV-MW-MCCT-ECO-MS are the same to the products in report# KS2231204-72439E-EE and is authorized by original applicant to use their test data.
2、All the data in previous report (KS2231204-72439E-EE) is shared in this report.

2. Product Photo (Model: RENO-HWR2-DV-MW-MCCT-ECO-MS)





3. Test Result

Test CCT: 3500K (Input Control Signal Applied: 0%)

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	4108.4	750~5000	675~5500	Pass
Power(W)	31.22	None.	None.	N/A
Total Efficacy(lm/W)	131.58	≥120	≥116.4	Pass[i]
CCT(K)	3422	3220~3710	No tolerances	Pass
Duv	0.000745	None.	None.	Pass
IES R_f	84	70	69	Pass
IES R_g	95	89	88	Pass
IES Rcs,h1	-12%	-18%~23%	-19%~22%	Pass
R_a	82.4	≥70	≥69	Pass
R_9	7	/	/	Pass

Test Condition: Method: Goniophotometer; Orientation: Downward; Test Voltage: 120.0V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	4111.36	750~5000	675~5500	Pass
Power(W)	31.24	None.	None.	N/A
Total Efficacy(lm/W)	131.61	≥120	≥116.4	Pass[i]
Zonal Lumen Distribution(0-90°)	92.34%	0-90°≥85%	0-90°≥82%	Pass
Power Factor	0.9940	≥0.9	≥0.87	Pass
THDi	5.27%	≤20%	≤25%	Pass

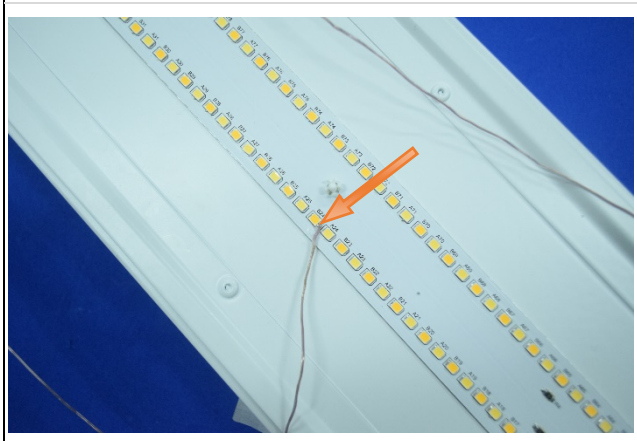
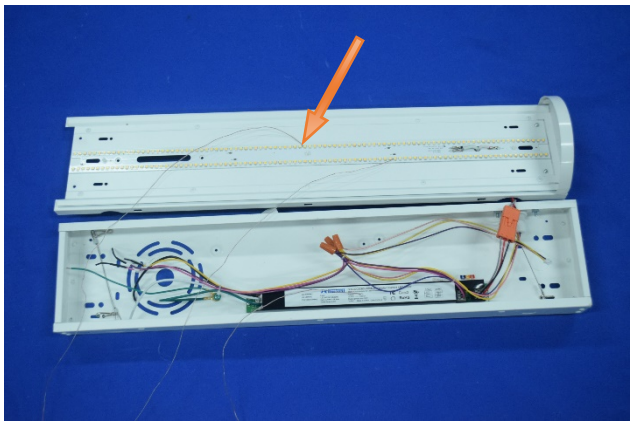
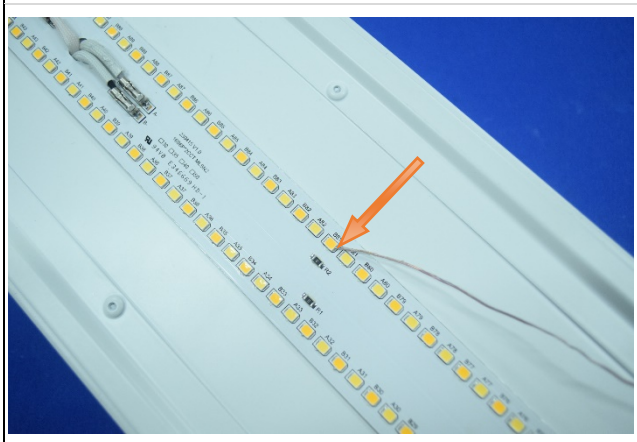
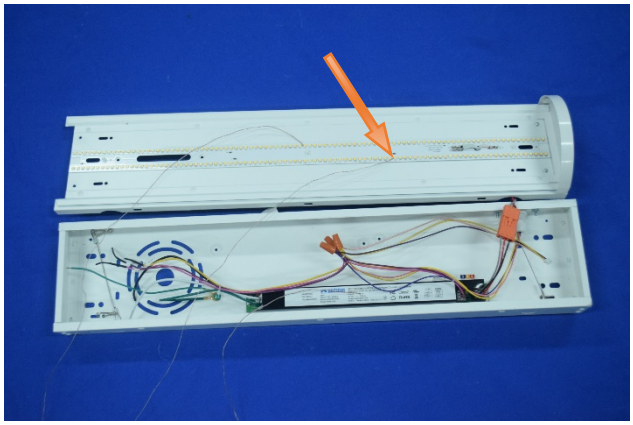
Test Condition: Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
TMP_{LED1}(°C)	53.7	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_{LED2}(°C)	51.1	≤115	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP_c(°C)	71.1	≤85	With tolerance of ⩽ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
Drive Current/Individual LED source(mA)	102.2	≤150	With +5% Tolerence	Pass
L_{90} Lumen Maintenance Life (Hours)	51000	≥36000	None.	Pass
Color Maintenance	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
120	Power Factor	0.9939	≥0.9	≥0.87	Pass
120	THDi	5.30%	≤20%	≤25%	Pass
277	Power Factor	0.9691	≥0.9	≥0.87	Pass
277	THDi	7.33%	≤20%	≤25%	Pass
347	Power Factor	0.9290	≥0.9	≥0.87	Pass
347	THDi	12.95%	≤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.

