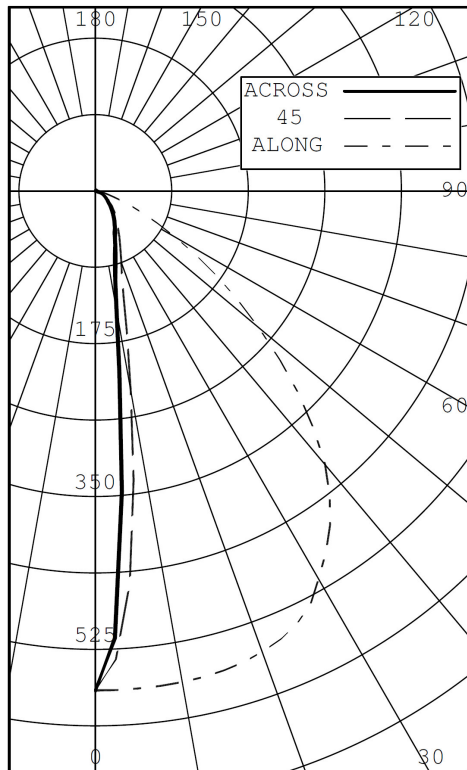




### INDEPENDENT TEST LABORATORY REPORT No. 28334

ELECTRIX INC - LINEAR LED W/5 DEGREE OPTIC LUMINAIRE, CAT# L100-07-36-W3-5  
WITH WHITE BOARD AND FLAT PLASTIC CLEAR CENTER W/FROSTED EDGES LENS  
36 LEDS. LUMINAIRE OUTPUT = 335 LMS.  
ONE DRIVER OPERATING AT 24.0 VDC AND 20.5 WATTS



INTENSITY (CANDLEPOWER) SUMMARY						OUTPUT LUMENS
ANGLE	ALONG	22.5	45	67.5	ACROSS	
0	572	572	572	572	572	
5	572	538	451	377	346	38
10	571	437	233	158	138	
15	569	300	124	94	88	60
20	561	192	86	71	66	
25	546	123	67	55	53	63
30	511	84	53	46	44	
35	467	63	42	38	36	62
40	408	49	35	31	30	
45	329	39	29	25	24	52
50	245	31	23	20	19	
55	170	25	18	16	15	34
60	105	21	14	13	13	
65	60	17	11	10	10	18
70	31	13	7	7	8	
75	15	8	5	5	5	8
80	6	4	3	3	3	
85	2	1	1	1	1	1
90	0	0	0	0	0	

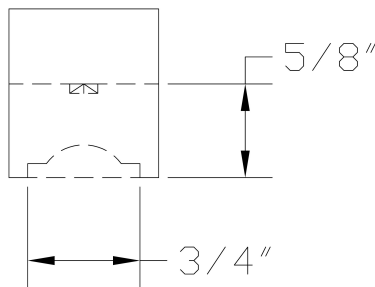
#### ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	161	47.98
0-40	222	66.37
0-60	308	91.93
0-90	335	100.00
40-90	113	33.63
60-90	27	8.07
90-180	0	0.00
0-180	335	100.00

EFFICACY (LUMENS PER WATT): 16.4

\*\*\* THIS IS AN ABSOLUTE TEST \*\*\*

LUMINOUS LENGTH: 35.500 INS  
WIDTH: 0.750 INS



#### LUMINANCE SUMMARY CD./SQ.M.

ANGLE	ALONG	45	ACROSS
45	27065	2371	1979
55	17213	1859	1574
65	8271	1451	1382
75	3362	1092	1151
85	1035	435	536

S/MH: 0.2  
SC(ALONG): 1.3, SC(ACROSS): 0.2

CERTIFIED BY:

*Rupak Samy*

DATE:  
FEB 17, 2011

PREPARED FOR:

