



LM-79-19 Test Report

For

RAB Lighting INC.

(Brand Name:RAB)

408 W 14th St, New York, NY 10014, USA

**Model name(s):
ALR-36SBN**

Report Type: Testing and Report According to IES LM-79-2019
Type of Luminaire: LED luminaire
Report Date: 2024-11-27
Ningbo TengLi Testing Co., Ltd
Prepared By: 2nd floor, Block B, Ningbo Testing and Certification Base,
No. 66 Qingyi Road, Ningbo National Hi-Tech Zone,
Ningbo, Zhejiang

Test & Report By:

Engineer: Holly Wang

Review By:

Manager: Garman Mo

Note: 1. The results contained in this report pertain only to the tested samples
2. This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.



1.1 Product Information:		
Model Number	ALR-36SBN	
Remark	N/A	
Representative (Tested) Model	ALR-36SBN(mode:2700K) ALR-36SBN(mode:3000K) ALR-36SBN(mode:3500K) ALR-36SBN(mode:4000K) ALR-36SBN(mode:5000K)	
Model Difference	N/A	
SKU (if available)	-	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED luminaire	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-xx90RC35xxxxx	
Dimming	Continuous	
Integral Controls	N/A	
Sample Number	STD241047NB-I1	
Date of Receipt	Nov.18,2024	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	120Vac, 60Hz
Nominal Power	30W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,3500K,4000K,5000K (Color Tunable)



1.3 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-79-2019 Optical and Electrical Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 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

1.4 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 $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$, measured at a point not more than 1.5 m from the sample and at the same height as the sample. The humidity should be maintained between 10% and 65%. 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 $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$. The humidity should be maintained between 10% and 65%. 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 $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$. 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 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:2700K)	Total Operating Time(min)	75

Electrical Measurement:

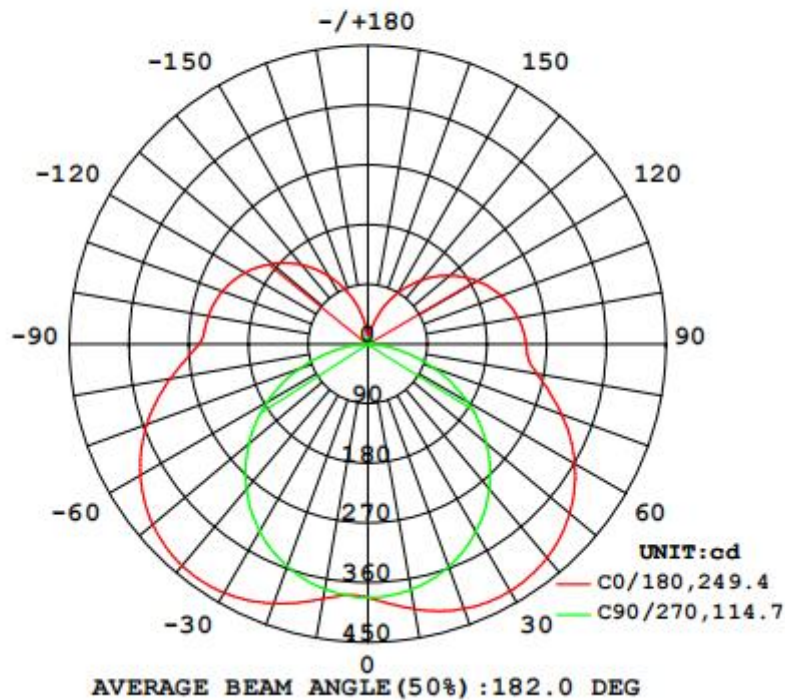
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2741	30.30	0.9211	41.90

Photometric Measurement – Goniophotometer Method(Test Distance: 26.00m):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2494.9
Luminous Efficacy (lm/W)	82.34
Beam Angle (°)	182.0
Center Beam Candle Power (cd)	382

Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	327.9	13.1%
0-40	565.6	22.7%
0-60	1,125.0	45.1%
60-90	673.2	27%
70-100	564.9	22.6%
90-120	434.3	17.4%
0-90	1,798.3	72.1%
90-180	696.5	27.9%
0-180	2,494.7	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	36.7	1.5%	90-100	159.6	6.4%
10-20	110.7	4.4%	100-110	147.5	5.9%
20-30	180.5	7.2%	110-120	127.2	5.1%
30-40	237.7	9.5%	120-130	101.6	4.1%
40-50	274.3	11.0%	130-140	74.2	3%
50-60	285.1	11.4%	140-150	48.1	1.9%
60-70	268.0	10.7%	150-160	26.1	1%
70-80	226.4	9.1%	160-170	10.2	0.4%
80-90	178.8	7.2%	170-180	1.9	0.1%