Test CCT: 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]

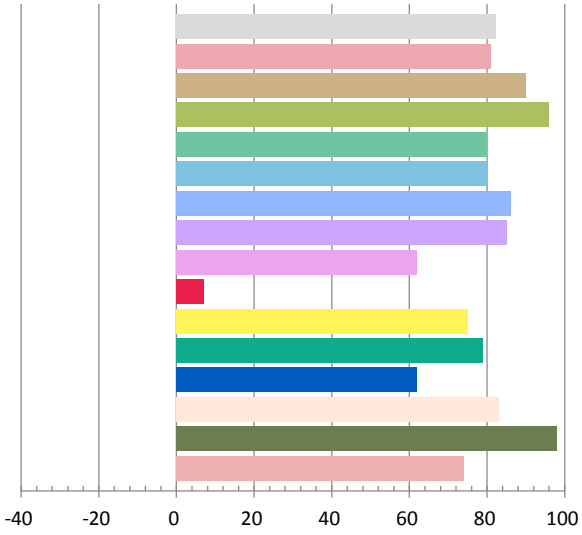
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.2618	31.22	0.9939	4108.4	131.58

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
12.3050	3422	0.00075	0.4106	0.3950	0.2374	0.5138

Color Rendering Index

Ra			
82.4			
R1	R2	R3	R4
81.0	90	96	80
R5	R6	R7	R8
80	86	85	62
R9	R10	R11	R12
7	75	79	62
R13	R14	R15	
83	98	74	



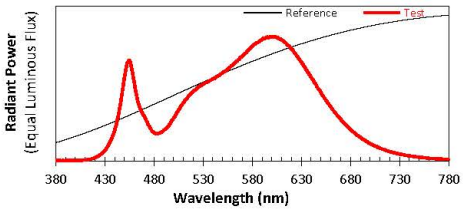
ANSI/IES TM-30-18 Color Rendition Report

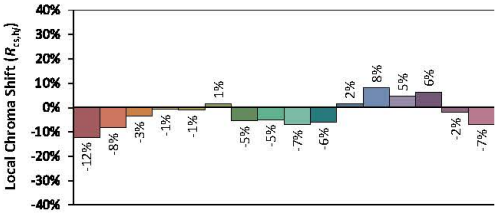
Source: User SPD

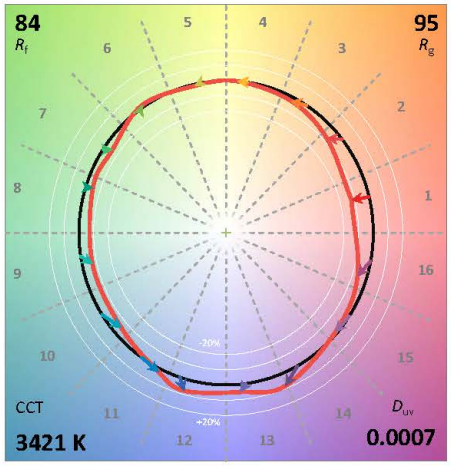
Manufacturer: RENO LED LIGHTING INC

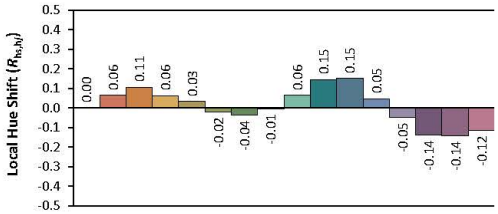
Date: 2023/12/12

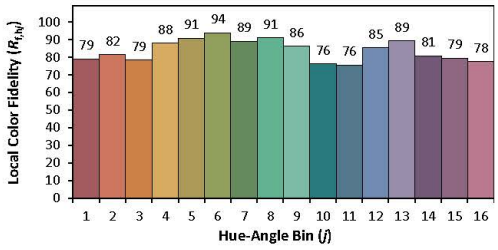
Model: RENO-HWR2-DV-MW-MCCT-ECO-MS

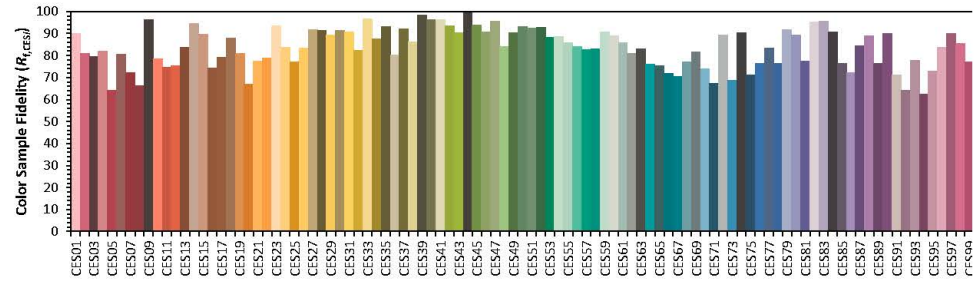












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

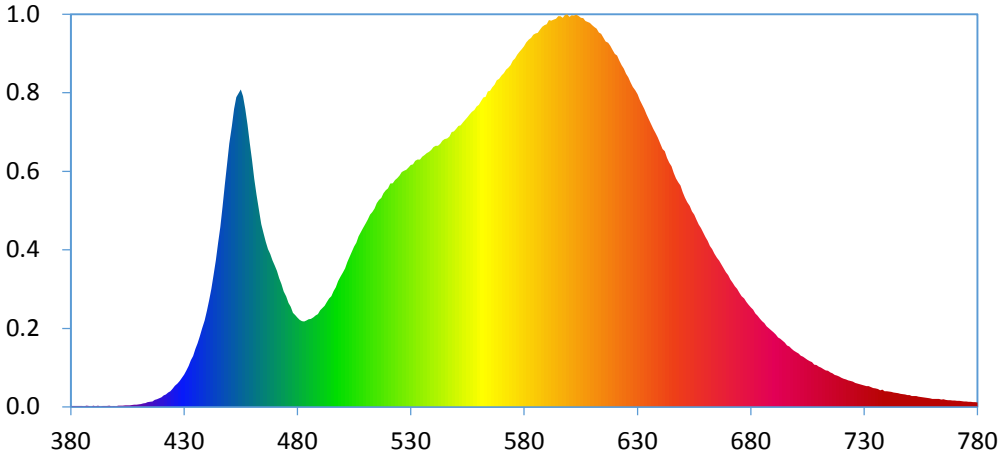
x	0.4106
y	0.3949
u'	0.2374
v'	0.5138

CIE 13.3-1995 (CRI)

