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Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
Elemental LED Inc, DBA Diode LED

Wes Buck
Suite 211, 1195 Park Ave.
Emeryville, CA 94608
United States

Catalog Number
DI-24V-AV27-90XX

Order Number
10768053
Test Number
1040405

Test Date

2015-05-07 - 2015-05-08

Prepared By

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Approved By

Eric Gaudreau, Engineering Project Handler

The results contained in this report pertain only to the tested sample.
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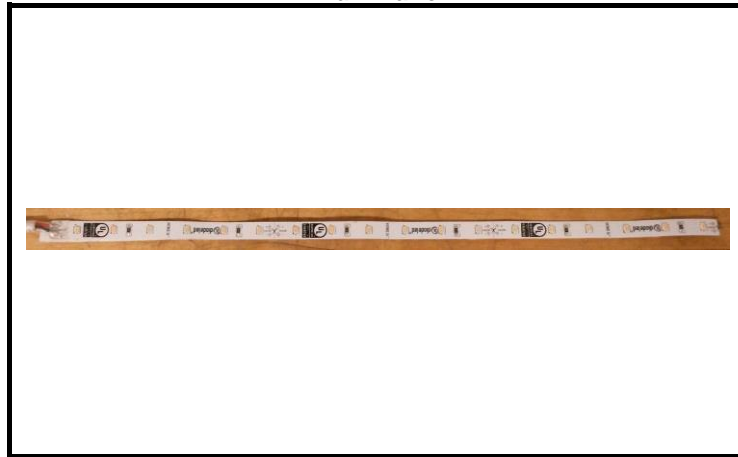
Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: LED strip
Lamp: 18 white LEDs
Mounting: Surface

Luminaire



Luminaire Characteristics

Luminous Length: 12.00 in.
Luminous Width: 0.2500 in.

Summary of Results

Integrating Sphere

Luminous Flux: 162 Lumens
Efficacy: 67.7 lm/w
CCT: 2598 K
CRI (Ra): 91.9

Distribution

Total Luminaire Output: 156.2 Lumens
Luminaire Efficacy: 65.7 lm/w
Maximum Candela: 53 Candela

Electrical Data at 24 VDC

Test Temperature: 24.4 °C
Voltage: 24.00 VDC
Current: 0.09975 A
Power: 2.393 W



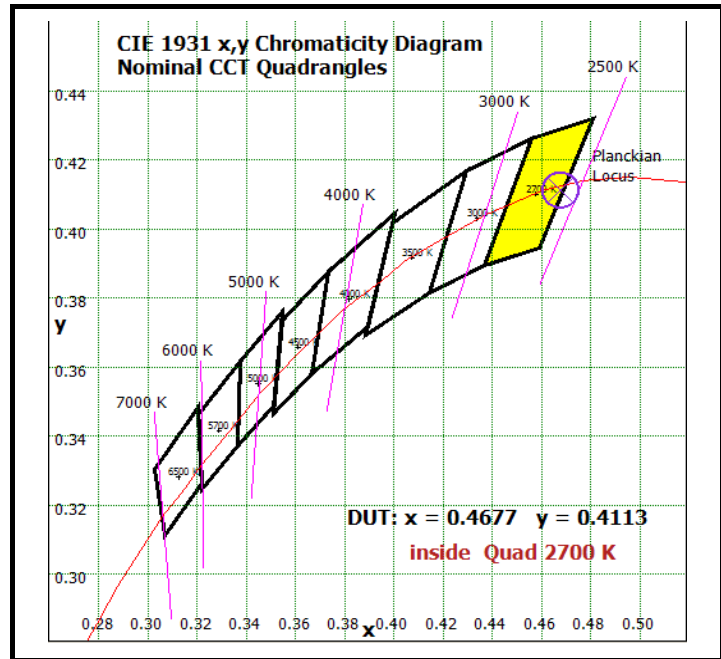
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.4 °C	24.00 VAC	0.09975 A	2.393 W	N/A	N/A	N/A