Photometric Data

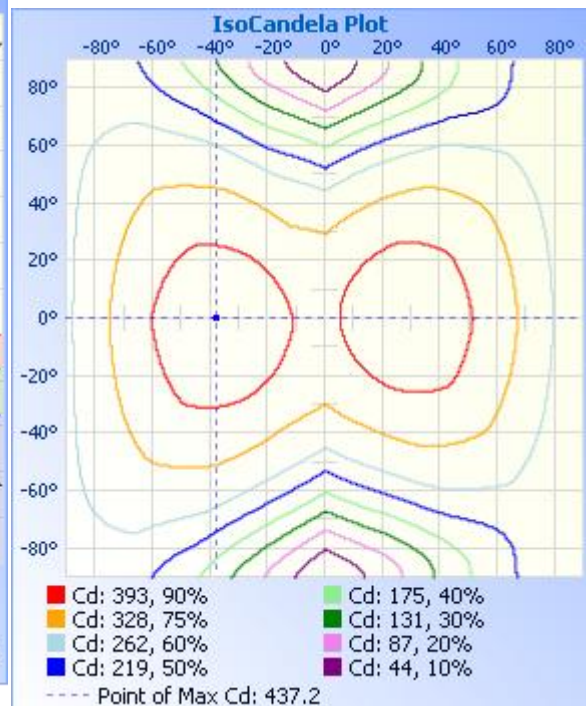
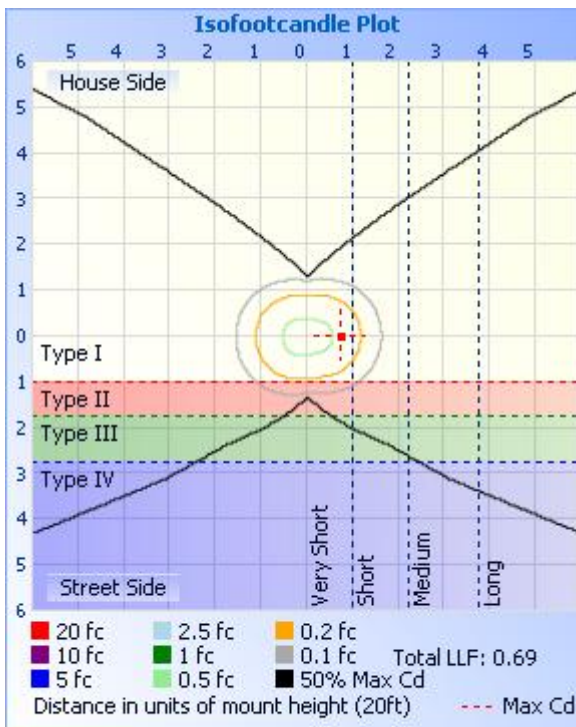
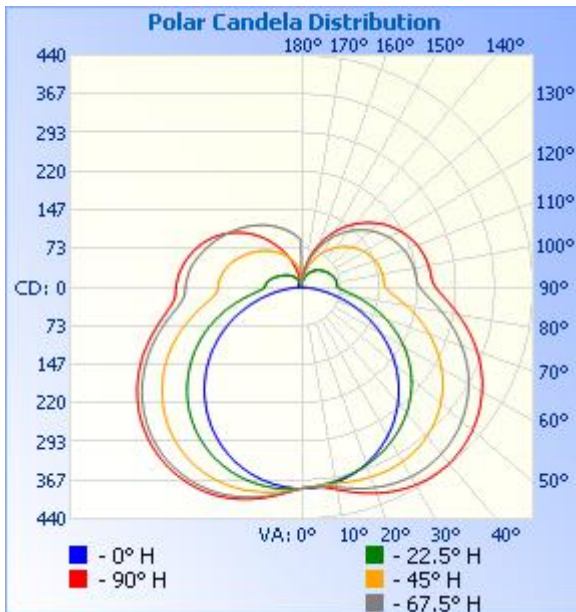




Table--1 UNIT: °C

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	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382			
5	393	392	389	385	381	378	378	379	380	380	379	378	380	384	389	392			
10	406	404	397	386	376	373	379	386	390	387	381	374	375	384	395	403			
15	417	413	402	384	368	367	381	396	404	399	385	370	367	382	399	413			
20	425	420	405	380	357	360	384	405	416	410	390	365	357	376	401	420			
25	429	423	404	373	343	351	384	412	426	418	393	359	343	368	400	423			
30	430	423	400	363	327	339	383	416	433	424	394	351	326	357	395	423			
35	427	419	393	350	307	326	378	416	437	426	391	340	307	343	388	420			
40	421	412	383	334	285	311	370	413	436	424	385	327	285	326	377	413			
45	411	401	369	315	261	293	359	407	432	418	376	311	261	306	362	402			
50	398	386	352	293	234	273	345	397	424	409	363	293	235	284	344	388			
55	381	368	331	269	204	250	327	383	412	396	347	272	206	259	324	370			
60	360	347	307	242	173	224	307	367	396	380	328	249	176	232	300	349			
65	337	323	281	212	140	197	284	347	377	360	307	223	144	202	273	324			
70	311	296	252	181	105	167	258	324	355	338	282	196	111	171	245	298			
75	284	269	222	149	71.1	137	231	298	330	312	256	166	77.0	138	215	270			
80	259	243	195	119	38.8	108	203	271	303	285	227	137	44.5	107	187	243			
85	243	227	176	96.2	12.9	81.8	177	244	276	258	200	110	17.0	81.5	166	225			
90	239	224	172	89.2	2.59	68.1	159	225	255	236	179	92.0	2.30	70.3	159	221			
95	235	220	169	86.8	1.68	67.5	156	219	247	229	174	89.3	1.70	68.0	157	218			
100	230	215	165	83.2	1.20	66.9	155	216	245	226	172	88.3	1.78	64.4	153	214			
105	223	209	159	78.4	1.14	65.3	153	213	240	222	169	86.3	2.29	59.8	147	207			
110	214	200	152	72.4	1.20	62.9	149	207	234	216	164	83.1	2.85	54.4	140	199			
115	203	190	143	66.1	1.20	59.8	143	199	225	208	158	79.2	3.44	48.5	131	191			
120	191	178	133	59.8	1.28	56.2	136	190	215	198	150	74.6	3.94	43.5	123	183			
125	177	165	122	53.4	1.28	52.4	128	179	203	187	141	69.2	4.37	39.4	115	175			
130	161	150	110	47.6	1.38	49.3	118	167	189	174	131	63.3	4.85	35.4	106	167			
135	144	134	97.4	40.8	1.60	45.9	108	154	173	160	120	57.9	5.25	31.4	97.8	160			
140	126	117	84.2	32.6	1.62	41.9	97.1	138	156	145	109	53.8	5.65	27.4	89.4	152			
145	107	99.2	70.8	26.1	1.73	37.4	85.1	122	138	129	98.6	50.8	6.06	23.4	81.0	144			
150	87.7	81.1	55.7	19.9	2.00	32.3	73.2	105	119	112	88.1	47.9	6.46	19.4	72.6	136			
155	68.0	62.4	42.4	12.9	2.10	27.1	60.7	86.9	98.3	94.3	77.4	44.9	6.86	15.4	64.2	128			
160	47.9	43.8	27.2	7.49	2.40	21.4	47.9	68.6	77.9	75.7	66.3	42.0	7.26	11.4	55.8	120			
165	28.5	26.2	12.9	4.14	2.79	16.2	33.9	50.2	57.5	56.3	55.1	39.0	7.67	7.42	47.4	112			
170	12.1	9.71	4.44	2.41	3.43	10.3	21.7	31.2	36.8	36.6	44.0	36.0	8.07	3.43	38.9	104			
175	2.29	1.84	1.90	2.20	4.12	6.95	10.8	15.0	17.1	16.9	32.8	33.1	8.47	0.00	30.5	96.4			
180	2.76	4.24	4.19	4.40	4.60	4.51	4.00	3.97	2.85	0.00	21.7	30.1	8.87	0.00	22.1	88.5			