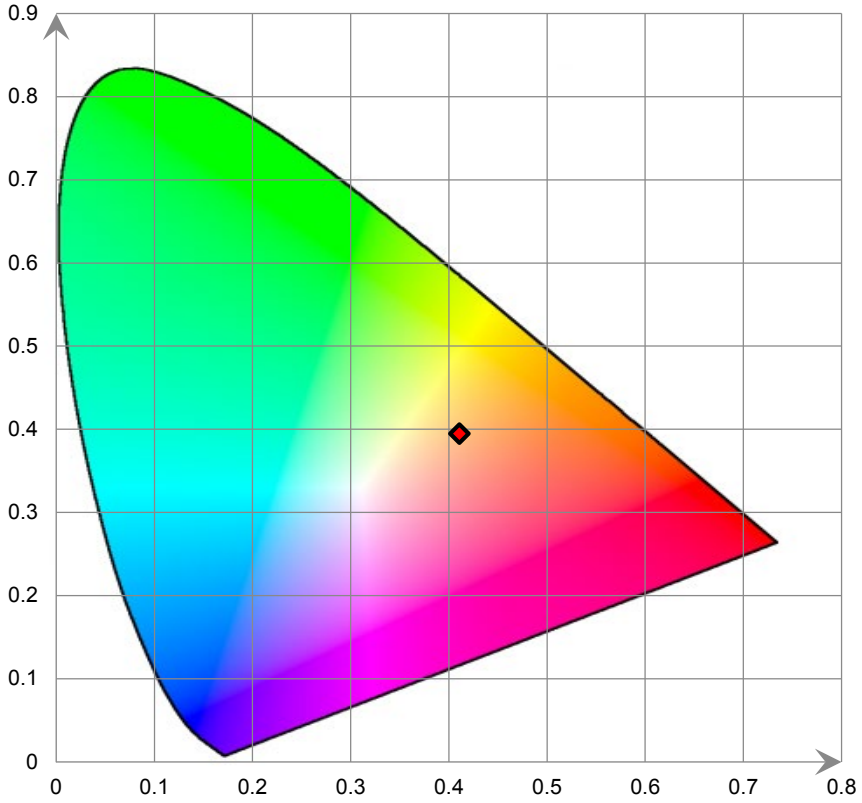
R_a	82
R_9	7

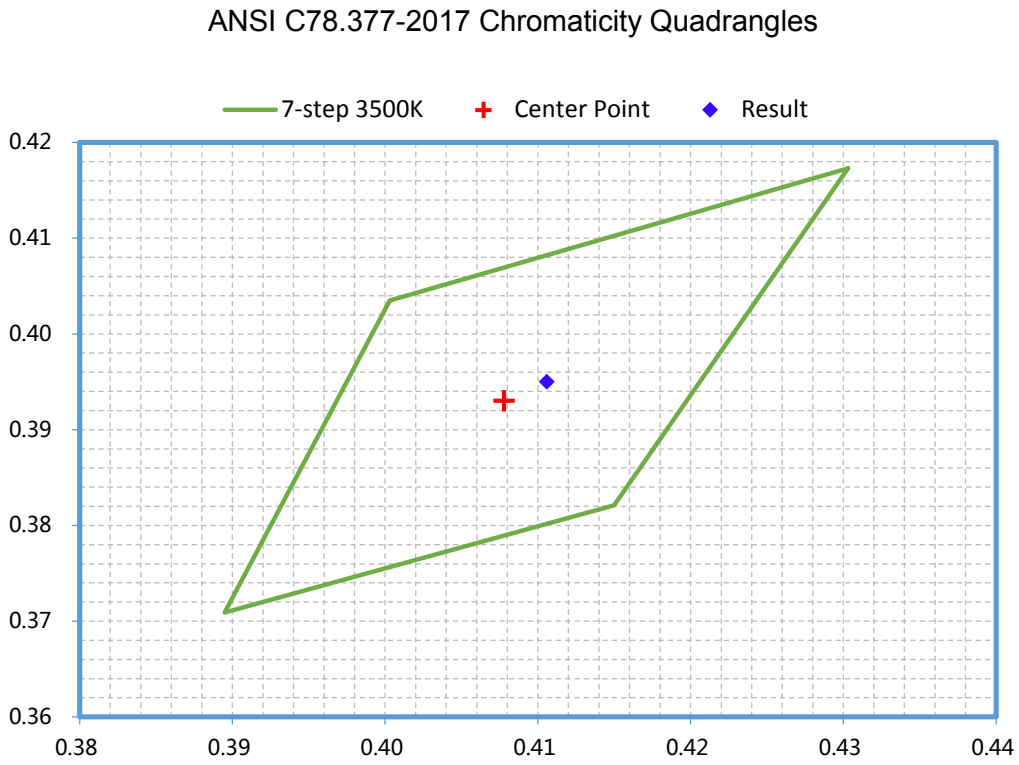
Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram




ANSI C78.377-2017 Chromaticity Quadrangles
7-step 3500K
Center Point
Result
0.42
0.41
0.40
0.39
0.38
0.37
0.36
0.38
0.39
0.40
0.41
0.42
0.43
0.44

[Goniophotometer System]

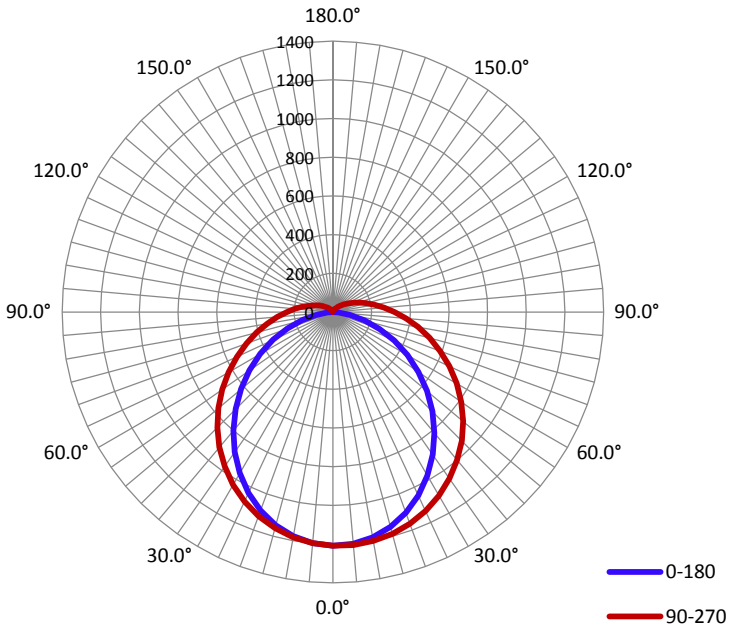
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.2619	31.24	0.994

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I_{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
4111.36	131.61	1210.0	1.19	1.27

