



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-36RB

Report Type: Testing and Report According to IES LM-79-2019

Type of Luminaire: LED luminaire

Report Date: 2024-08-30

Test & Report By:

Ferrum Li

Engineer: Ferrum Li

Review By:

Garman Mo

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-36RB	
Remark	N/A	
Representative (Tested) Model	ALR-36RB(mode: 2700K) ALR-36RB(mode: 3000K) ALR-36RB(mode: 3500K) ALR-36RB(mode: 4000K) ALR-36RB(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	
Sample Number	STD240728NB-H1	
Date of Receipt	2024-08-14	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaire 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 C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.4 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	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 2700K)	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2678	29.64	0.9225	40.83

Photometric Measurement – Goniophotometer Method(Test Distance:26.000m):

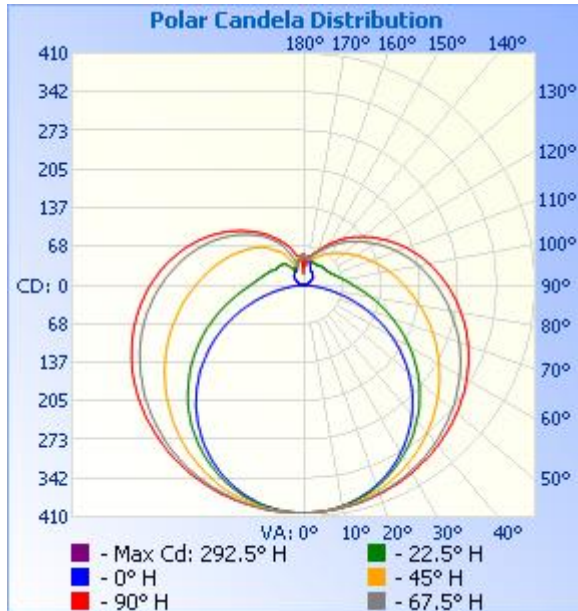
Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2327.2
Luminous Efficacy (lm/W)	78.52
Beam Angle (°)	166.7
Center Beam Candle Power (cd)	403

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	323.1	13.9%
0-40	543.6	23.4%
0-60	1,047.0	45%
60-90	649.7	27.9%
70-100	564.7	24.3%
90-120	400.4	17.2%
0-90	1,696.7	72.9%
90-180	630.4	27.1%
0-180	2,327.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	38.3	1.6%	90-100	159.0	6.8%
10-20	111.2	4.8%	100-110	133.4	5.7%
20-30	173.7	7.5%	110-120	107.9	4.6%
30-40	220.5	9.5%	120-130	84.0	3.6%
40-50	248.0	10.7%	130-140	61.9	2.7%
50-60	255.3	11.0%	140-150	41.5	1.8%
60-70	244.0	10.5%	150-160	24.7	1.1%
70-80	218.6	9.4%	160-170	13.3	0.6%
80-90	187.0	8.0%	170-180	4.6	0.2%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
4.0ft	25.2 fc	12.0 ft
8.0ft	6.3 fc	24.0 ft
12.0ft	2.8 fc	36.1 ft
16.0ft	1.6 fc	48.1 ft
20.0ft	1.0 fc	60.1 ft
24.0ft	0.7 fc	72.1 ft
28.0ft	0.5 fc	84.2 ft
32.0ft	0.4 fc	96.2 ft

■ Beam Spread: 112.7°

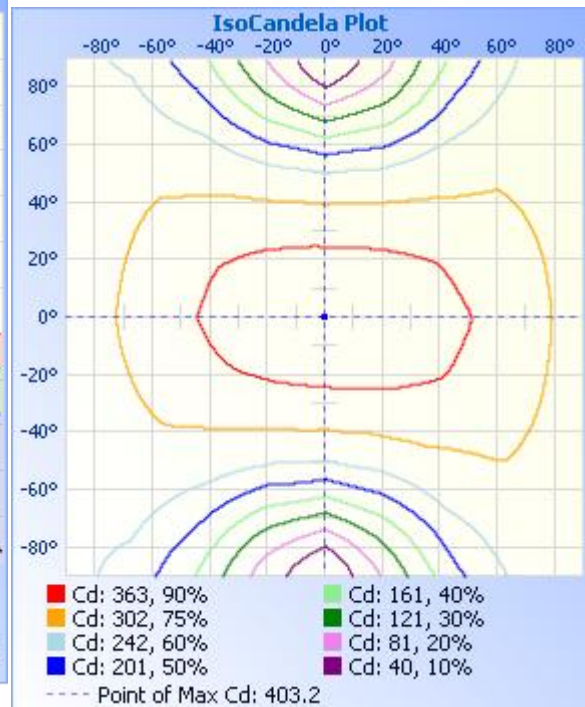
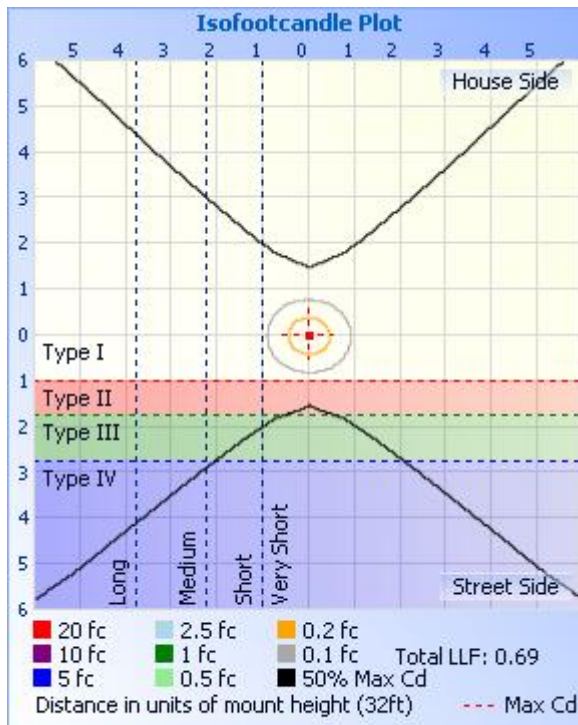