2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:2700K)	Total Operating Time(min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2749	30.37	0.9206	41.97

Chromaticity Measurement - Sphere-Spectroradiometer

Method(Self-absorption:1.1162)(4π geometry):

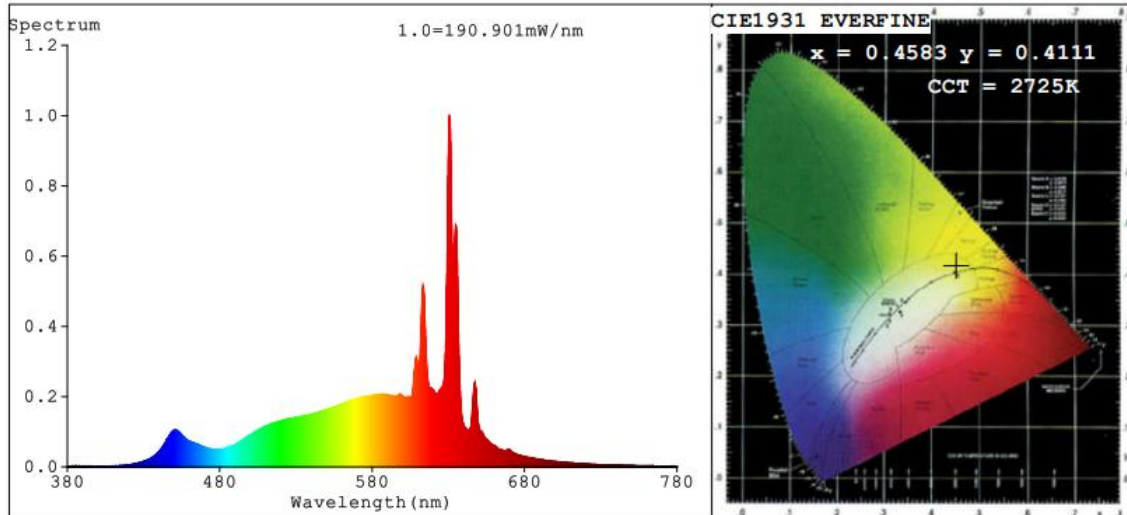
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2725
Duv	0.0003
Chromaticity (x, y)	x=0.4583 y=0.4111
Chromaticity (u', v')	u'=0.2613 v'=0.5273
Color Rendering Index (CRI)	96.1
R9	73
Rg	101
Rf	92
Rcs,h1	-5

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2521
Luminous Efficacy (lm/W)	83.01



Spectral Power Distribution & Chromaticity Diagram



R1 =99	R2 =98	R3 =96	R4 =98	R5 =98	R6 =97	R7 =94	
R8 =89	R9 =73	R10=93	R11=97	R12=88	R13=98	R14=96	R15=94

TM30

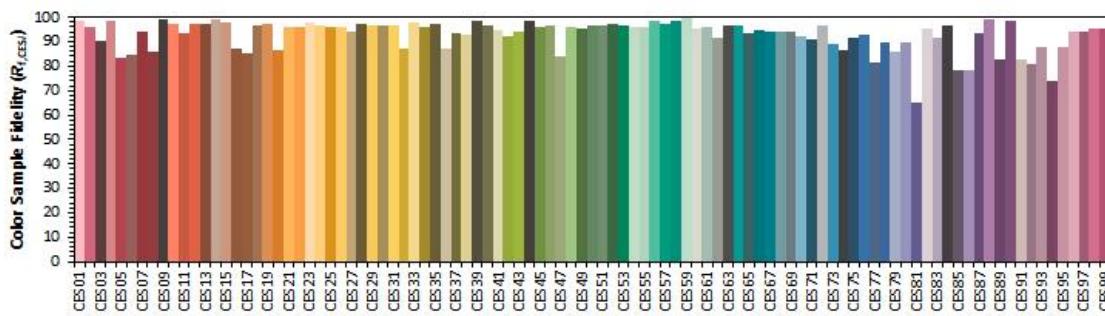
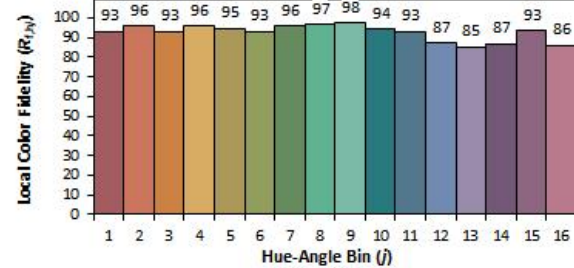
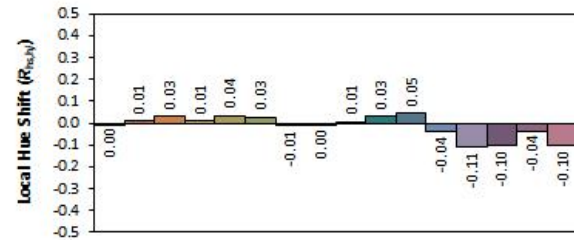
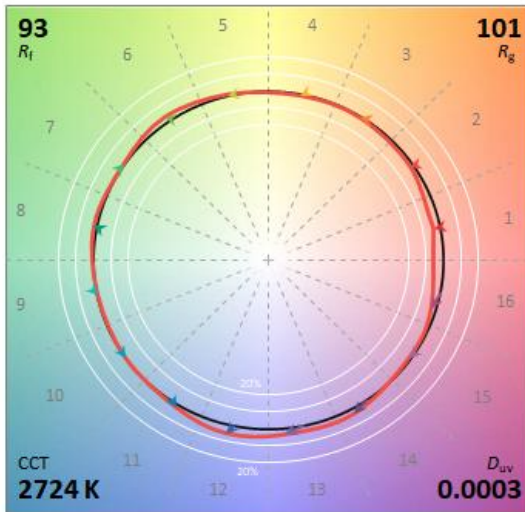
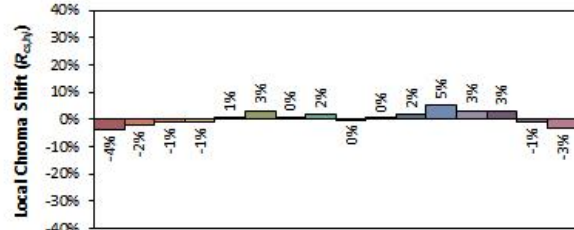
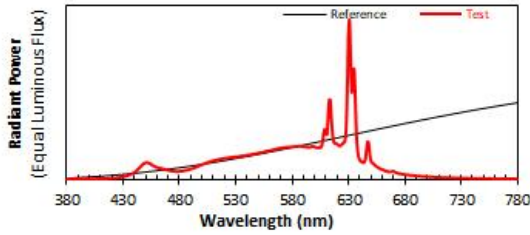
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-11-22