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I_{max}):	102.4	116.0	130.2	115.5	116.0
Field Angle (10% I_{max}):	155.7	195.6	219.6	194.8	191.4

Luminous Intensity (cd) Distribution Data

C / γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	1209	1209	1209	1209	1209	1209	1209	1209
5.0°	1203	1205	1209	1210	1209	1208	1206	1203
10.0°	1184	1188	1198	1202	1202	1198	1191	1185
15.0°	1150	1158	1177	1186	1187	1180	1167	1153
20.0°	1104	1116	1145	1161	1165	1154	1132	1110
25.0°	1046	1063	1103	1127	1134	1119	1088	1056
30.0°	978	1000	1053	1086	1097	1076	1035	992
35.0°	900	928	994	1038	1051	1026	974	920
40.0°	816	850	927	982	1000	970	906	842
45.0°	727	766	856	921	942	908	834	759
50.0°	635	679	780	854	879	841	758	672
55.0°	540	591	702	783	810	770	680	584
60.0°	445	502	622	710	739	698	601	497
65.0°	351	415	544	636	665	623	524	411
70.0°	258	331	467	560	590	549	449	328
75.0°	170	254	394	487	517	477	378	251
80.0°	90	185	327	418	447	409	312	183
85.0°	29	128	266	353	380	345	253	126
90.0°	0	84	212	295	320	288	202	82
95.0°	0	54	167	242	266	237	158	52
100.0°	0	34	129	197	218	192	122	32
105.0°	0	21	98	158	178	154	92	20
110.0°	0	14	74	125	143	122	69	14
115.0°	1	11	54	98	113	95	51	10
120.0°	1	9	40	75	88	73	38	8
125.0°	1	7	30	57	68	55	28	7
130.0°	1	6	22	42	51	41	21	6
135.0°	1	6	18	32	38	31	17	6
140.0°	2	5	14	24	28	23	13	5
145.0°	2	4	11	19	21	18	11	4
150.0°	2	4	9	14	16	14	9	4
155.0°	3	4	8	11	12	11	8	3
160.0°	3	3	6	8	9	8	6	3
165.0°	3	3	4	6	7	6	4	3
170.0°	3	3	3	4	4	4	3	2
175.0°	3	3	3	3	3	2	2	2
180.0°	2	2	2	2	2	2	2	2

Luminous Intensity (cd) Distribution Data (cont.)

C / γ	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	1209	1209	1209	1209	1209	1209	1209	1209
5.0°	1200	1199	1197	1199	1200	1200	1201	1201
10.0°	1177	1176	1175	1179	1183	1183	1181	1180
15.0°	1141	1141	1142	1151	1157	1156	1151	1146
20.0°	1092	1094	1098	1114	1123	1121	1110	1100
25.0°	1032	1036	1045	1069	1081	1076	1059	1042
30.0°	962	969	985	1016	1032	1024	1000	975
35.0°	884	894	916	956	975	964	932	900
40.0°	800	813	842	890	913	899	858	817
45.0°	711	727	764	820	845	828	780	730
50.0°	619	638	684	746	773	754	699	640
55.0°	526	548	603	670	698	678	616	549
60.0°	433	460	523	594	623	601	535	459
65.0°	340	375	446	519	548	525	457	372
70.0°	250	294	374	448	475	453	382	290
75.0°	164	221	308	381	407	385	315	215
80.0°	87	158	248	320	345	323	254	151
85.0°	27	106	197	265	288	268	201	99
90.0°	0	68	154	217	239	219	156	62
95.0°	0	42	118	176	196	177	119	37
100.0°	0	26	89	141	159	142	90	23
105.0°	0	16	66	111	127	111	67	14
110.0°	0	11	49	87	101	87	49	10
115.0°	0	8	36	67	79	67	36	7
120.0°	1	6	27	51	61	51	26	5
125.0°	1	5	20	38	46	38	20	4
130.0°	1	4	15	29	35	29	15	3
135.0°	1	3	11	21	26	22	11	2
140.0°	1	2	8	16	19	16	9	2
145.0°	1	1	6	11	13	12	7	2
150.0°	1	1	3	7	9	8	5	1
155.0°	1	1	2	4	6	6	4	1
160.0°	1	1	2	2	3	4	3	2
165.0°	1	1	1	2	2	2	2	2
170.0°	2	2	2	2	2	2	2	2
175.0°	2	2	2	2	2	2	2	2
180.0°	2	2	2	2	2	2	2	2

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	28.8	0.70
5-10	85.5	2.08
10-15	139.1	3.38
15-20	187.9	4.57
20-25	230.2	5.60
25-30	264.6	6.44
30-35	290.1	7.05
35-40	306.3	7.45
40-45	312.9	7.61
45-50	310.2	7.55
50-55	298.9	7.27
55-60	280.0	6.81
60-65	254.9	6.20
65-70	225.2	5.47
70-75	192.8	4.69
75-80	159.8	3.89
80-85	128.4	3.12
85-90	100.8	2.46
90-95	79.1	1.92
95-100	61.4	1.49
100-105	47.1	1.15
105-110	35.6	0.86
110-115	26.6	0.65
115-120	19.6	0.48
120-125	14.2	0.34
125-130	10.1	0.25
130-135	7.1	0.17
135-140	5.0	0.12
140-145	3.4	0.08
145-150	2.3	0.06
150-155	1.5	0.04
155-160	1.0	0.02
160-165	0.6	0.02
165-170	0.3	0.00
170-175	0.2	0.01
175-180	0.1	0.00

Deg	Flux (lm)	%
0-5	28.8	0.70
0-10	114.3	2.78
0-15	253.4	6.16
0-20	441.3	10.73
0-25	671.5	16.33
0-30	936.1	22.77
0-35	1226.2	29.82
0-40	1532.5	37.27
0-45	1845.4	44.88
0-50	2155.6	52.43
0-55	2454.4	59.70
0-60	2734.4	66.51
0-65	2989.3	72.71
0-70	3214.5	78.18
0-75	3407.2	82.87
0-80	3567.0	86.76
0-85	3695.4	89.88
0-90	3796.2	92.34
0-95	3875.3	94.26
0-100	3936.7	95.75
0-105	3983.8	96.90
0-110	4019.4	97.76
0-115	4046.1	98.41
0-120	4065.6	98.89
0-125	4079.8	99.23
0-130	4089.9	99.48
0-135	4097.0	99.65
0-140	4102.0	99.77
0-145	4105.4	99.85
0-150	4107.7	99.91
0-155	4109.2	99.95
0-160	4110.2	99.97
0-165	4110.8	99.99
0-170	4111.1	99.99
0-175	4111.3	100.00
0-180	4111.4	100.00