ELECTRIX INC  
NEW HAVEN, CT

LIGHTING SCIENCES, INC.  
7826 E. EVANS RD.  
SCOTTSDALE, AZ, USA 85260

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INTENSITY (CANDLEPOWER) DATA  
IN 2.5 DEGREE STEPS

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	22.5	45	67.5	ACROSS	AVERAGE	
0.0	572	572	572	572	572	572	
2.5	572	566	537	518	513	541	
5.0	572	538	451	377	346	456	38
7.5	572	496	334	239	209	365	
10.0	571	437	233	158	138	296	
12.5	570	369	167	115	105	247	
15.0	569	300	124	94	88	212	60
17.5	566	241	100	81	76	186	
20.0	561	192	86	71	66	165	
22.5	555	153	75	62	58	149	
25.0	546	123	67	55	53	136	63
27.5	533	100	59	50	48	125	
30.0	511	84	53	46	44	115	
32.5	490	72	47	42	40	106	
35.0	467	63	42	38	36	99	62
37.5	440	55	39	35	33	91	
40.0	408	49	35	31	30	84	
42.5	369	43	32	28	27	75	
45.0	329	39	29	25	24	67	52
47.5	287	34	26	23	21	59	
50.0	245	31	23	20	19	51	
52.5	205	28	21	18	17	44	
55.0	170	25	18	16	15	38	34
57.5	136	23	16	14	14	32	
60.0	105	21	14	13	13	26	
62.5	80	19	12	11	11	22	
65.0	60	17	11	10	10	18	18
67.5	44	15	9	9	9	15	
70.0	31	13	7	7	8	12	
72.5	22	10	6	6	6	9	
75.0	15	8	5	5	5	7	8
77.5	10	6	4	4	4	5	
80.0	6	4	3	3	3	4	
82.5	4	3	2	2	2	2	
85.0	2	1	1	1	1	1	1
87.5	0	0	0	0	0	0	
90.0	0	0	0	0	0	0	

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AVERAGE LUMINANCE DATA

CD./SQ.M (FOOTLAMBERTS)

ANGLE	ALONG	22.5	45	67.5	ACROSS
0	33291 ( 9716)	33291 ( 9716)	33291 ( 9716)	33291 ( 9716)	33291 ( 9716)
30	34377 ( 10033)	5652 ( 1649)	3545 ( 1034)	3099 ( 904)	2954 ( 862)
40	31002 ( 9048)	3718 ( 1085)	2677 ( 781)	2388 ( 697)	2268 ( 662)
45	27065 ( 7899)	3181 ( 928)	2371 ( 692)	2093 ( 610)	1979 ( 577)
50	22161 ( 6468)	2804 ( 818)	2097 ( 612)	1825 ( 532)	1716 ( 500)
55	17213 ( 5024)	2542 ( 741)	1859 ( 542)	1603 ( 467)	1574 ( 459)
60	12167 ( 3551)	2406 ( 702)	1643 ( 479)	1459 ( 425)	1461 ( 426)
65	8271 ( 2414)	2323 ( 678)	1451 ( 423)	1340 ( 391)	1382 ( 403)
70	5319 ( 1552)	2152 ( 628)	1271 ( 371)	1245 ( 363)	1285 ( 375)
75	3362 ( 981)	1851 ( 540)	1092 ( 318)	1117 ( 326)	1151 ( 336)
80	2095 ( 611)	1447 ( 422)	875 ( 255)	906 ( 264)	938 ( 273)
85	1035 ( 302)	737 ( 215)	435 ( 127)	469 ( 136)	536 ( 156)

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COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC WALL	90				80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR	0	1.221	.221	.221	.22	1.191	.191	.191	.19	1.161	.161	.161	.16	1.111	.111	.111	1.061	.061	.06	1.021	.021	.02	1.00			
	1	1.151	.111	.081	.05	1.121	.091	.061	.04	1.101	.071	.041	.02	1.031	.010	.99	0.990	.980	.96	0.960	.940	.93	0.91			
	2	1.081	.020	.970	.93	1.061	.000	.960	.92	1.040	.980	.940	.91	0.950	.920	.89	0.920	.890	.87	0.890	.870	.85	0.83			
	3	1.010	.930	.870	.82	0.990	.920	.860	.82	0.970	.910	.850	.81	0.880	.840	.80	0.860	.820	.79	0.830	.800	.77	0.76			
	4	0.960	.860	.800	.75	0.940	.850	.790	.74	0.920	.840	.780	.74	0.820	.770	.73	0.800	.750	.72	0.780	.740	.71	0.69			
	5	0.900	.800	.730	.67	0.880	.790	.720	.67	0.860	.780	.710	.67	0.760	.700	.66	0.740	.690	.66	0.720	.680	.65	0.63			
	6	0.850	.740	.670	.62	0.830	.730	.660	.61	0.810	.720	.660	.61	0.700	.650	.61	0.690	.640	.60	0.680	.630	.60	0.58			
	7	0.790	.680	.610	.57	0.780	.670	.610	.56	0.770	.670	.600	.56	0.650	.590	.55	0.640	.590	.55	0.630	.580	.55	0.53			
	8	0.750	.640	.570	.52	0.740	.630	.560	.52	0.720	.620	.560	.51	0.610	.550	.51	0.600	.550	.51	0.590	.540	.51	0.49			
	9	0.710	.590	.520	.47	0.690	.590	.520	.47	0.680	.580	.520	.47	0.570	.510	.47	0.560	.510	.47	0.550	.500	.47	0.45			
	10	0.670	.550	.480	.44	0.660	.550	.480	.44	0.640	.540	.480	.44	0.530	.480	.44	0.530	.470	.43	0.520	.470	.43	0.42			