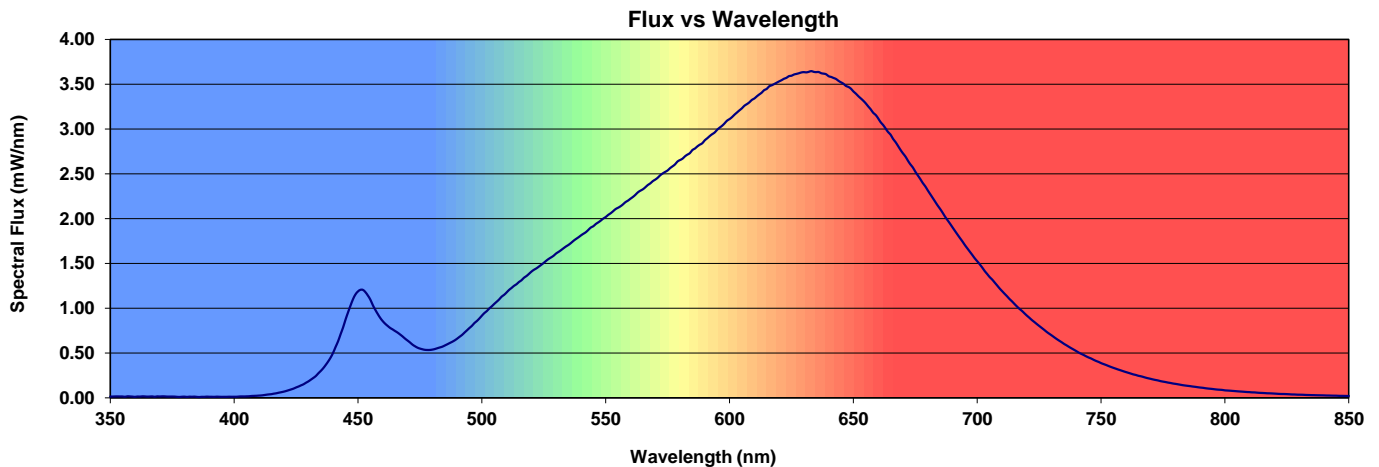
Summary of Results

Total Output:	162 Lumens
Efficacy:	67.7 lm/w
CCT:	2598 K
CRI (Ra):	91.9
CRI (R9):	63.9
Chromaticity (x):	0.4677
Chromaticity (y):	0.4113
Chromaticity (u):	0.2672
Chromaticity (v):	0.3525
Chromaticity (u')	0.2672
Chromaticity (v')	0.5288
Duv:	-0.0005



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
91.9	91.8	95.0	96.3	91.4	90.9	93.4	92.9	83.4	63.9	87.2	91.0	81.1	92.4	97.0





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	24.00 VDC	0.09909 A	2.378 W	N/A	N/A	N/A

Summary of Results

Spacing Criteria

0-180: 1.27
90-270: 1.27

Total Lumen Output:

156.2 Lumens

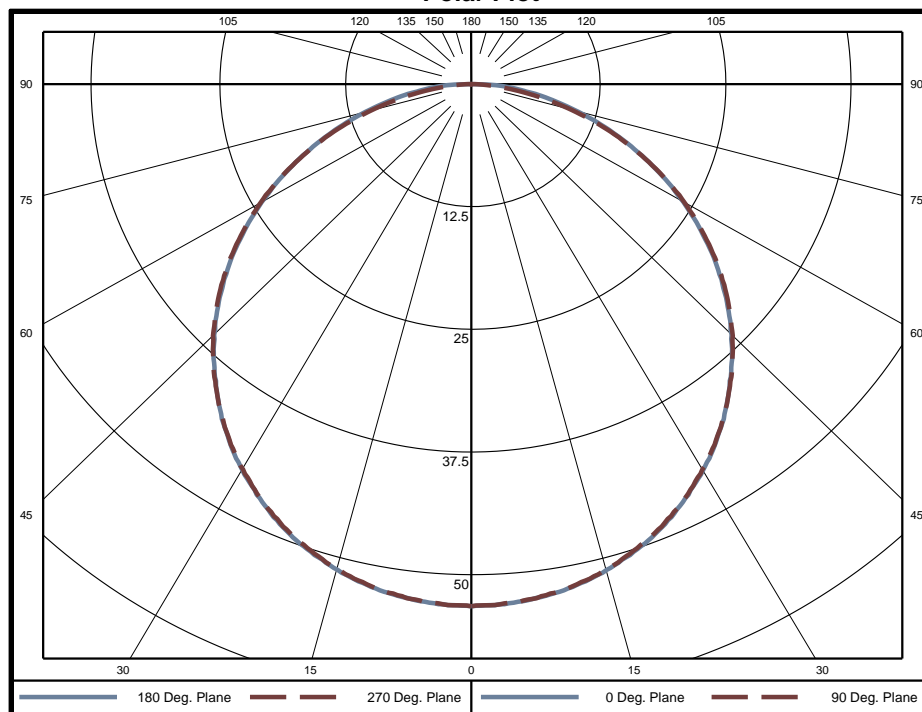
Luminaire Efficacy:

65.7 lm/w

Maximum Candela:

53 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.27	0.8%	60-65	10.65	6.8%	120-125	0	0.0%
5-10	3.77	2.4%	65-70	8.79	5.6%	125-130	0	0.0%
10-15	6.15	3.9%	70-75	6.70	4.3%	130-135	0	0.0%
15-20	8.33	5.3%	75-80	4.56	2.9%	135-140	0	0.0%
20-25	10.23	6.5%	80-85	2.61	1.7%	140-145	0	0.0%
25-30	11.81	7.6%	85-90	1.13	0.7%	145-150	0	0.0%
30-35	13.00	8.3%	90-95	0.13	0.1%	150-155	0	0.0%
35-40	13.75	8.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	14.05	9.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	13.89	8.9%	105-110	0	0.0%	165-170	0	0.0%
50-55	13.25	8.5%	110-115	0	0.0%	170-175	0	0.0%
55-60	12.15	7.8%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	68	43.7%
0-60	110	77.9%
0-90	156	99.9%
90-180	0	0.1%