Table--1

UNIT: cd

C (DEG) y (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	403	403	403	403	403	403	403	403	403	403	403	403	403	403	403	403			
5	403	403	402	401	402	402	402	402	402	402	401	400	401	402	402	402			
10	402	402	399	397	397	397	398	400	399	399	398	396	396	397	400	402			
15	400	398	394	390	389	390	394	396	397	395	391	388	387	390	395	400			
20	397	395	387	379	377	380	387	392	393	389	383	376	374	379	389	395			
25	394	390	378	365	362	366	377	386	389	383	372	362	359	365	379	391			
30	390	383	367	349	343	350	366	380	384	376	360	345	340	350	369	386			
35	384	375	354	331	322	333	354	372	377	368	347	326	319	332	358	379			
40	378	367	340	310	299	312	340	363	370	357	331	304	295	312	345	372			
45	372	357	323	286	272	291	326	354	362	347	314	281	268	291	331	362			
50	364	346	306	262	243	267	310	343	353	335	296	256	240	266	315	353			
55	355	336	289	235	212	242	294	332	344	323	278	229	208	243	300	343			
60	346	324	271	208	179	216	277	319	334	311	260	200	175	217	284	331			
65	336	312	254	180	145	191	260	307	322	298	242	172	140	192	268	321			
70	324	299	236	153	109	166	243	293	310	284	224	145	105	167	252	308			
75	312	286	219	128	74.2	142	226	278	298	271	207	120	70.0	145	235	295			
80	299	272	203	105	41.3	121	209	264	283	256	190	97.4	37.6	125	220	282			
85	285	258	188	86.8	15.5	103	193	249	269	241	174	78.6	12.7	108	205	268			
90	272	244	173	73.0	2.65	88.0	178	234	255	226	159	64.6	1.54	94.3	191	253			
95	257	229	160	63.7	1.27	77.2	164	220	239	212	146	54.7	1.64	84.1	177	238			
100	242	215	149	57.7	2.44	68.4	151	206	224	198	134	47.2	3.00	76.7	166	224			
105	227	202	138	53.6	6.43	61.1	138	191	209	184	122	41.5	6.64	70.9	154	209			
110	211	188	128	50.5	9.52	55.6	126	176	194	169	112	38.1	9.54	66.2	143	196			
115	196	174	119	47.4	11.6	51.7	116	161	177	155	102	37.9	11.6	61.4	133	181			
120	180	161	110	46.3	14.4	49.2	106	147	162	142	92.9	38.2	14.0	56.4	123	167			
125	165	147	102	46.3	18.2	48.0	96.5	133	147	129	84.8	38.5	17.5	55.1	113	153			
130	150	134	94.6	46.7	21.8	46.8	88.1	120	133	116	77.9	39.2	21.6	53.8	104	139			
135	135	122	84.8	47.1	22.7	45.8	80.1	108	119	105	72.0	40.2	23.7	52.1	94.8	126			
140	121	110	76.6	46.1	24.6	45.1	73.4	96.2	106	93.5	67.1	40.2	25.4	47.5	80.5	113			
145	108	98.2	72.1	38.8	26.4	43.2	67.0	85.1	92.8	84.3	63.3	40.4	26.7	37.5	72.5	99.3			
150	94.3	87.4	61.7	31.7	27.9	42.5	60.6	75.3	81.2	75.8	59.0	43.0	27.9	29.4	57.2	85.8			
155	82.2	72.9	50.8	34.5	29.1	43.3	55.3	65.7	70.3	67.5	56.5	44.8	28.7	34.8	41.6	65.3			
160	70.7	61.0	42.2	40.4	34.4	43.3	48.8	59.6	61.5	60.9	53.0	46.0	34.6	37.0	37.4	47.5			
165	57.0	43.9	39.6	43.8	41.6	44.1	48.4	49.4	53.5	53.2	47.5	47.0	42.3	42.1	45.2	36.8			
170	51.5	34.2	46.4	48.4	48.2	48.3	48.0	46.6	50.8	49.1	46.7	48.6	48.7	48.6	49.4	44.8			
175	42.9	42.1	50.6	51.4	51.5	51.4	50.7	48.6	34.1	34.3	49.9	52.0	53.2	52.2	52.2	50.8			
180	5.31	51.0	51.3	53.2	53.3	53.5	52.3	50.7	22.4	22.8	50.6	51.6	53.3	53.4	53.7	52.0			

2.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 2700K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2690	29.78	0.9224	40.84

Chromaticity Measurement - Sphere-Spectroradiometer

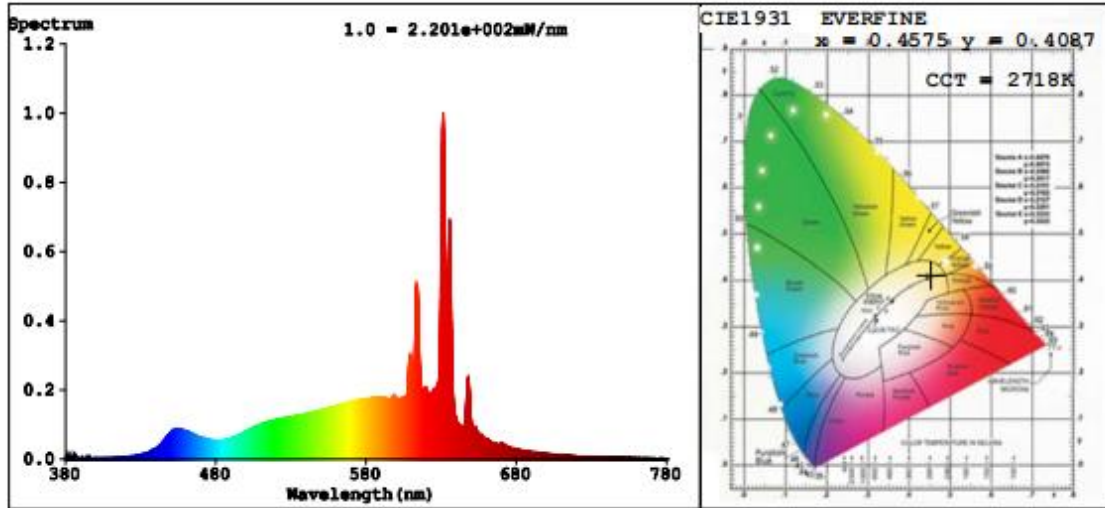
Method(Self-absorption:1.1611) (4π geometry):