Test CCT: 4000K (Input Control Signal Applied: 50%)				
Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.1V 60Hz;				
Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	4340.5	750~5000	675~5500	Pass
Power(W)	30.24	None.	None.	N/A
Total Efficacy(lm/W)	143.54	≥120	≥116.4	Pass
CCT(K)	4041	3710~4260	No tolerances	Pass
Duv	0.0000501	None.	None.	Pass
IES R_f	84	70	69	Pass
IES R_g	95	89	88	Pass
IES Rcs,h1	-11%	-18%~23%	-19%~22%	Pass
R_a	84.2	≥70	≥69	Pass
R9	15	/	/	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
120	Power Factor	0.9959	≥0.9	≥0.87	Pass
120	THDi	5.34%	≤20%	≤25%	Pass
277	Power Factor	0.9698	≥0.9	≥0.87	Pass
277	THDi	7.39%	≤20%	≤25%	Pass
347	Power Factor	0.9310	≥0.9	≥0.87	Pass
347	THDi	12.98%	≤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.

[Integrating Sphere System]

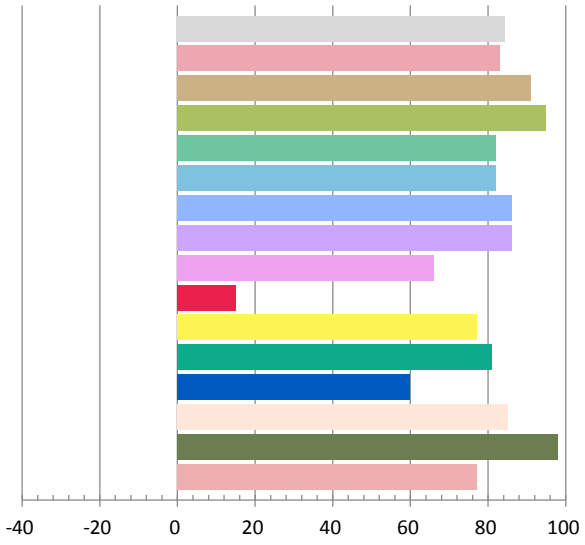
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.2529	30.24	0.9959	4340.5	143.54

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
13.2600	4041	0.00005	0.3786	0.3757	0.2243	0.5008

Color Rendering Index

Ra			
84.2			
R1	R2	R3	R4
83.0	91	95	82
R5	R6	R7	R8
82	86	86	66
R9	R10	R11	R12
15	77	81	60
R13	R14	R15	
85	98	77	



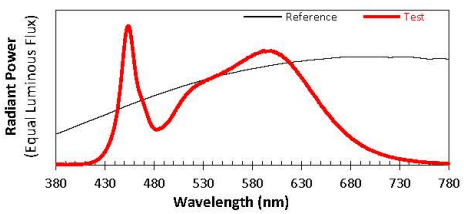
ANSI/IES TM-30-18 Color Rendition Report