Model: ALR-36SBN (mode:2700K)



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

x 0.4584
y 0.4110
L' 0.2614
v' 0.5273

CIE 13.3-1995
(CRI)
R_a 96
R_g 73

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



2.3 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:3000K)	Total Operating Time(min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2741	30.29	0.9209	84.98

Chromaticity Measurement - Sphere-Spectroradiometer

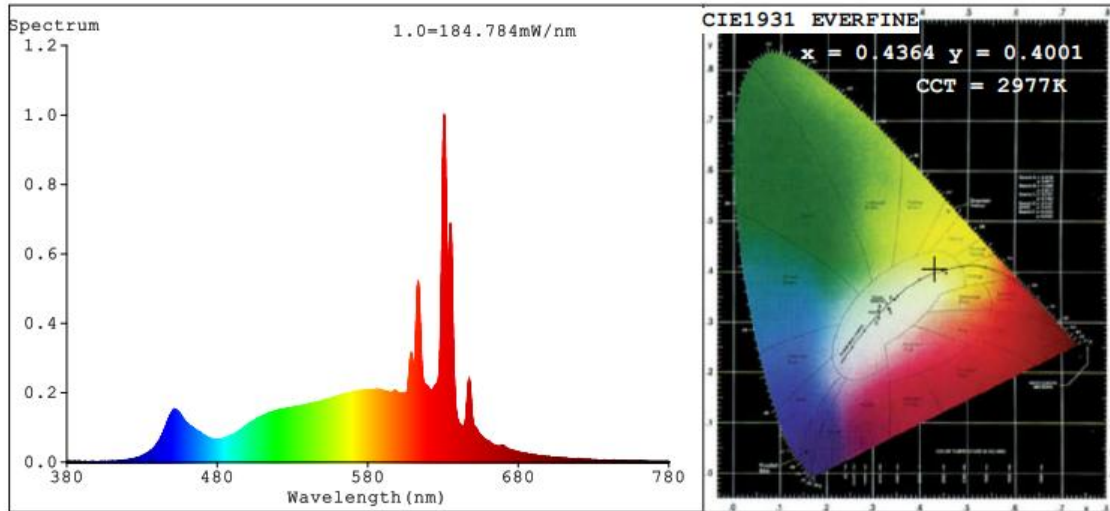
Method(Self-absorption:1.1161)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	2977
Duv	-0.0015
Chromaticity (x, y)	x=0.4364 y=0.4001
Chromaticity (u', v')	u'=0.2519 v'=0.5197
Color Rendering Index (CRI)	96.9
R9	83
Rg	102
Rf	93
Rcs,h1	-3

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2574
Luminous Efficacy (lm/W)	84.98

Spectral Power Distribution & Chromaticity Diagram



R1 =99	R2 =99	R3 =96	R4 =98	R5 =99	R6 =95	R7 =96	
R8 =94	R9 =83	R10=97	R11=95	R12=86	R13=99	R14=96	R15=98

TM30

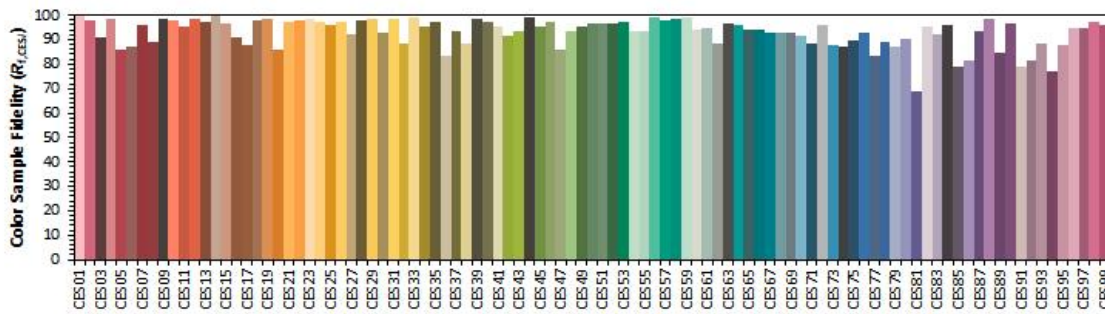
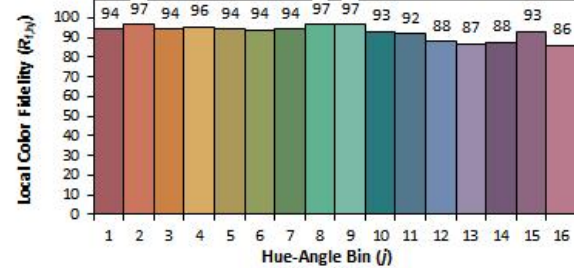
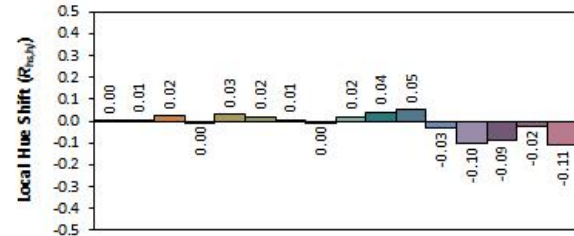
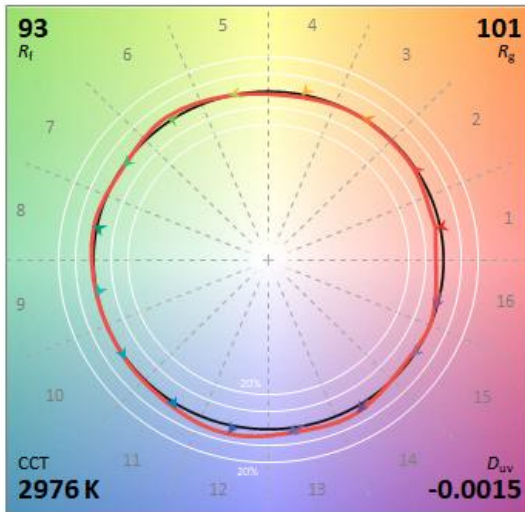
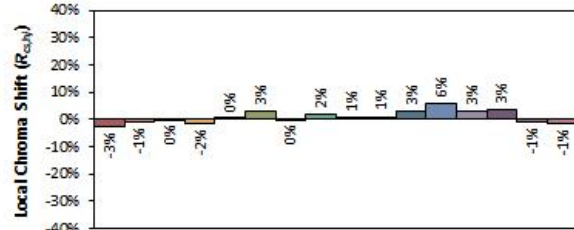
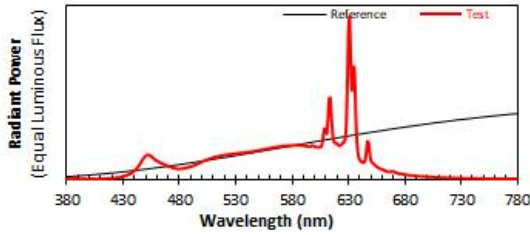
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-11-22