Parameter	Result	Parameter	Result
Test Voltage (V)	120	Color Rendering Index (CRI)	96.7
Frequency (Hz)	60	R9	77
CCT (K)	2718	Rg	100
Duv	-0.0005	Rf	93
Chromaticity (x, y)	x=0.4575 y=0.4087	Rcs,h1(%)	-4
Chromaticity (u', v')	u'=0.2618 v'=0.5263		

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2350
Luminous Efficacy (lm/W)	78.91

Spectral Power Distribution & Chromaticity Diagram



Special Color Rendering Indices

R1 =99	R2 =99	R3 =98	R4 =100	R5 =99	R6 =95	R7 =94	
R8 =90	R9 =77	R10=98	R11=96	R12=88	R13=99	R14=97	R15=96

TM30

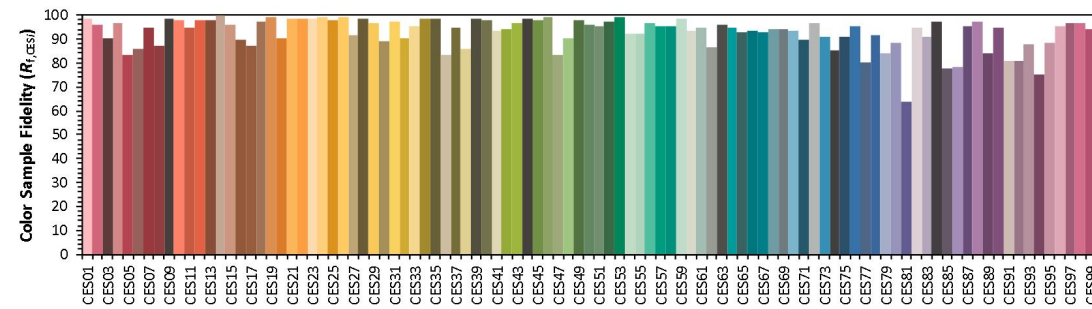
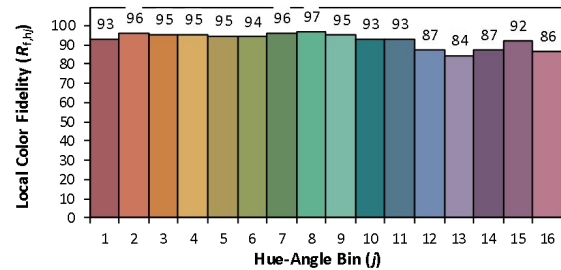
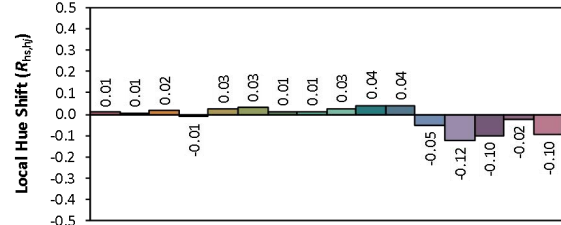
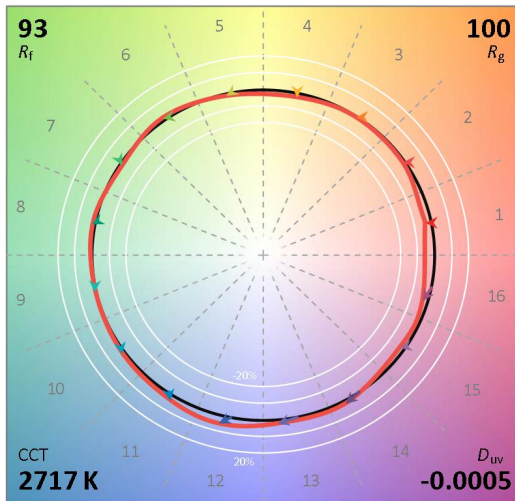
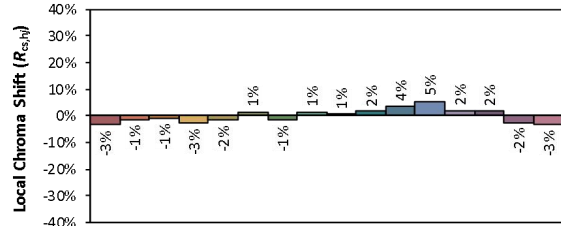
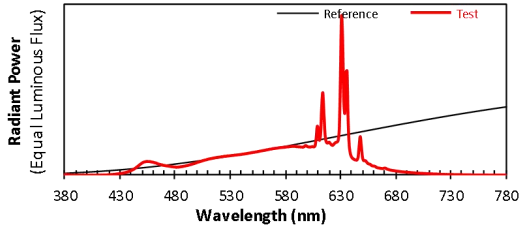
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-08-16

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



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

x 0.4575
 y 0.4086
 u' 0.2619
 v' 0.5262

CIE 13.3-1995
(CRI)

R_a 97
 R_g 78

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

2.3 Electrical, Photometric and Chromaticity Measurements

Test date	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 3000K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2684	29.72	0.9226	40.82