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS  
 BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN.  
 LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD  
 THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LUMINAIRE INPUT WATTS 20.5

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.  
 BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST  
 LUMINOUS OPENING OF LUMINAIRE.

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**ELECTRICAL MEASUREMENTS**

INPUT VOLTAGE:	24.0	VOLTS DC
INPUT CURRENT:	0.854	AMPS
INPUT POWER:	20.5	WATTS
POWER FACTOR:	N/A	PERCENT
TOTAL HARMONIC DISTORTION:	N/A	PERCENT
OFF STATE POWER:	0.00	WATTS

**LIGHT OUTPUT**

LUMENS:	335	lm
EFFICACY:	16.3	lm/W

**SPECTRAL MEASUREMENTS**

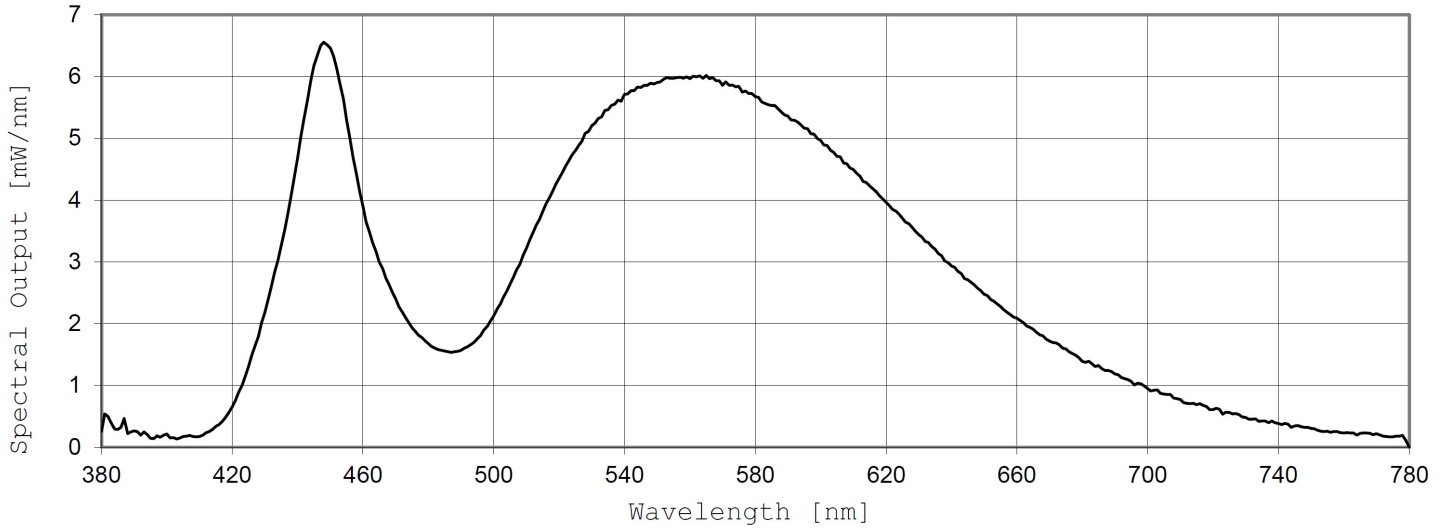
X:	0.4281	
y:	0.4060	
u/u':	0.2441	
v:	0.3472	
v':	0.5208	
Duv:	0.0020	
CRI (R <sub>a</sub> ):	77.8	
CRI (R <sub>g</sub> ):	9.5	
CCT:	3168	K
RADIANT FLUX:	1005	mW