Model: ALR-36SBN (mode: 3000K)



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

x 0.4364
 y 0.4000
 u' 0.2520
 v' 0.5197

CIE 13.3-1995
(CRI)
 R_a 97
 R_g 84

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



2.4 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:3500K)	Total Operating Time(min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2759	30.39	0.9179	42.02

Chromaticity Measurement - Sphere-Spectroradiometer

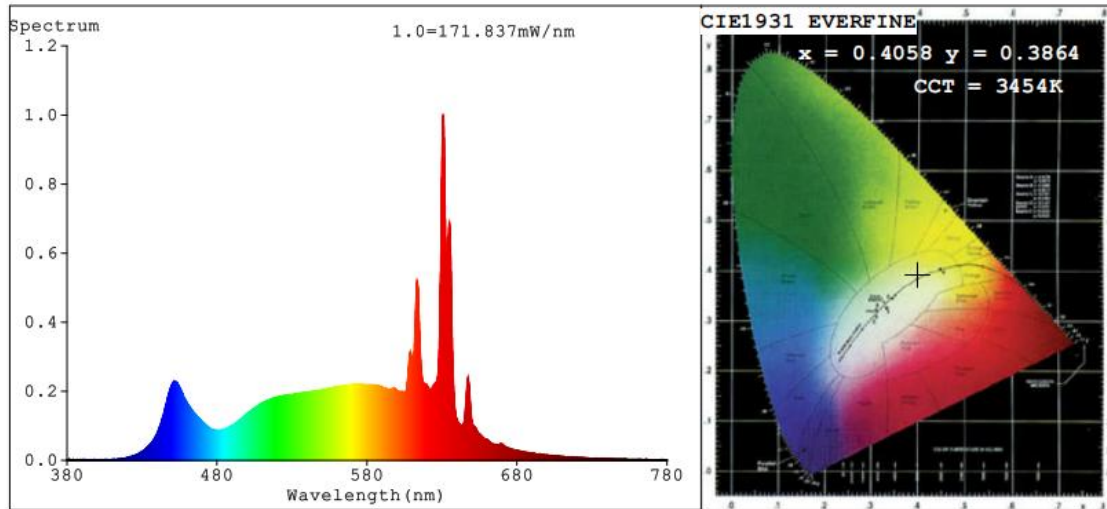
Method(Self-absorption:42.02)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3454
Duv	-0.0020
Chromaticity (x, y)	x=0.4058 y=0.3864
Chromaticity (u', v')	u'=0.2378 v'=0.5095
Color Rendering Index (CRI)	97.2
R9	94
Rg	102
Rf	93
Rcs,h1	-2

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2641
Luminous Efficacy (lm/W)	86.90