Chromaticity Measurement - Sphere-Spectroradiometer

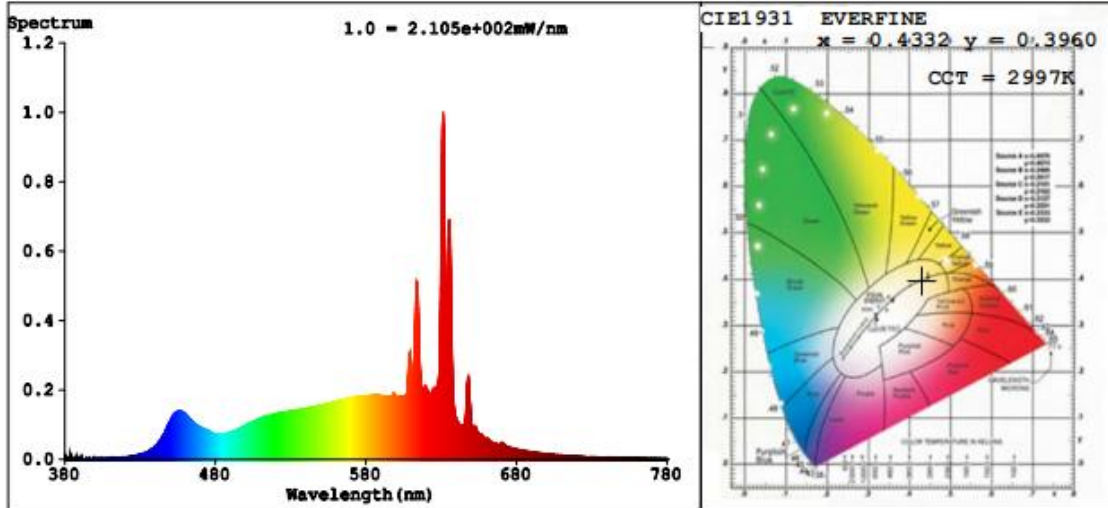
Method(Self-absorption:1.1614) (4π geometry):

Parameter	Result	Parameter	Result
Test Voltage (V)	120	Color Rendering Index (CRI)	96.1
Frequency (Hz)	60	R9	87
CCT (K)	2997	Rg	101
Duv	-0.0027	Rf	93
Chromaticity (x, y)	x=0.4332 y=0.3960	Rcs,h1(%)	-3
Chromaticity (u', v')	u'=0.2517 v'=0.5176		

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2428
Luminous Efficacy (lm/W)	81.70

Spectral Power Distribution & Chromaticity Diagram



Special Color Rendering Indices

R1 =97	R2 =97	R3 =99	R4 =99	R5 =97	R6 =92	R7 =94	
R8 =94	R9 =87	R10=97	R11=95	R12=84	R13=97	R14=98	R15=99

TM30

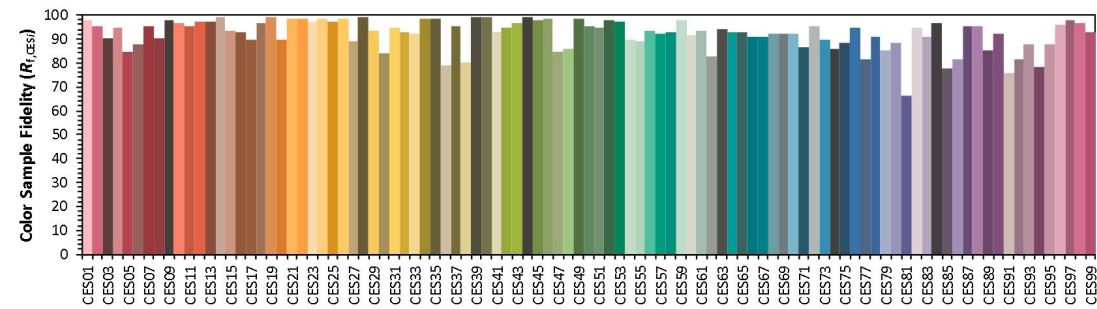
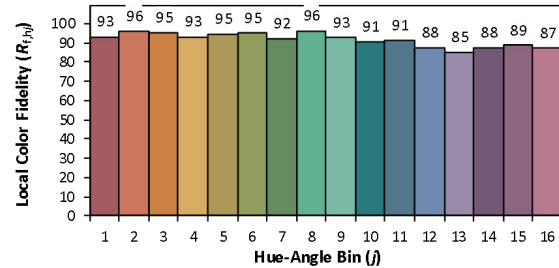
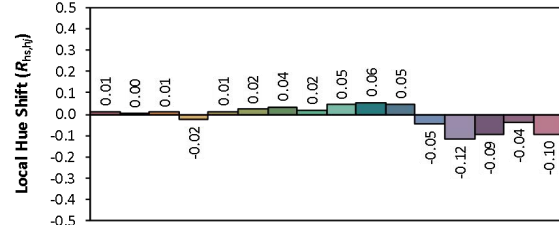
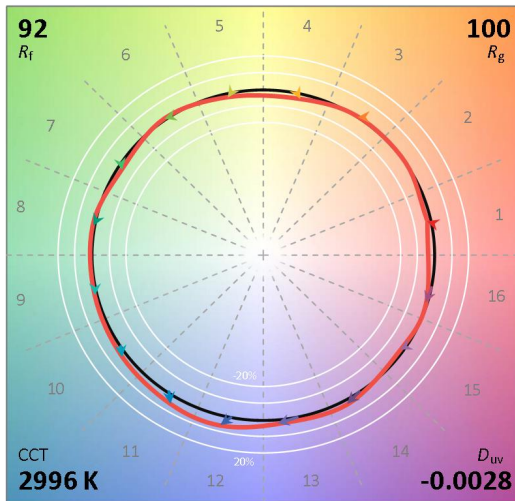
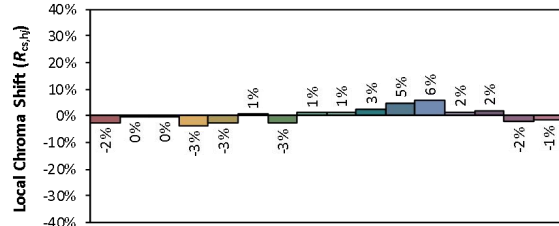
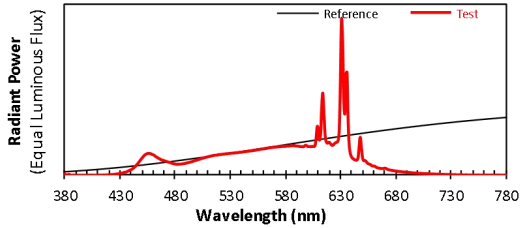
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-08-16