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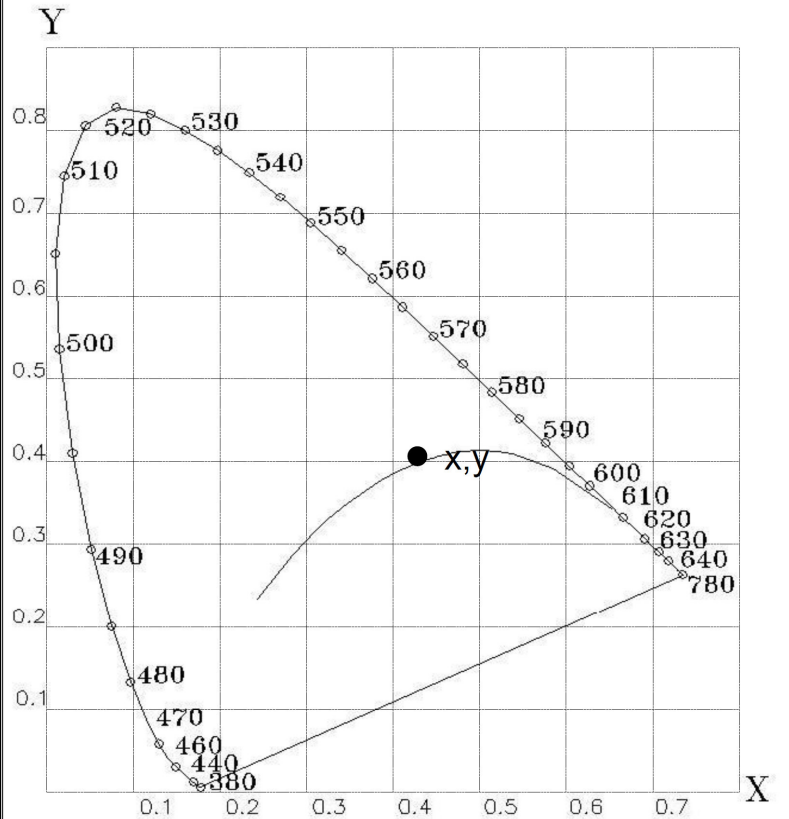
Spectral Power Distribution



Tabulated Spectral Power Distribution

Wavelength [nm]	[mW/nm]	Wavelength [nm]	[mW/nm]
380	0.25678	590	5.35713
390	0.26703	600	4.96470
400	0.21106	610	4.49600
410	0.17475	620	3.96342
420	0.65477	630	3.44346
430	2.17195	640	2.93417
440	4.67908	650	2.47679
450	6.45816	660	2.08671
460	3.90169	670	1.71692
470	2.39754	680	1.39370
480	1.67505	690	1.18349
490	1.56610	700	0.95278
500	2.12025	710	0.77333
510	3.22107	720	0.60627
520	4.34753	730	0.48002
530	5.20417	740	0.38325
540	5.70983	750	0.30250
550	5.90487	760	0.22944
560	5.96789	770	0.21790
570	5.85766	780	0.00000
580	5.67565		

CIE 1931 Chromaticity Diagram



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PARTIAL LUMINOUS OPENING



END VIEW



**All testing was conducted in accordance with LM-79-08,**

Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products as published by the Illuminating Engineering Society of North America (IESNA).

The condition of the item tested was new. Stabilization time before testing exceeded 16 hours.

The test results (luminous distribution and flux) were obtained by using a Lighting Sciences series 6000 Type C Moving Mirror Goniophotometer

- The photometric reference standard used is a set of three incandescent luminous intensity standard lamps calibrated and traceable to the U.S. National Institute of Standards and Technology.

The test results (colorimetric and luminous flux) were obtained by using a Lighting Sciences model 4000 Integrating Sphere of either 1 or 2 meters diameter, having an internal reflectance exceeding 0.80.  $4\pi$  geometry was used. Correction factors were applied for spectral mismatch and self-absorption. The spectroradiometer employed was a LSC model 500E having a bandwidth of .84.

- The photometric reference standard used is a set of three incandescent luminous flux standard lamps calibrated and traceable to the U.S. National Institute of Standards and Technology.
- The colorimetric reference standard used is an incandescent spectral standard lamp calibrated and traceable to the U.S. National Institute of Standards and Technology.

Power measurements were obtained with a Yokogawa WT210 power analyzer.

Ambient temperature during testing was  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , measured using an Omega model DP460.

Calibration certificates are on file at the laboratories of Lighting Sciences Inc.