Spectral Power Distribution & Chromaticity Diagram



R1 =97	R2 =99	R3 =95	R4 =97	R5 =98	R6 =95	R7 =98	
R8 =99	R9 =94	R10=97	R11=94	R12=82	R13=98	R14=95	R15=98

TM30

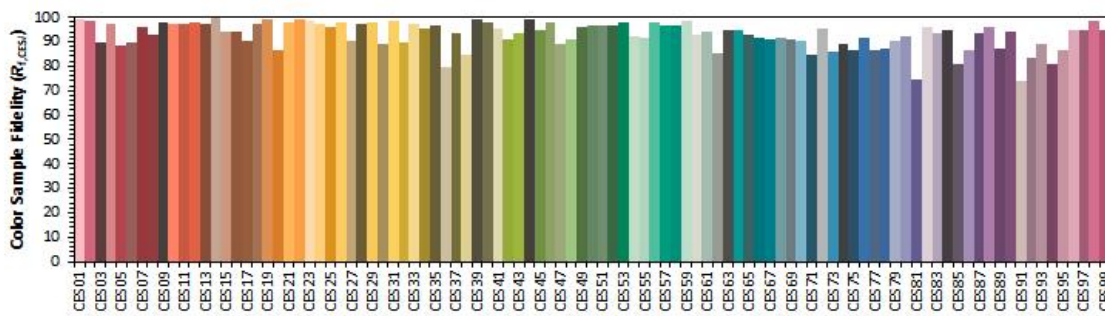
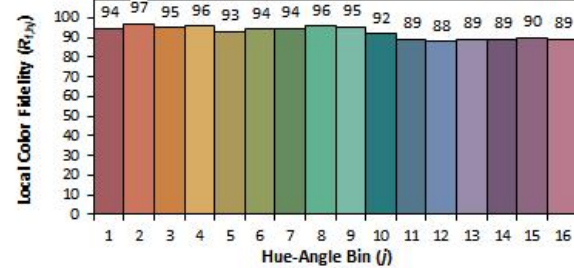
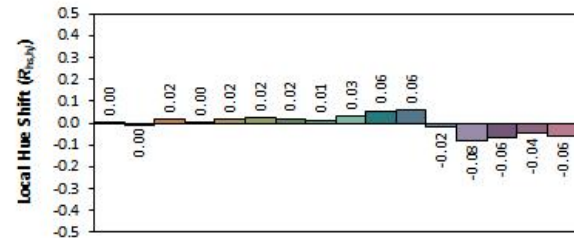
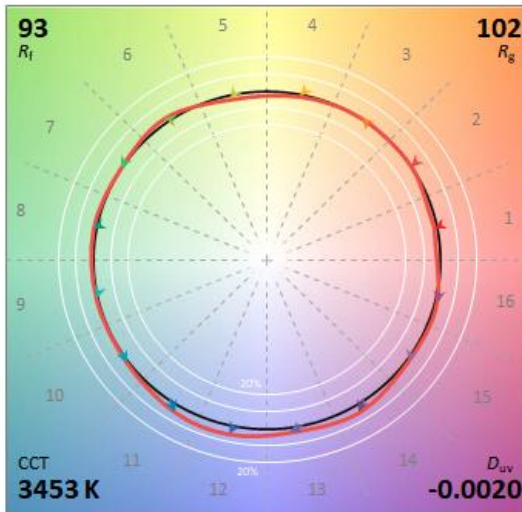
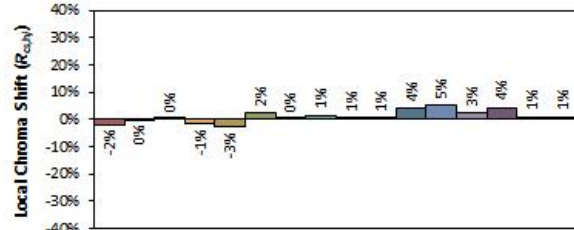
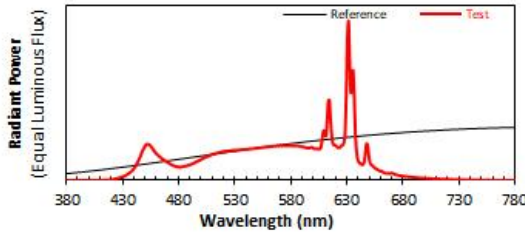
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-11-22

Model: ALR-36SBN (mode: 3500K)



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

x 0.4058
y 0.3863
L' 0.2378
v' 0.5095

CIE 13.3-1995
(CRI)
R_a 97
R_g 95

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



2.5 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:4000K)	Total Operating Time(min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2731	30.22	0.9220	41.81

Chromaticity Measurement - Sphere-Spectroradiometer

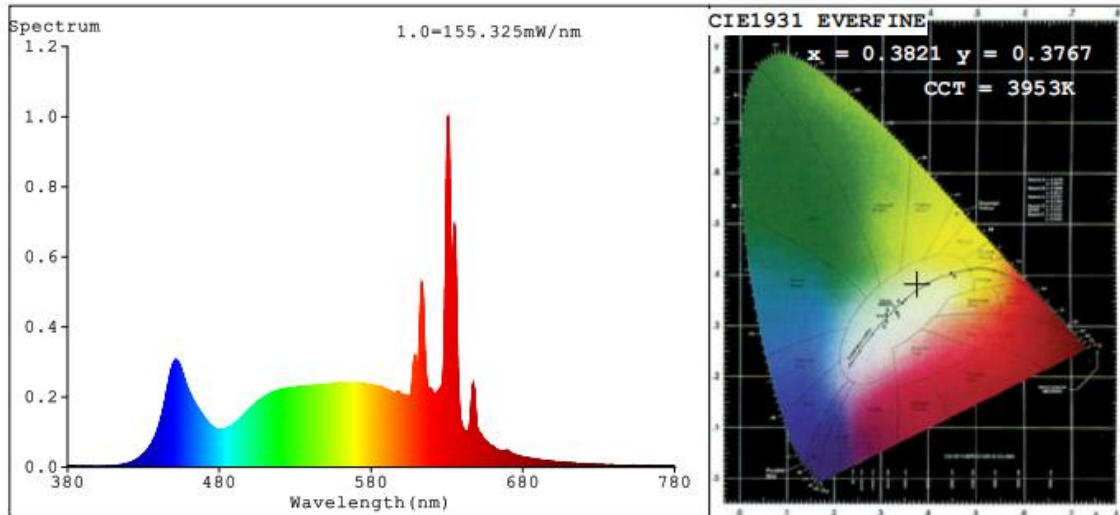
Method(Self-absorption:1.1164)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3953
Duv	-0.0005
Chromaticity (x, y)	x=0.3821 y=0.3767
Chromaticity (u', v')	u'=0.2263 v'=0.5018
Color Rendering Index (CRI)	97.5
R9	97
Rg	102
Rf	94
Rcs,h1	-2

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2645
Luminous Efficacy (lm/W)	87.52