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



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

x 0.4332
 y 0.3959
 u' 0.2517
 v' 0.5176

CIE 13.3-1995
(CRI)

R_a 96
 R_g 88

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

2.4 Electrical, Photometric and Chromaticity Measurements

Test date	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 3500K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2639	29.22	0.9226	40.82

Chromaticity Measurement - Sphere-Spectroradiometer

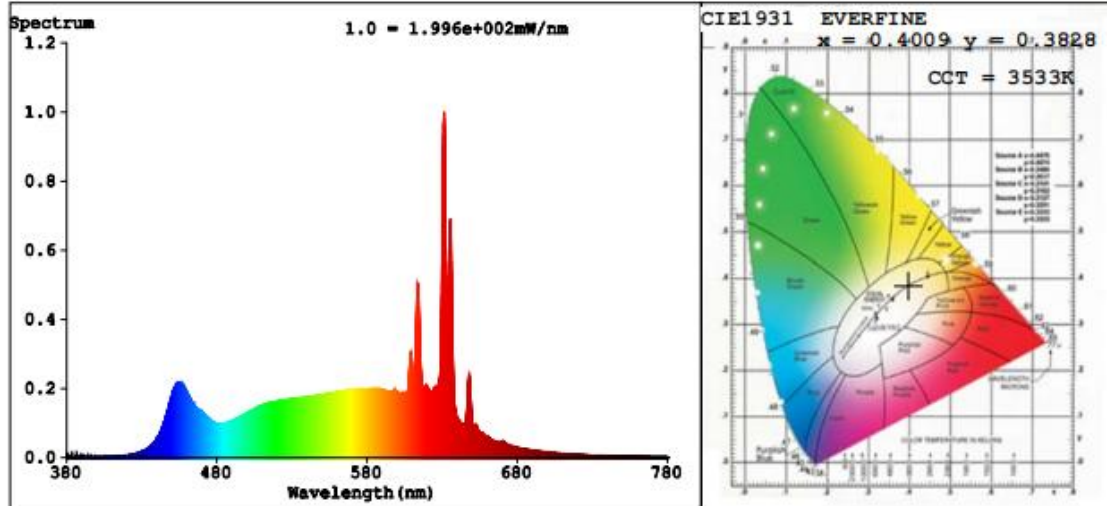
Method(Self-absorption:1.1612) (4π geometry):

Parameter	Result	Parameter	Result
Test Voltage (V)	120	Color Rendering Index (CRI)	96.4
Frequency (Hz)	60	R9	94
CCT (K)	3533	Rg	101
Duv	-0.0025	Rf	92
Chromaticity (x, y)	x=0.4009 y=0.3828	Rcs,h1(%)	-2
Chromaticity (u', v')	u'=0.2361 v'=0.5073		

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2585
Luminous Efficacy (lm/W)	88.47

Spectral Power Distribution & Chromaticity Diagram



Special Color Rendering Indices

R1 =96	R2 =97	R3 =99	R4 =98	R5 =96	R6 =93	R7 =95	
R8 =96	R9 =94	R10=97	R11=96	R12=80	R13=96	R14=98	R15=97

TM30

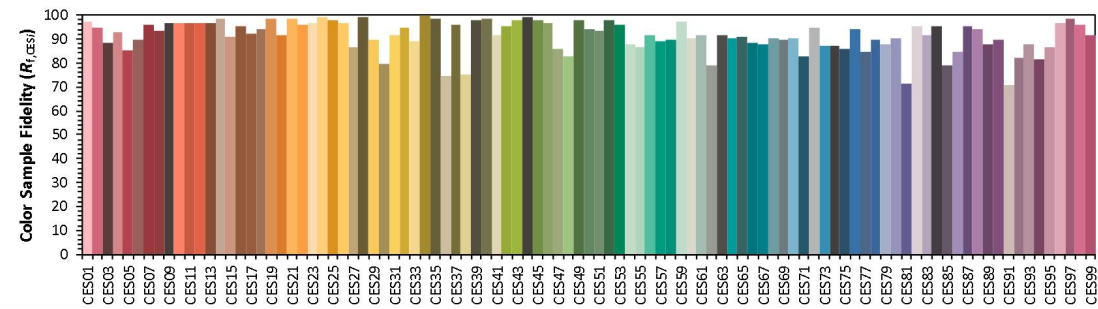
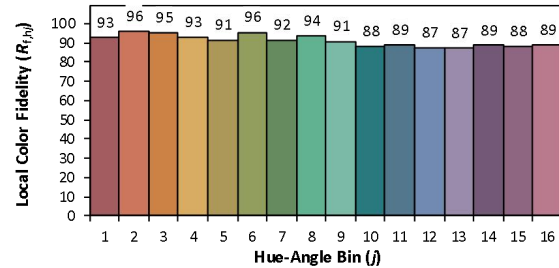
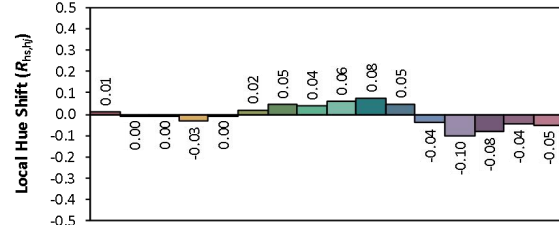
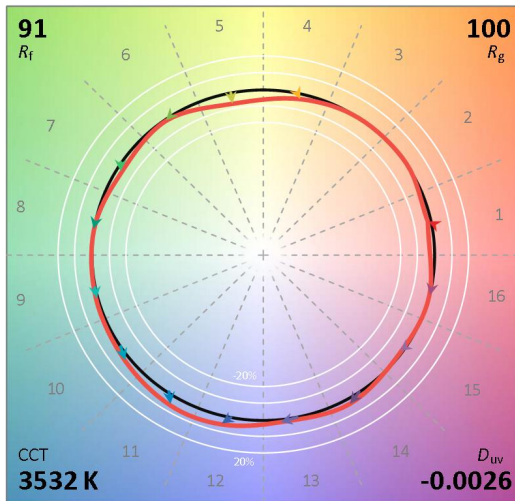
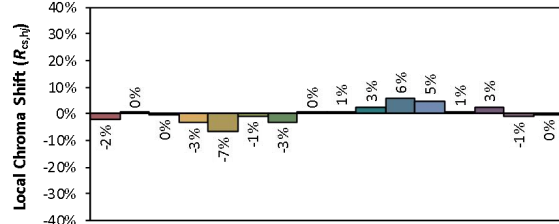
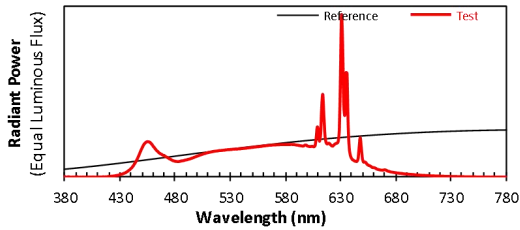
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-08-16

