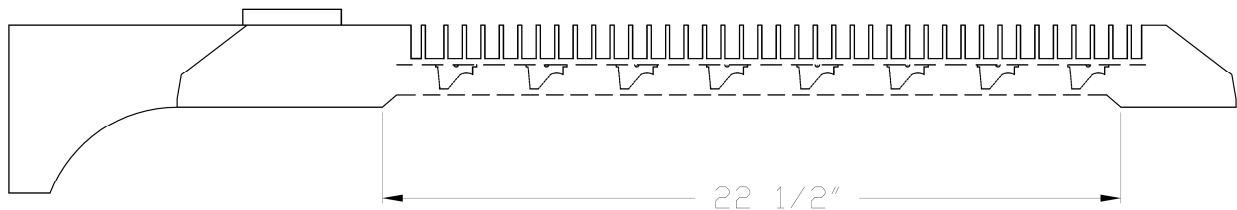




INDEPENDENT TEST LABORATORY REPORT No. 28221

SOLAR OUTDOOR LIGHTING - LED ROADWAY LUMINAIRE  
WITH ALUMINUM INTERIOR AND CLEAR GLASS FLAT LENS  
FORTY EIGHT LEDS WITH PLASTIC DIRECTIONAL LENSES. LUMINAIRE OUTPUT: 5741 Lms.  
LUMINAIRE OPERATING AT 12.5 VDC AND 99.4 WATTS - HIGHER LUMEN LEDS



PREPARED FOR:

SOLAR OUTDOOR LIGHTING INC  
PALM CITY, FL

DATE: DEC 8, 2010

CERTIFIED BY:

ALL TESTING WAS CONDUCTED IN ACCORDANCE WITH LM-79-08.  
LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.  
BALLAST FACTORS HAVE NOT BEEN APPLIED

TESTED IN 30 PLANES LEFT SIDE, 30 PLANES RIGHT SIDE, LEFT AND RIGHT AVERAGED

VERTICAL TEST INCREMENTS ARE 2.5 DEGREES.

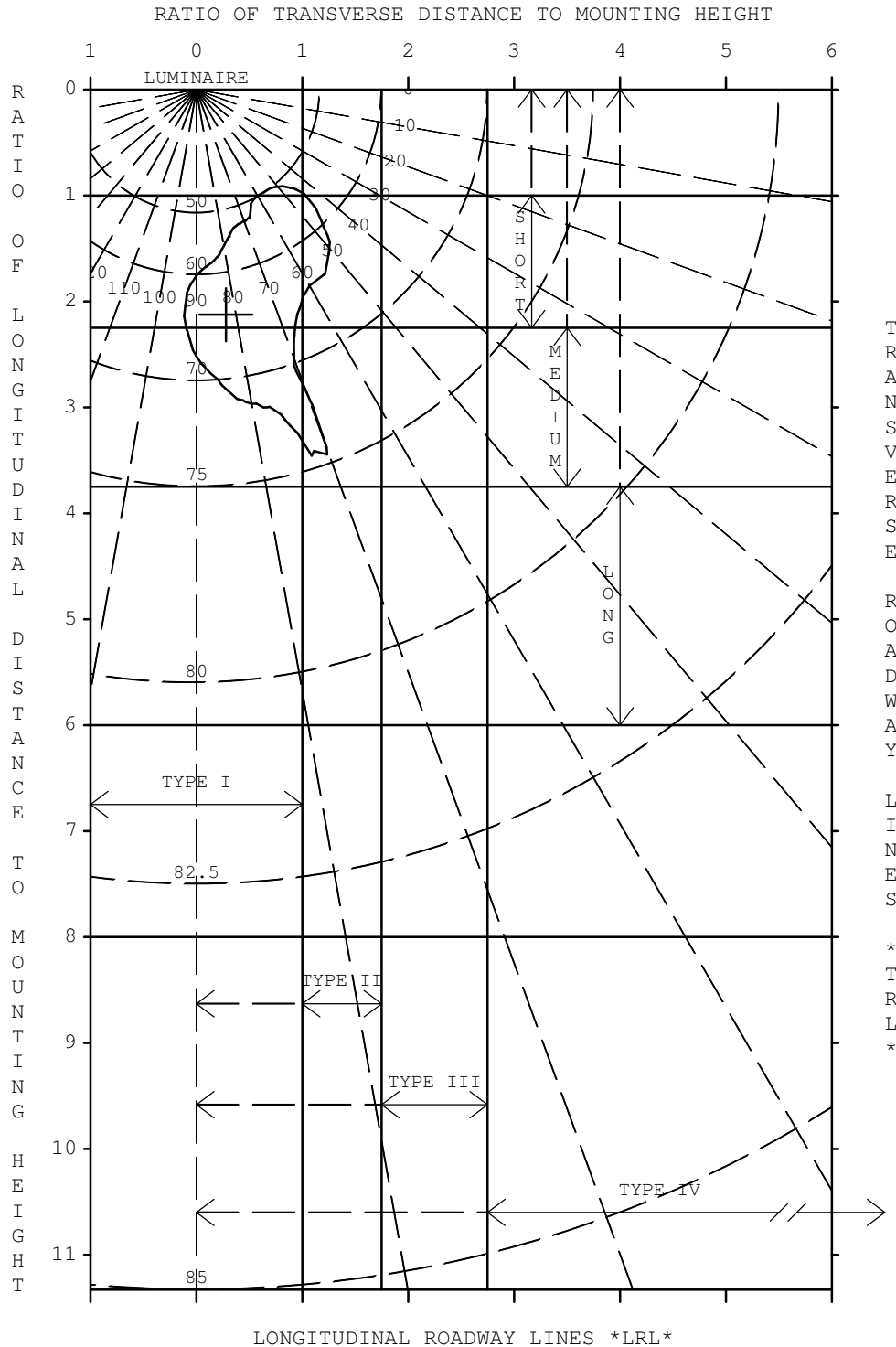
TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST  
LUMINOUS OPENING OF LUMINAIRE.