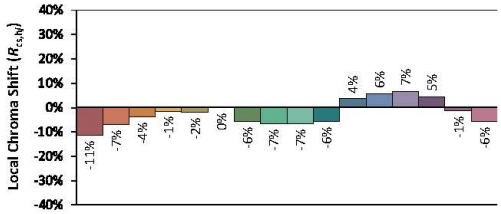
Source: User SPD

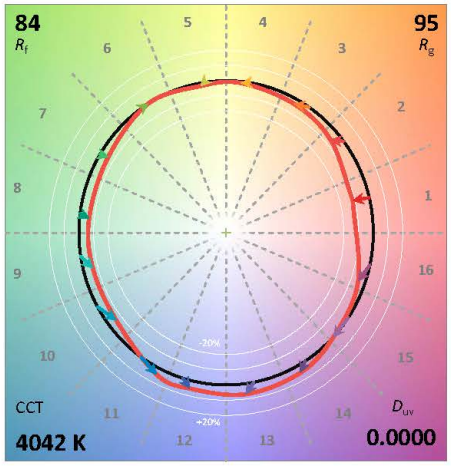
Manufacturer: RENO LED LIGHTING INC

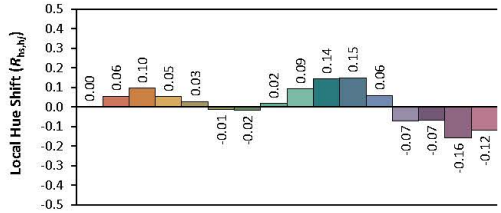
Date: 2023/12/12

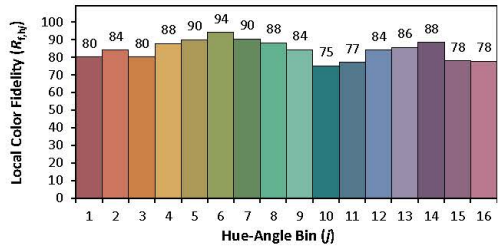
Model: RENO-HWR2-DV-MW-MCCT-ECO-MS

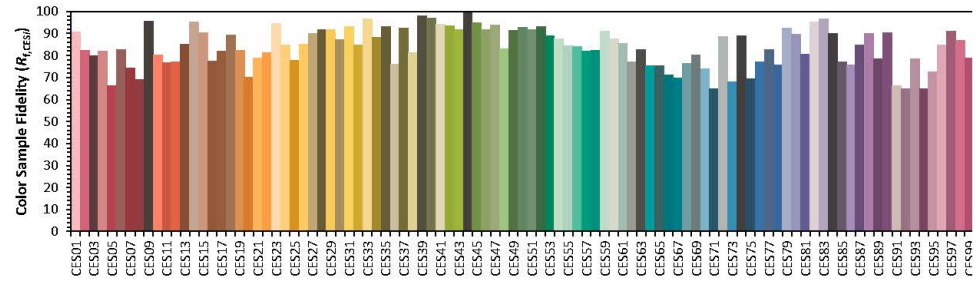












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

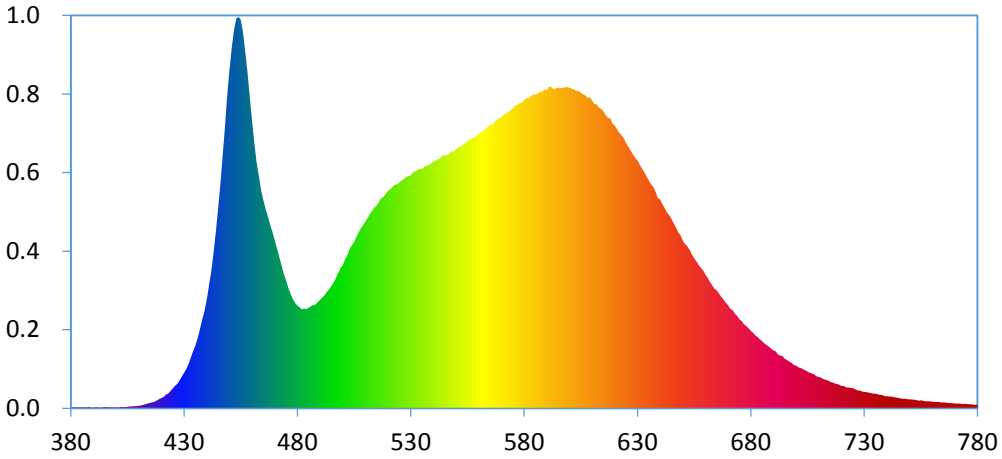
x	0.3786
y	0.3755
u'	0.2244
v'	0.5008

CIE 13.3-1995 (CRI)

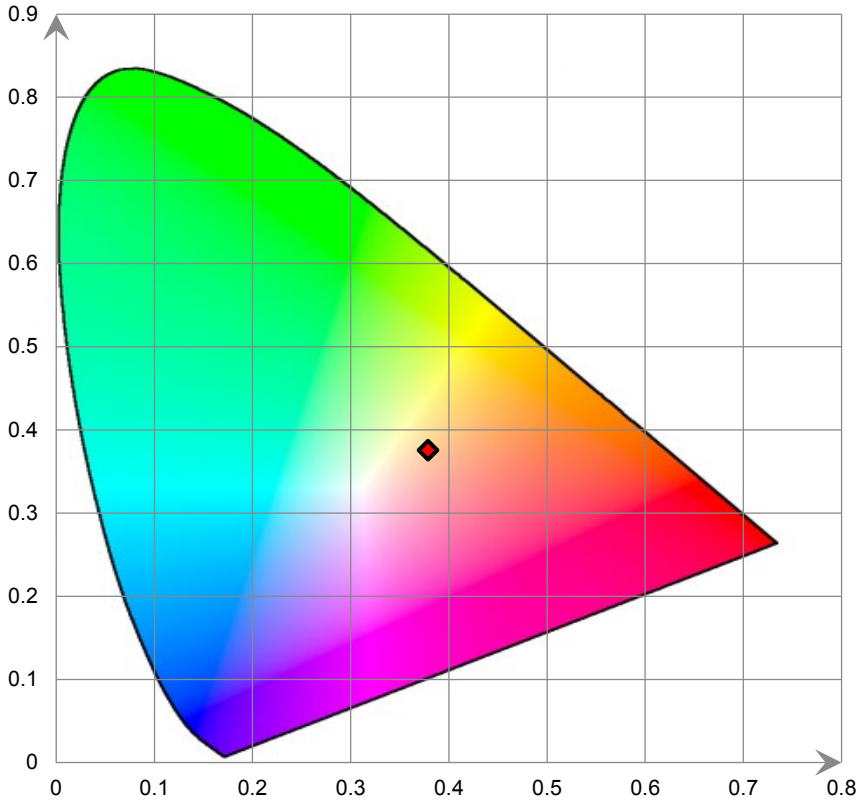
R_a	84
R_9	15

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

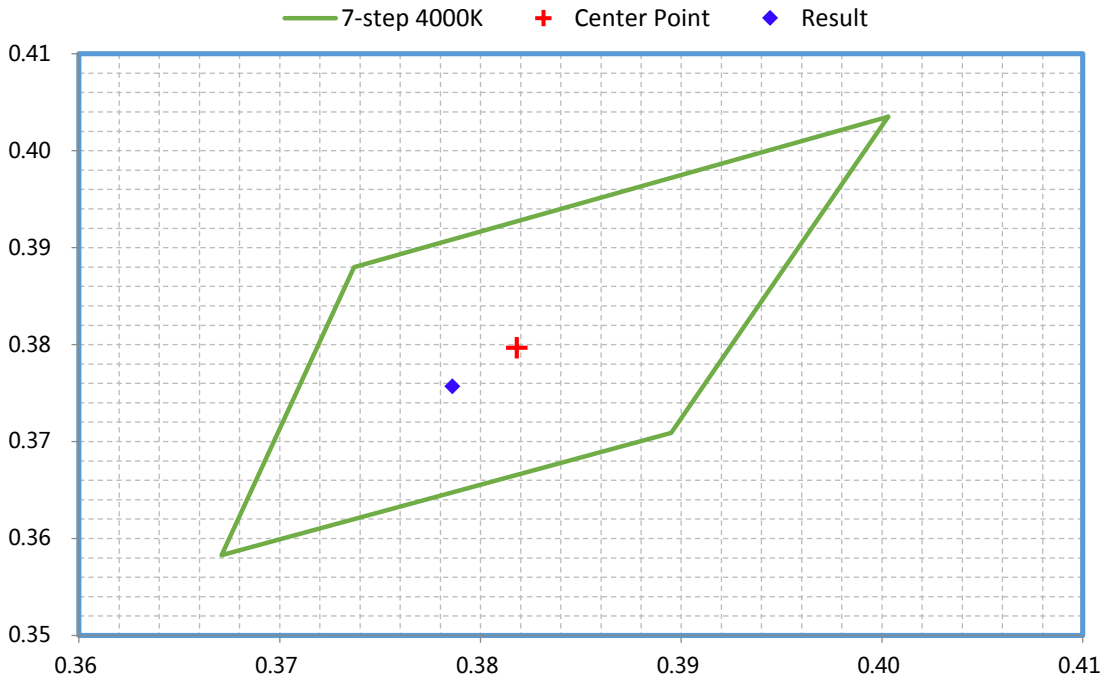
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



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

Test Condition: Method: Integrating Sphere System; Orientation: Downward; Test Voltage: 120.1V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	4169.3	750~5000	675~5500	Pass
Power(W)	31.45	None.	None.	N/A
Total Efficacy(lm/W)	132.57	≥120	≥116.4	Pass
CCT(K)	4976	4746~5312	No tolerances	Pass
Duv	0.00146	None.	None.	Pass
IES R_f	84	70	69	Pass
IES R_g	96	89	88	Pass
IES Rcs,h1	-12%	-18%~23%	-19%~22%	Pass
R_a	83.4	≥70	≥69	Pass
R_9	12	/	/	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
120	Power Factor	0.9961	≥0.9	≥0.87	Pass
120	THDi	5.42%	≤20%	≤25%	Pass
277	Power Factor	0.9702	≥0.9	≥0.87	Pass
277	THDi	7.42%	≤20%	≤25%	Pass
347	Power Factor	0.9420	≥0.9	≥0.87	Pass
347	THDi	13.06%	≤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.