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



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

x 0.4009
 y 0.3827
 u' 0.2362
 v' 0.5072

CIE 13.3-1995
(CRI)

R_a 96
 R_g 95

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

2.5 Electrical, Photometric and Chromaticity Measurements

Test date	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 4000K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2632	29.15	0.9228	40.80

Chromaticity Measurement - Sphere-Spectroradiometer

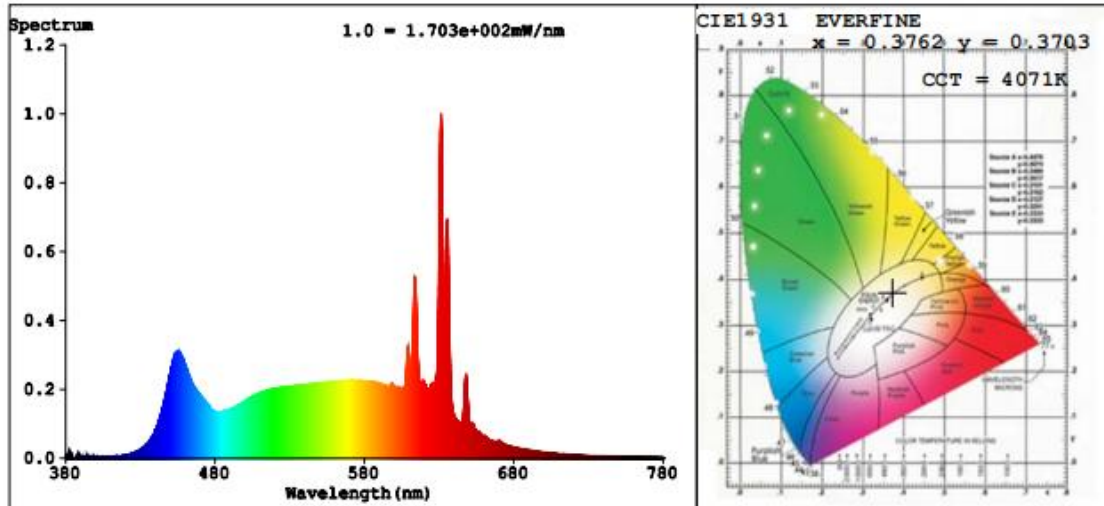
Method(Self-absorption:1.1608) (4π geometry):

Parameter	Result	Parameter	Result
Test Voltage (V)	120	Color Rendering Index (CRI)	96.2
Frequency (Hz)	60	R9	96
CCT (K)	4071	Rg	100
Duv	-0.0018	Rf	92
Chromaticity (x, y)	x=0.3762 y=0.3703	Rcs,h1(%)	-2
Chromaticity (u', v')	u'=0.2249 v'=0.4981		

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2556
Luminous Efficacy (lm/W)	87.68

Spectral Power Distribution & Chromaticity Diagram



Special Color Rendering Indices

R1 =96	R2 =97	R3 =99	R4 =97	R5 =96	R6 =94	R7 =95	
R8 =96	R9 =96	R10=97	R11=98	R12=76	R13=96	R14=98	R15=96

TM30

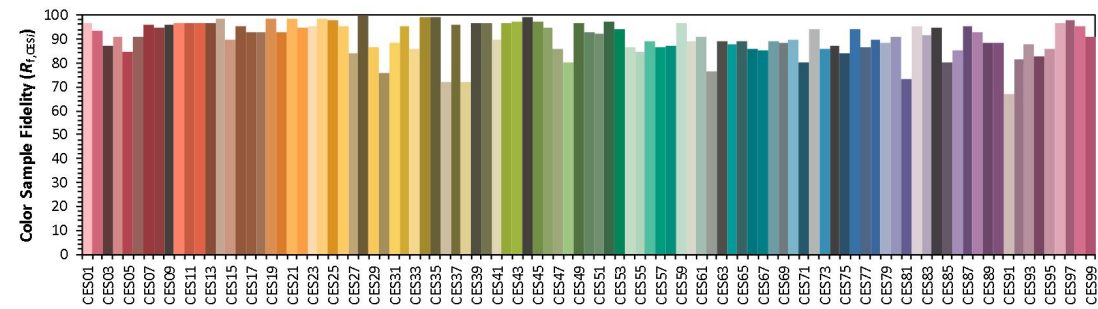
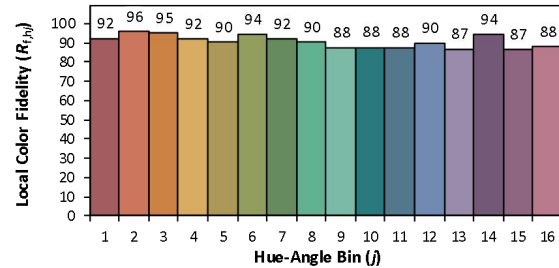
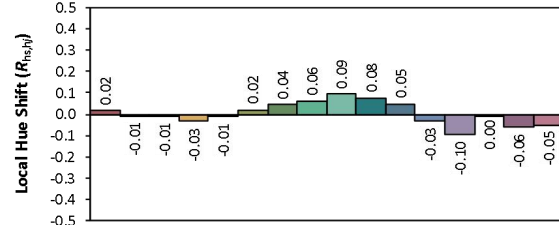
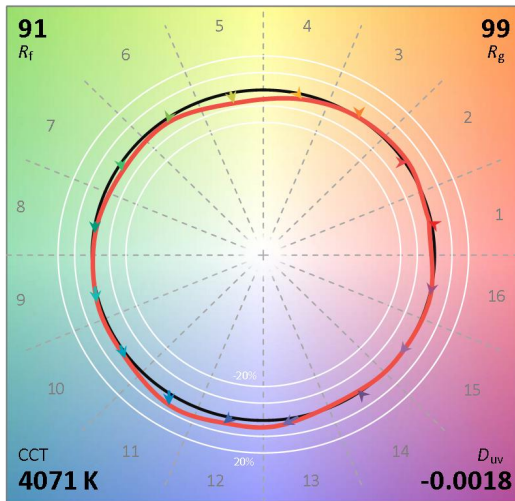
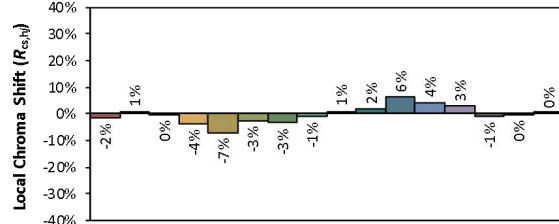
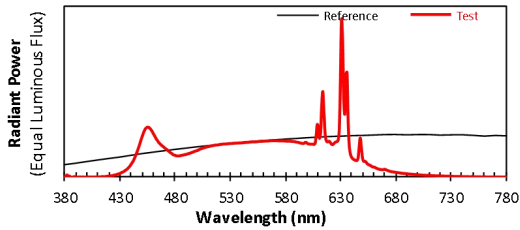
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-08-16