# LIGHTING SCIENCES, INC.

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SCOTTSDALE, AZ, USA 85260

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NOTE:  
CONTOUR LINE  
IS FOR 50%  
OF THE MAXIMUM  
INTENSITY

IES ROADWAY CLASSIFICATION: TYPE II, SHORT

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

UTILIZATION TABLE

CO-EFFICIENT OF UTILIZATION

RATIO	HOUSE SIDE	STREET SIDE	TOTAL
0.5	0.108	0.244	0.351
1.0	0.167	0.529	0.696
1.5	0.204	0.677	0.881
2.0	0.224	0.720	0.944
2.5	0.234	0.731	0.965
3.0	0.241	0.735	0.975
3.5	0.246	0.737	0.983
4.0	0.248	0.738	0.986
5.0	0.252	0.740	0.992
TOTAL:	0.257	0.743	1.000
PERCENT:	25.7	74.3	100.0

EFFICACY (LUMENS PER WATT) 57.8

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

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ZONAL LUMEN SUMMARY PER IES PUBLICATION TM-15-07

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

FORWARD LIGHT:

LUMENS	4263.1
% LUMENS	74.3 %
FORWARD LOW ZONE (0 TO 30 DEGREES)	6.6 %
FORWARD MID ZONE (30 TO 60 DEGREES)	41.9 %
FORWARD HIGH ZONE (60 TO 80 DEGREES)	25.1 %
FORWARD VERY HIGH ZONE (80 TO 90 DEGREES)	0.7 %

BACK LIGHT:

LUMENS	1478.1
% LUMENS	25.7 %
BACK LIGHT LOW ZONE (0 TO 30 DEGREES)	4.1 %
BACK LIGHT MID ZONE (30 TO 60 DEGREES)	12.3 %
BACK LIGHT HIGH ZONE (60 TO 80 DEGREES)	8.7 %
BACK LIGHT VERY HIGH ZONE (80 TO 90 DEGREES)	0.6 %

UPLIGHT:

LUMENS	0.0
% LUMENS	0.0 %
UPLIGHT LOW ZONE (90 TO 100 DEGREES)	0.0 %
UPLIGHT HIGH ZONE (100 TO 180 DEGREES)	0.0 %

TRAPPED LIGHT: NOT APPLICABLE TO AN ABSOLUTE TEST

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IES "BUG" RATING (BACK LIGHT, UPLIGHT, GLARE)  
PER ADDENDUM TO IES TM-15-07

	LUMENS	SECONDARY SOLID ANGLE RATING
BACK LIGHT		
BH (60-80 DEGREES)	499.4	B1
BM (30-60 DEGREES)	705.0	B1
BL (0-30 DEGREES)	236.9	B1
UPLIGHT		
UH (100-180 DEGREES)	0.0	U0
UL (90-100 DEGREES)	0.0	U0
FVH (80-90 DEGREES)	37.9	U1
BVH (80-90 DEGREES)	36.9	U1
GLARE LIGHT		
FVH (80-90 DEGREES)	37.9	G1
BVH (80-90 DEGREES)	36.9	G1
FH (60-80 DEGREES)	1442.7	G1
BH (60-80 DEGREES)	499.4	G1

IES BUG RATING: B1 U1 G1

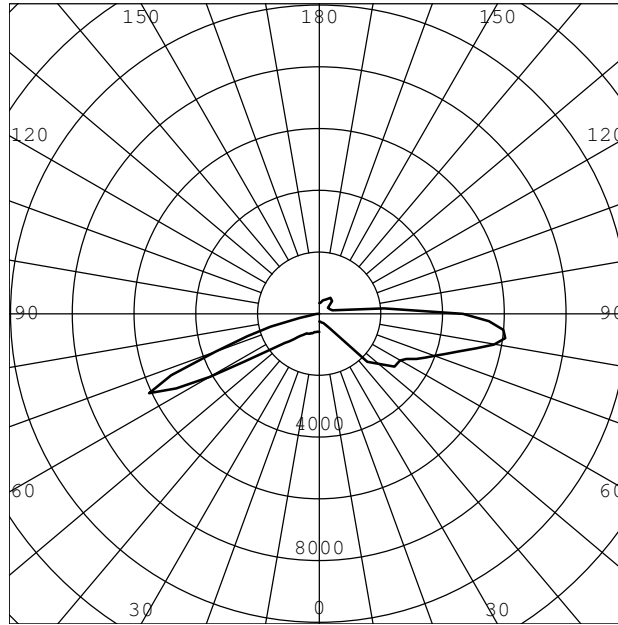
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INTENSITY (CANDLEPOWER)  
 IN MAX. PLANE