Spectral Power Distribution & Chromaticity Diagram



R1 =98	R2 =99	R3 =93	R4 =97	R5 =99	R6 =96	R7 =99		
R8 =99	R9 =97	R10=94	R11=94	R12=77	R13=99	R14=95	R15=98	

TM30

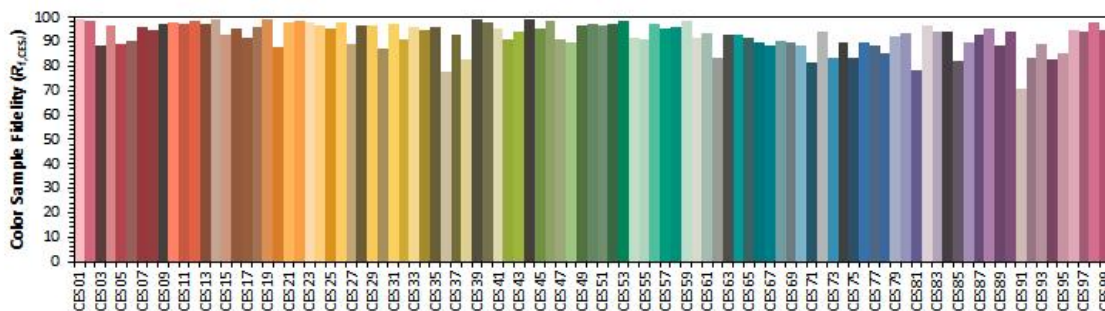
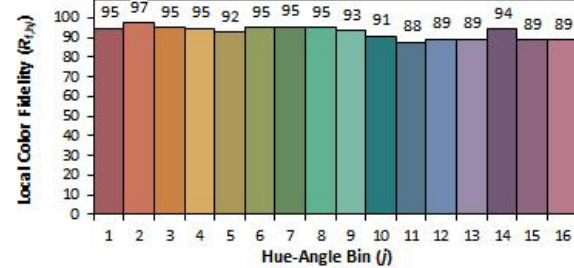
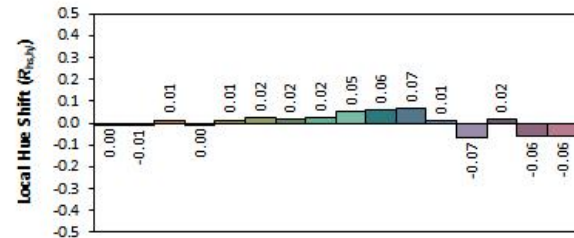
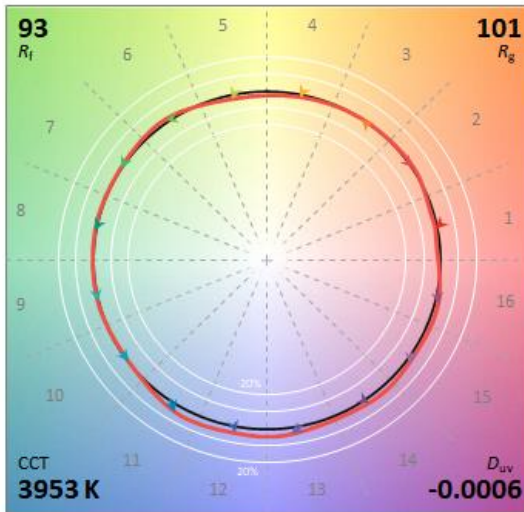
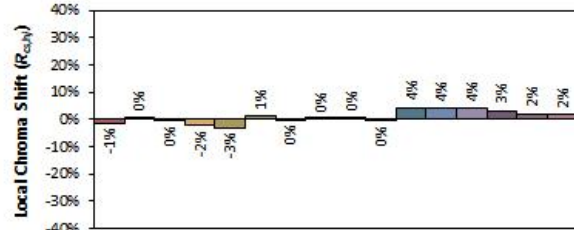
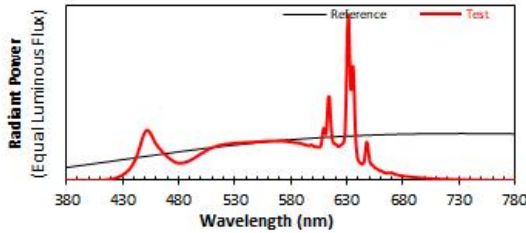
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-11-22

Model: ALR-36SBN (mode: 4000K)



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

x 0.3821
 y 0.3765
 u' 0.2263
 v' 0.5017

CIE 13.3-1995 (CRI)
 R_a 97
 R_g 97

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



2.6 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-22	Test Ambient:	25 ± 1 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36SBN(mode:5000K)	Total Operating Time(min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD241047 NB-I1	120.0	60.01	0.2745	30.29	0.9197	41.99

Chromaticity Measurement - Sphere-Spectroradiometer

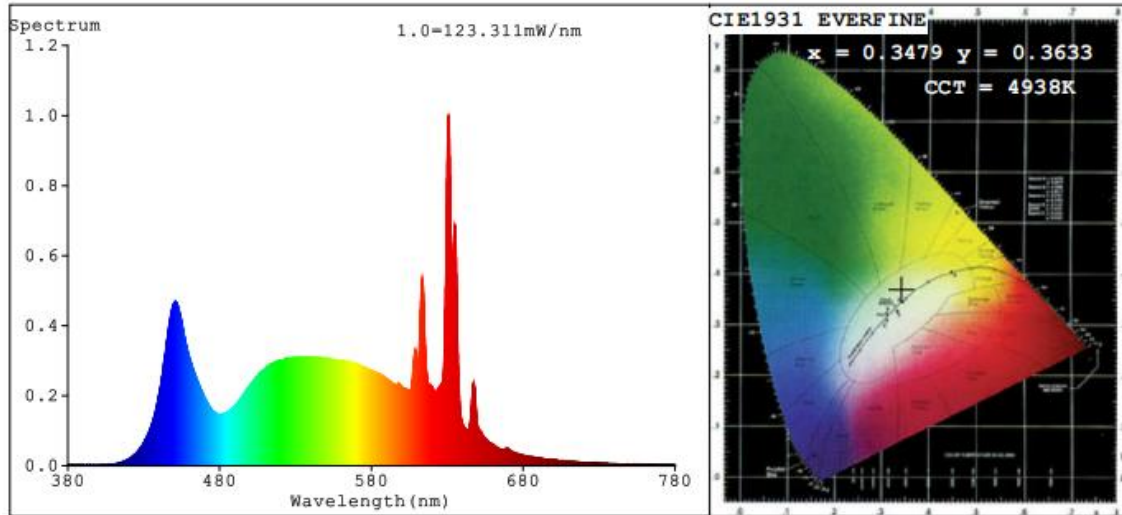
Method(Self-absorption:1.1166)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4938
Duv	0.0047
Chromaticity (x, y)	x=0.3479 y=0.3633
Chromaticity (u', v')	u'=0.2088 v'=0.4907
Color Rendering Index (CRI)	95.2
R9	89
Rg	101
Rf	93
Rcs,h1	-3

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2566
Luminous Efficacy (lm/W)	84.71