[Integrating Sphere System]

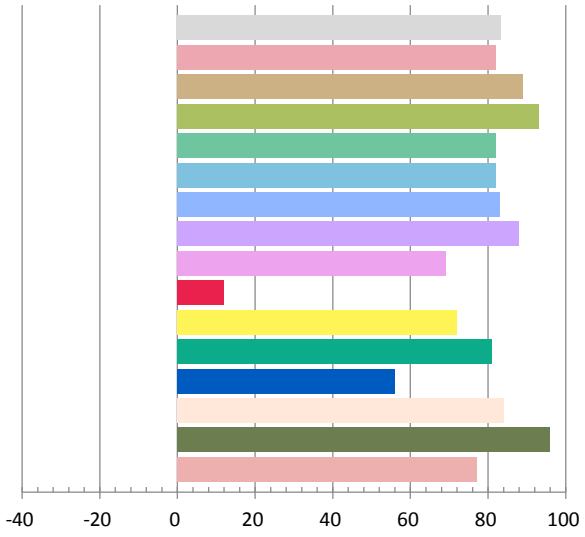
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.263	31.45	0.9961	4169.3	132.57

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
12.9880	4976	0.00146	0.3460	0.3553	0.2106	0.4866

Color Rendering Index

Ra			
83.4			
R1	R2	R3	R4
82.0	89	93	82
R5	R6	R7	R8
82	83	88	69
R9	R10	R11	R12
12	72	81	56
R13	R14	R15	
84	96	77	



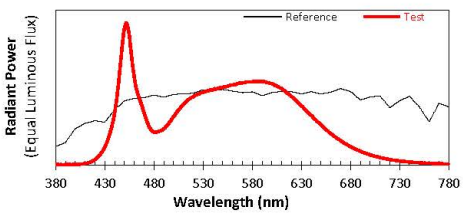
ANSI/IES TM-30-18 Color Rendition Report

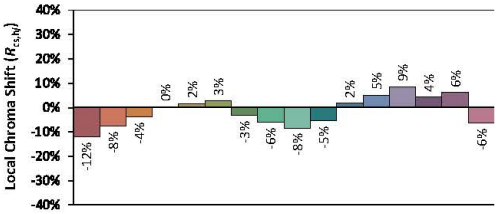
Source: User SPD

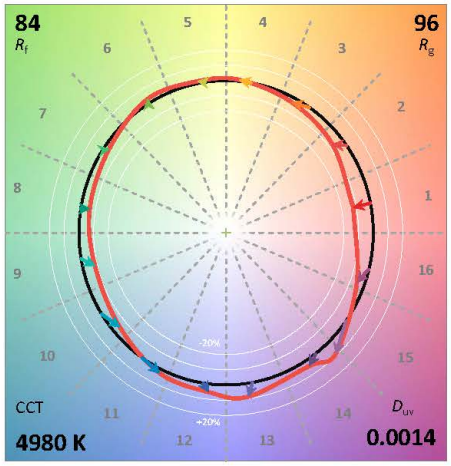
Date: 2023/12/12

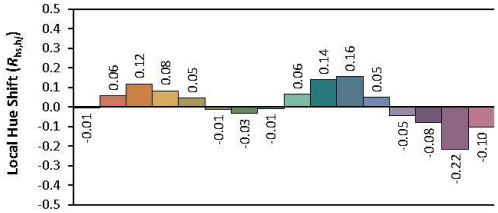
Manufacturer: RENO LED LIGHTING INC

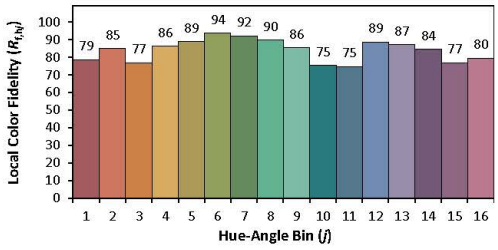
Model: RENO-HWR2-DV-MW-MCCT-ECO-MS

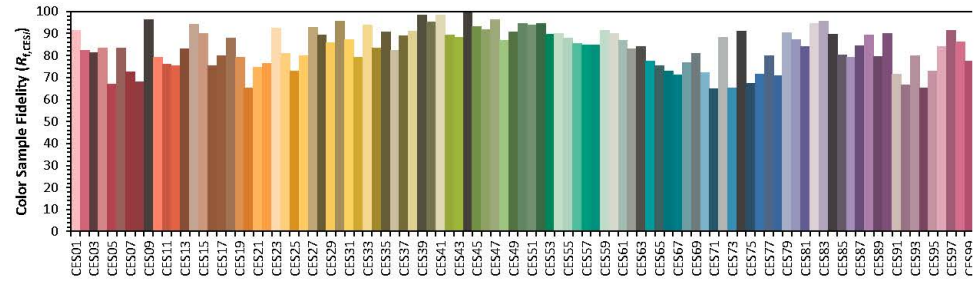












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

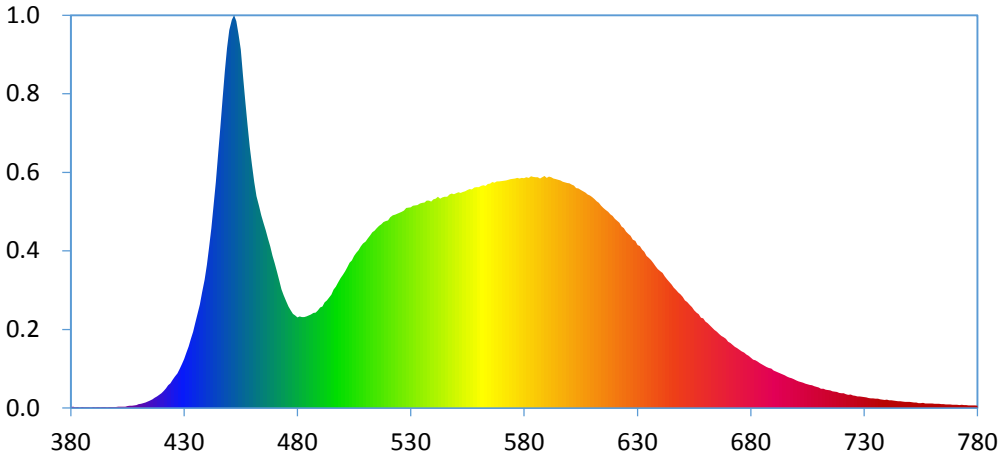
x	0.3460
y	0.3551
u'	0.2107
v'	0.4865

CIE 13.3-1995 (CRI)