ANGLE	CANDLEPOWER
0.0	598
5.0	593
10.0	611
15.0	629
20.0	673
25.0	717
30.0	755
35.0	805
40.0	924
45.0	1167
50.0	1478
52.5	1787
55.0	2220
57.5	2912
60.0	4095
62.5	5240
65.0	6085
67.5	5212
70.0	3556
72.5	2454
75.0	1641
77.5	671
80.0	269
82.5	147
85.0	65
87.5	6
90.0	0



INTENSITY (CANDLEPOWER)  
 IN MAX. CONE

ANGLE	CANDLEPOWER
0.0	250
5.0	263
15.0	295
25.0	334
35.0	551
45.0	2209
55.0	2989
60.0	3029
62.5	3184
65.0	3476
67.5	3710
70.0	3995
72.5	4318
75.0	4710
77.5	5201
80.0	5761
82.5	6085
85.0	5990
87.5	5506
90.0	4653
95.0	2111
105.0	448
115.0	382
125.0	355
135.0	597
145.0	649
155.0	527
165.0	458
175.0	369
180.0	354

MAXIMUM INTENSITY (CANDLEPOWER): 6085 CD  
 PLANE OF MAXIMUM: 82.5  
 VERTICAL ANGLE OF MAXIMUM: 65.0

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INTENSITY (CANDLEPOWER) SUMMARY

VERT. ANGLE	HORIZONTAL ANGLES - STREET SIDE										
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	82.5 ****	85.0
0.0	598	598	598	598	598	598	598	598	598	598	598
5.0	610	613	613	613	609	606	604	600	595	593	592
10.0	693	698	691	680	666	651	641	626	620	611	607
15.0	861	866	844	813	775	733	697	674	650	629	623
20.0	1074	1077	1036	1006	951	866	777	719	720	673	655
25.0	1281	1285	1247	1232	1180	1089	956	808	777	717	681
30.0	1509	1503	1474	1500	1471	1401	1218	955	804	755	704
35.0	1815	1805	1805	1850	1866	1766	1532	1151	877	805	733
40.0	2191	2174	2243	2354	2385	2197	1840	1412	1031	924	839
45.0	2206	2157	2397	2731	2845	2662	2217	1953	1505	1167	1047
50.0	1753	1725	1931	2314	2779	2814	3198	2996	2162	1478	1275
55.0	1327	1305	1470	1797	2062	3143	3839	3355	3645	2220	1927
60.0	653	643	694	949	1434	2917	3696	3747	4953	4095	3738
65.0**	250	263	295	334	551	2209	2989	3476	4710	6085	5990
70.0	154	155	175	212	251	796	1377	1995	3393	3556	3208
75.0	79	81	109	145	148	181	307	1986	2760	1641	944
80.0	30	34	48	61	54	50	92	922	1076	269	198
85.0	3	4	6	7	6	4	9	44	111	65	48
90.0	0	0	0	0	0	0	0	0	0	0	0

VERT. ANGLE	HORIZONTAL ANGLES - HOUSE SIDE										
	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
0.0	598	598	598	598	598	598	598	598	598	598	598
5.0	595	594	594	596	601	607	612	617	619	619	618
10.0	611	610	611	620	625	616	600	591	584	583	581
15.0	622	619	622	639	622	598	567	532	504	493	490
20.0	642	638	645	652	616	532	466	450	446	441	442
25.0	652	654	667	648	518	546	507	515	489	481	480
30.0	655	660	665	557	502	578	512	581	627	644	647
35.0	650	632	642	466	463	469	584	701	701	695	692
40.0	730	685	589	455	441	472	637	689	682	687	691
45.0	913	787	562	419	418	556	644	664	673	668	662
50.0	981	778	546	404	428	652	702	677	652	611	598
55.0	1491	1024	595	406	449	721	743	692	610	569	553
60.0	2874	1539	557	407	429	741	760	637	524	451	430
65.0**	4653	2111	448	382	355	597	649	527	458	369	354
70.0	2025	940	317	302	290	483	523	497	401	314	302
75.0	472	548	216	196	207	336	452	440	305	297	300
80.0	109	200	85	109	106	173	222	298	317	237	191
85.0	26	26	17	24	26	43	46	87	107	107	83
90.0	0	0	0	0	0	0	0	0	0	0	0

\*\* DENOTES VERTICAL ANGLE OF MAXIMUM CONE

\*\*\*\* DENOTES LATERAL ANGLE OF MAXIMUM PLANE

INTENSITY WAS MEASURED IN 2.5 DEGREE STEPS - TABULATIONS ARE AVAILABLE

# ISOFOOTCANDLE

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## MOUNTING HEIGHT FOR ISOFC 20.0 FEET