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



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

x 0.3762
 y 0.3702
 u' 0.2249
 v' 0.4980

CIE 13.3-1995
(CRI)

R_a 96
 R_g 97

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

2.6 Electrical, Photometric and Chromaticity Measurements

Test date	2024-08-16	Test Ambient:	25 ± 1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	ALR-36RB(mode: 5000K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD240728 NB-H1	120.0	60	0.2664	29.48	0.9220	40.87

Chromaticity Measurement - Sphere-Spectroradiometer

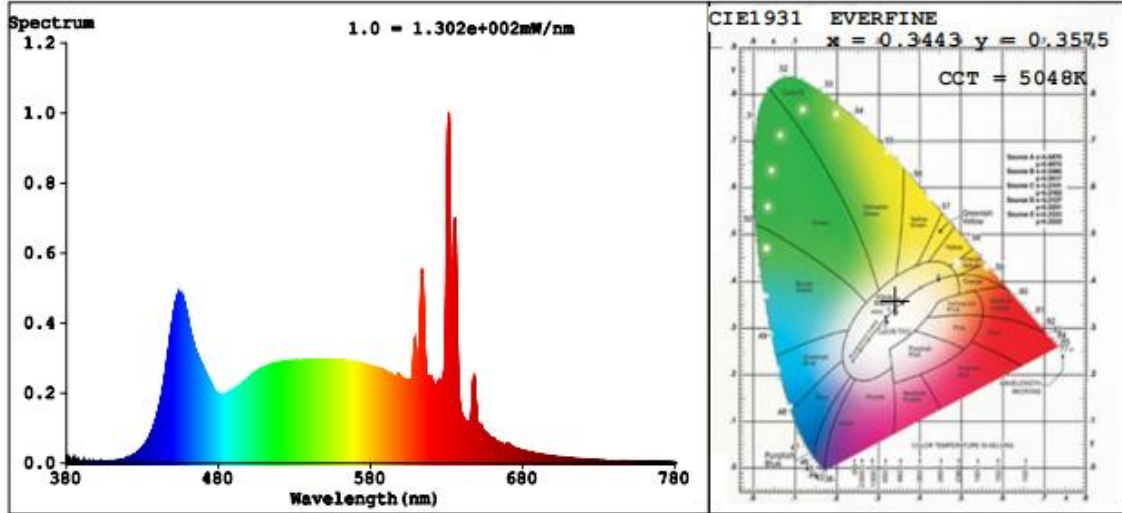
Method(Self-absorption:1.1610) (4π geometry):

Parameter	Result	Parameter	Result
Test Voltage (V)	120	Color Rendering Index (CRI)	96.4
Frequency (Hz)	60	R9	85
CCT (K)	5048	Rg	99
Duv	0.0032	Rf	92
Chromaticity (x, y)	x=0.3443 y=0.3575	Rcs,h1(%)	-4
Chromaticity (u', v')	u'=0.2086 v'=0.4874		

Photometric Measurement –Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	2519
Luminous Efficacy (lm/W)	85.45