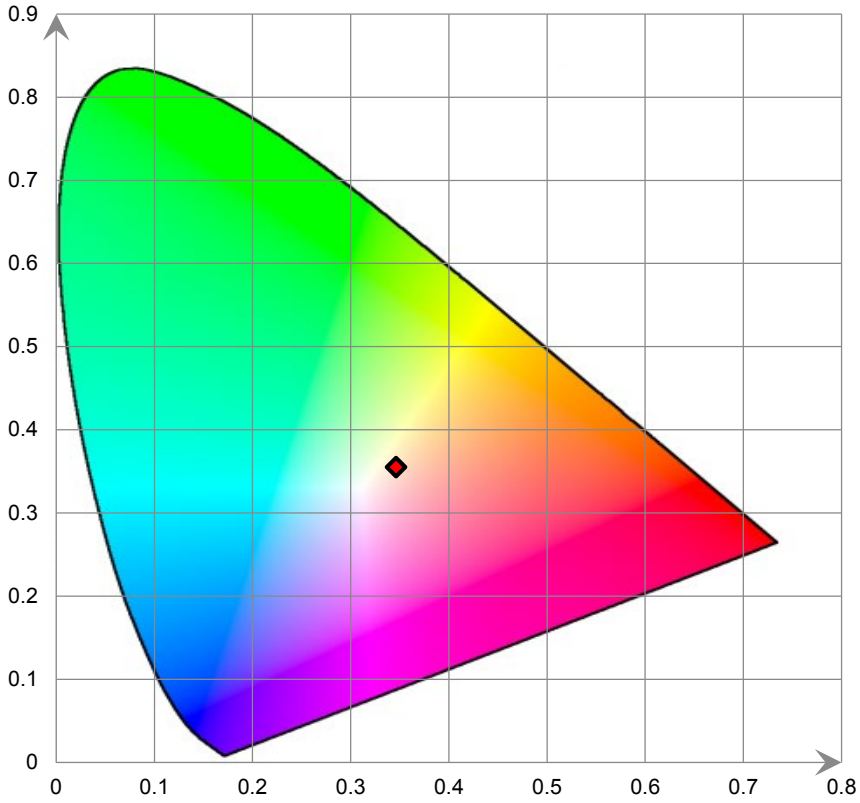
R_a	83
R_9	12

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

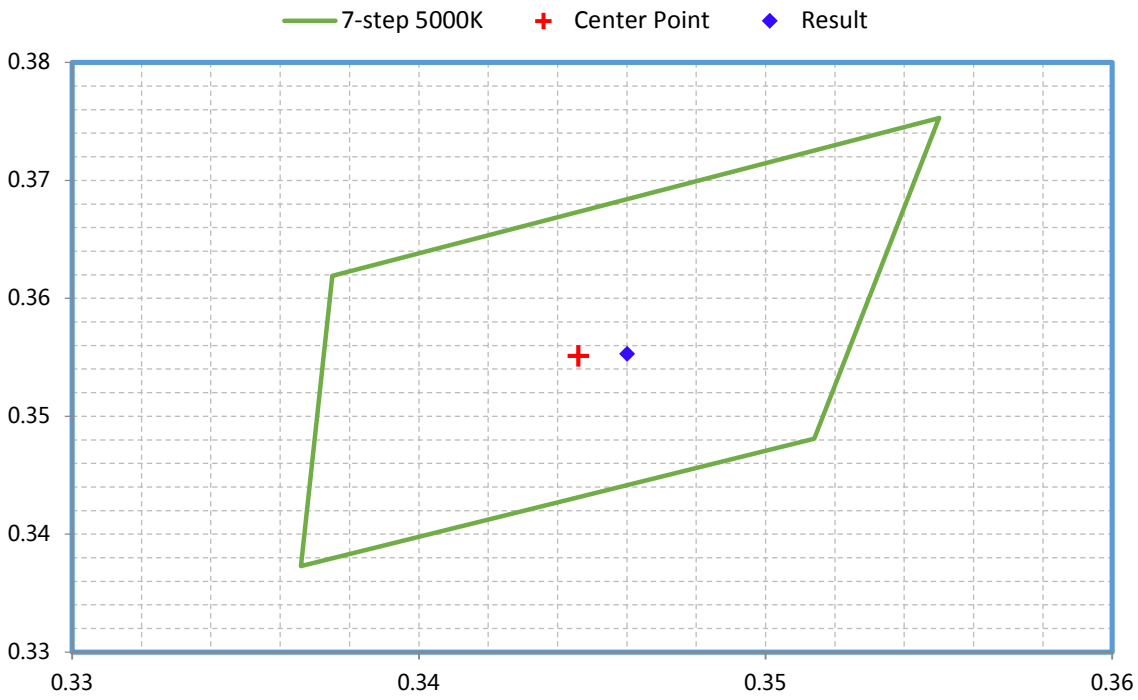
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



4. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	2023-09-02	2024-09-01
spectroradiometer	EVERFINE	HAAS-2000	G112048TS81331121	2023-09-02	2024-09-01
Digital Power Meter	EVERFINE	PF2010A	1011004	2023-09-02	2024-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	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
Multimeter	FLUKE	115C	N/A	2023-09-02	2024-09-01
Hybrid Recorder	YOKOGAWA	DR240	10#	2023-11-10	2024-11-09
AC POWER SUPPLY	HengPu	HPA 1103	0003394	2023-09-02	2024-09-01
Variable-Voltage Transformer	CHKO	TDGC2G-3	201102	N/A	N/A

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).

5. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-19. 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.

7. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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