Candela Tabulation
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)															
	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	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23	53.23
5	52.96	53.12	52.95	53.09	53.01	53.09	52.95	53.12	52.96	53.12	52.95	53.09	53.01	53.09	52.95	53.12
10	52.39	52.43	52.27	52.45	52.33	52.45	52.27	52.43	52.39	52.43	52.27	52.45	52.33	52.45	52.27	52.43
15	51.27	51.35	51.15	51.38	51.19	51.38	51.15	51.35	51.27	51.35	51.15	51.38	51.19	51.38	51.15	51.35
20	49.84	49.85	49.64	49.85	49.70	49.85	49.64	49.85	49.84	49.85	49.64	49.85	49.70	49.85	49.64	49.85
25	47.82	47.86	47.72	47.93	47.77	47.93	47.72	47.86	47.82	47.86	47.72	47.93	47.77	47.93	47.72	47.86
30	45.48	45.55	45.40	45.59	45.35	45.59	45.40	45.55	45.48	45.55	45.40	45.59	45.35	45.59	45.40	45.55
35	42.73	42.80	42.71	42.88	42.69	42.88	42.71	42.80	42.73	42.80	42.71	42.88	42.69	42.88	42.71	42.80
40	39.49	39.72	39.62	39.83	39.55	39.83	39.62	39.72	39.49	39.72	39.62	39.83	39.55	39.83	39.62	39.72
45	36.15	36.24	36.18	36.35	36.29	36.35	36.18	36.24	36.15	36.24	36.18	36.35	36.29	36.35	36.18	36.24
50	32.30	32.51	32.41	32.62	32.53	32.62	32.41	32.51	32.30	32.51	32.41	32.62	32.53	32.62	32.41	32.51
55	28.32	28.41	28.37	28.58	28.49	28.58	28.37	28.41	28.32	28.41	28.37	28.58	28.49	28.58	28.37	28.41
60	24.07	24.14	24.07	24.27	24.17	24.27	24.07	24.14	24.07	24.14	24.07	24.27	24.17	24.27	24.07	24.14
65	19.60	19.63	19.61	19.75	19.57	19.75	19.61	19.63	19.60	19.63	19.61	19.75	19.57	19.75	19.61	19.63
70	15.13	15.16	15.04	15.04	14.93	15.04	15.04	15.16	15.13	15.16	15.04	15.04	14.93	15.04	15.04	15.16
75	10.87	10.80	10.62	10.43	10.23	10.43	10.62	10.80	10.87	10.80	10.62	10.43	10.23	10.43	10.62	10.80
80	7.06	6.93	6.60	6.16	5.81	6.16	6.60	6.93	7.06	6.93	6.60	6.16	5.81	6.16	6.60	6.93
85	3.77	3.91	3.36	2.73	2.29	2.73	3.36	3.91	3.77	3.91	3.36	2.73	2.29	2.73	3.36	3.91
90	0.21	1.51	1.16	0.69	0.39	0.69	1.16	1.51	0.21	1.51	1.16	0.69	0.39	0.69	1.16	1.51
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	27500	27500	27500
45	26420	26440	26510
55	25510	25550	25660
65	23960	23970	23930
75	21700	21200	20410
85	22370	19940	13550



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%

Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	186	186	186	186	182	182	182	182	173	173	173	166	166	166	159	159	159	156
1	169	162	155	149	165	158	152	146	151	146	141	145	141	137	140	136	133	130
2	154	141	130	120	150	138	128	119	132	124	116	127	120	114	122	116	111	108
3	140	123	110	100	136	121	109	99	116	106	97	112	103	95	108	100	94	90
4	128	109	95	84	124	107	94	84	103	92	83	99	89	81	96	87	80	77
5	118	97	83	72	114	95	82	72	92	80	71	89	79	70	86	77	70	66
6	109	87	73	63	106	86	73	63	83	71	62	80	70	62	78	68	61	58
7	101	79	65	56	98	78	65	55	75	64	55	73	63	55	71	61	54	51
8	94	72	59	50	91	71	58	49	69	57	49	67	56	49	65	56	48	45
9	87	66	53	45	85	65	53	44	63	52	44	62	51	44	60	51	44	41
10	82	61	49	40	80	60	48	40	59	48	40	57	47	40	56	46	40	37

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
1.00	53.2	1.27
2.00	13.3	2.54
3.00	5.91	3.81
4.00	3.33	5.08
6.00	1.48	7.62
8.00	0.832	10.2
10.0	0.532	12.7

Cone of Light Plot