Spectral Power Distribution & Chromaticity Diagram



Special Color Rendering Indices

R1 =98	R2 =99	R3 =98	R4 =96	R5 =96	R6 =96	R7 =95	
R8 =93	R9 =85	R10=96	R11=98	R12=74	R13=99	R14=98	R15=96

TM30

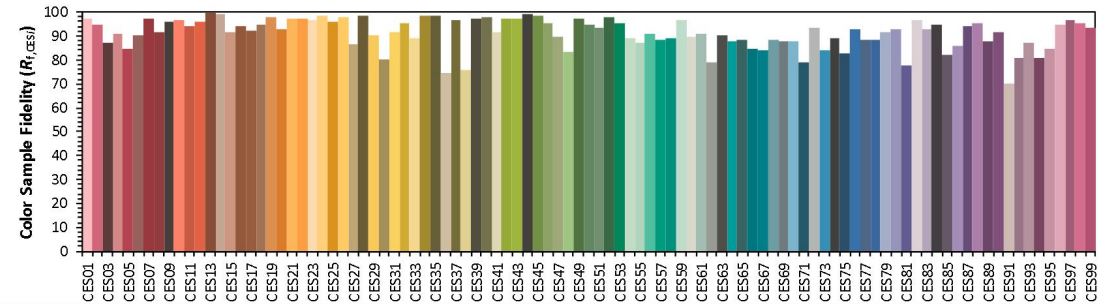
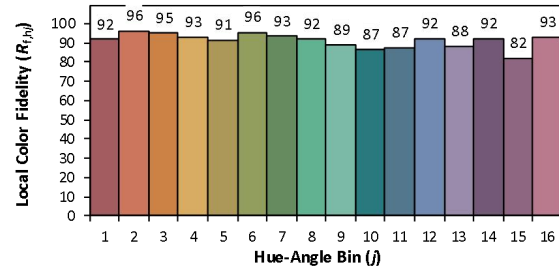
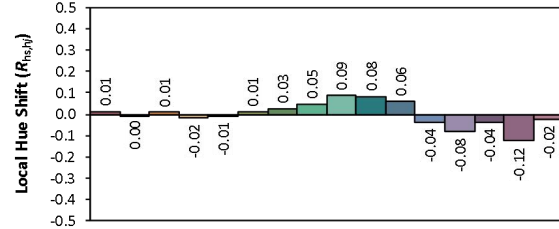
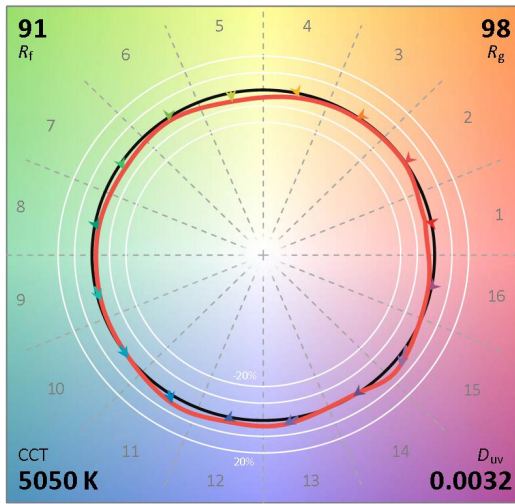
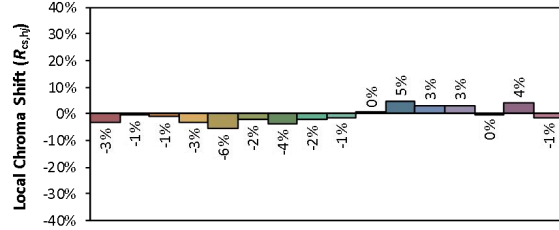
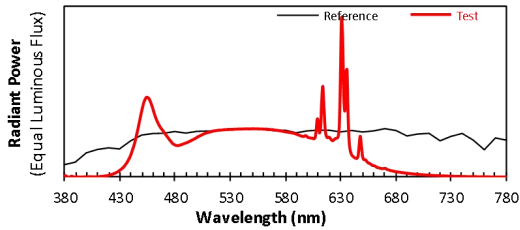
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-xx90RC35xxxxx

Manufacturer: RAB Lighting INC.

Date: 2024-08-16

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



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

x 0.3443
 y 0.3573
 u' 0.2087
 v' 0.4873

CIE 13.3-1995 (CRI)

R_a 96
 R_g 86

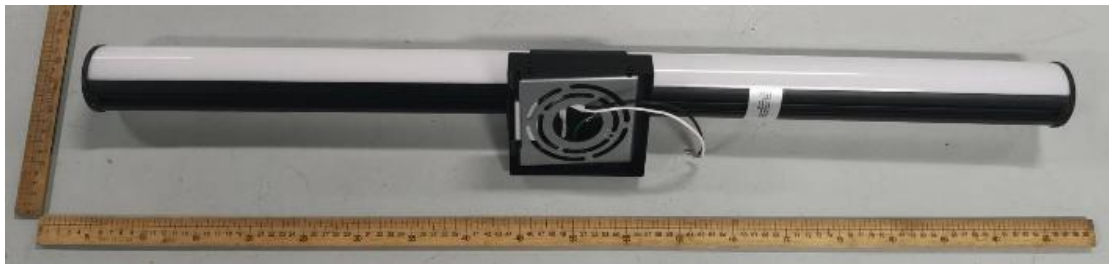
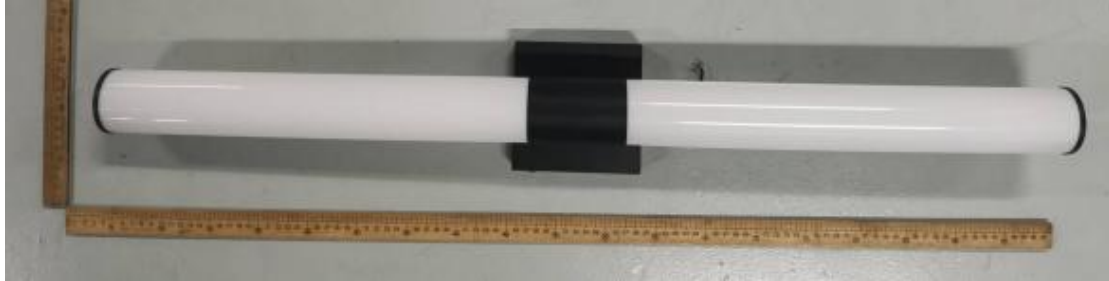
Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0



3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-S-451	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-S-455	Spectral analysis system HAAS-1200	Verified by D204 standard lamp	
ST-R-S-452	Standard Lamp D204	2023-06-26	2026-06-25
ST-R-S-453	Power Meter for Integrating Sphere	2024-05-29	2025-05-28
ST-R-S-467	Hygrothermograph	2024-06-06	2025-06-05
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp D908S	2022-07-19	2025-07-18
ST-R-357	AC Power Source	2024-01-29	2025-01-28
ST-R-S-422	Power Meter for Goniophotometer	2024-05-29	2025-05-28
ST-R-S-354	hygrothermograph for Goniophotometer	2024-05-29	2025-05-28
Uncertainty: Photometric Measurement (Sphere):2.94%, k=2 Chromaticity Measurement(Sphere):52.28K, k=2 Photometric Measurement(Goniophotometer): 2.94%, k=2			

4. Product Photo



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