Spectral Power Distribution & Chromaticity Diagram



R1 =97	R2 =95	R3 =91	R4 =96	R5 =94	R6 =92	R7 =99		
R8 =98	R9 =89	R10=85	R11=94	R12=67	R13=95	R14=94	R15=95	

TM30

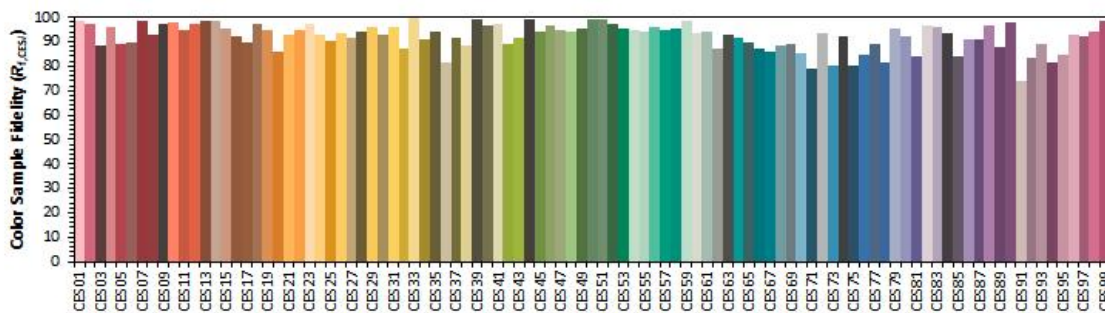
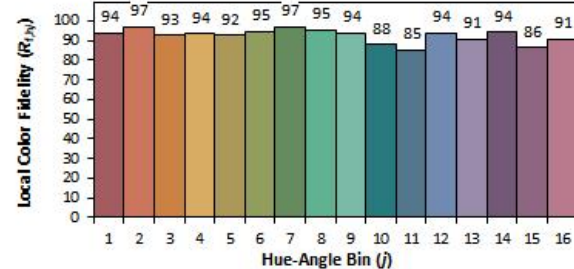
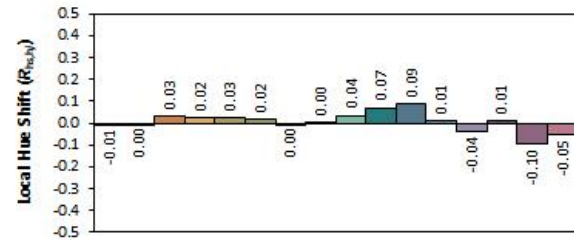
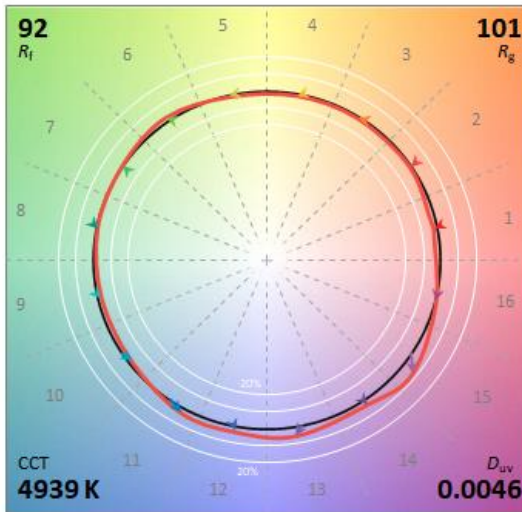
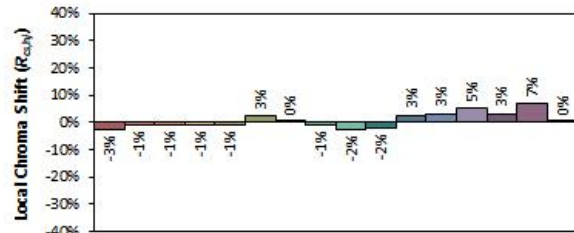
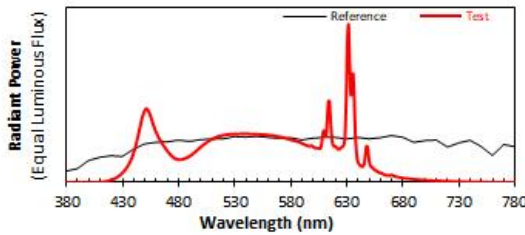
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-11-22

Model: ALR-36SBN (mode:5000K)



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

x 0.3479
y 0.3632
L' 0.2088
v' 0.4906

CIE 13.3-1995
(CRI)
R_a 95
R_g 89

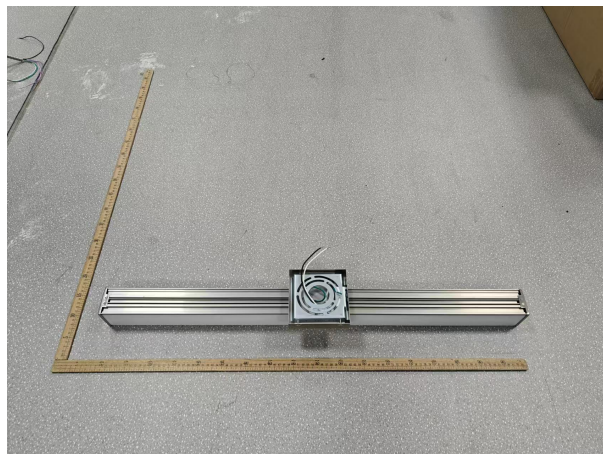
Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-1200	Verified by D204 standard lamp	
ST-R-703	Standard Lamp D204	2023-12-26	2024-12-25
ST-R-704	Power Meter for Integrating Sphere	2023-12-26	2024-12-25
ST-R-707	Temperature Probe for Integrating Sphere	2023-12-26	2024-12-25
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp D908S	2023-12-26	2024-12-25
ST-R-711	Power Meter for Goniophotometer	2023-12-26	2024-12-25
ST-R-709	Hygrothermograph for Goniophotometer	2023-12-26	2024-12-25
Uncertainty(K=2): Photometric Measurement (Sphere):3.40% Chromaticity Measurement(Sphere):44.8K Photometric Measurement(Goniophotometer):3.64%			

4. Product Photo



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