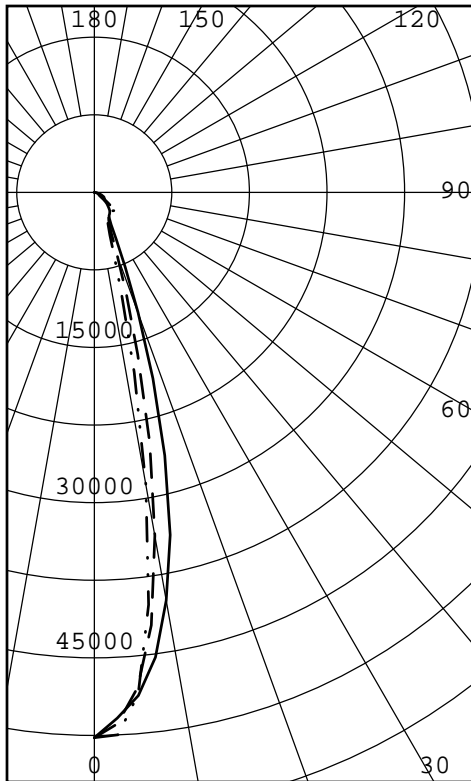


BIRNS - UNDERWATER FLOOD LIGHT
WITH SPECULAR HOUSING

ONE SYL. 1000 W HALOGEN PAR LAMP,CAT# 1000PAR64Q/MFL. LUMEN RATING = 19400 LMS.
OPERATING AT 120 VAC AND 1000 WATTS

INTENSITY(CANDLEPOWER) SUMMARY OUTPUT LUMENS



ANGLE	ALONG	22.5	45	67.5	ACROSS	
0	52708	52708	52708	52708	52708	
5	48690	48060	48047	48029	48847	4163
10	28724	29340	33719	37677	40072	
15	10178	10830	16223	22513	26333	4764
20	4410	4633	6434	10124	12358	
25	3029	3199	3458	4383	5040	1902
30	3020	2663	2792	2913	2931	
35	2801	2654	2408	2649	2573	1642
40	2529	2685	2377	2462	2323	
45	2529	2520	2444	2180	1872	1771
50	2028	1952	2194	1823	1425	
55	1202	1211	1296	1072	786	1118
60	1126	1121	1099	755	527	
65	1273	1135	992	688	469	883
70	974	947	755	581	389	
75	313	416	416	371	273	403
80	45	54	143	89	98	
85	0	0	9	18	31	25
90	0	0	0	0	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LAMP	%LUMINAIRE
0-30	10828	55.82	64.95
0-40	12470	64.28	74.80
0-60	15359	79.17	92.13
0-90	16671	85.94	100.00
40-90	4200	21.65	25.20
60-90	1311	6.76	7.87
90-180	0	.00	.00
0-180	16671	85.94	100.00

** EFFICIENCY: 85.9% **

LUMINANCE SUMMARY CD./SQ.M.

S/MH: .5
SC(ALONG): .4, SC(ACROSS): .5

ANGLE	ALONG	45	ACROSS
45	92183	89428	68502
55	54010	58449	35472
65	77663	60709	28722
75	31147	41431	27246
85	0	2649	9285

CERTIFIED BY:

DATE:
JUN 11, 2003

PREPARED FOR:

BIRNS
OXNARD, CA

TESTED IN ACCORDANCE WITH IES PROCEDURES.

LIGHTING SCIENCES
7830 E. EVANS RD
SCOTTSDALE, AZ, USA 85260

CERTIFIED TEST REPORT No.

17957

BIRNS - UNDERWATER FLOOD LIGHT
WITH SPECULAR HOUSING

ONE SYL. 1000 W HALOGEN PAR LAMP, CAT# 1000PAR64Q/MFL. LUMEN RATING = 19400 LMS.
OPERATING AT 120 VAC AND 1000 WATTS

INTENSITY(CANDLEPOWER) DATA
IN 2.5 DEGREE STEPS

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	22.5	45	67.5	ACROSS	AVERAGE	
.0	52708	52708	52708	52708	52708	52708	
2.5	52497	52117	51420	51237	50884	51616	
5.0	48690	48060	48047	48029	48847	48226	4163
7.5	40219	40184	42212	43660	45331	42207	
10.0	28724	29340	33719	37677	40072	33783	
12.5	17813	18769	24779	30529	33933	24987	
15.0	10178	10830	16223	22513	26333	16955	4764
17.5	6371	6720	10307	15588	18881	11310	
20.0	4410	4633	6434	10124	12358	7394	
22.5	3588	3824	4352	6510	7778	5092	
25.0	3029	3199	3458	4383	5040	3769	1902
27.5	2944	2770	3056	3337	3534	3101	
30.0	3020	2663	2792	2913	2931	2836	
32.5	2913	2716	2565	2748	2685	2707	
35.0	2801	2654	2408	2649	2573	2600	1642
37.5	2739	2640	2323	2560	2466	2532	
40.0	2529	2685	2377	2462	2323	2487	
42.5	2453	2587	2444	2337	2091	2410	
45.0	2529	2520	2444	2180	1872	2336	1771
47.5	2640	2399	2386	2006	1680	2238	
50.0	2028	1952	2194	1823	1425	1924	
52.5	1515	1416	1742	1506	1144	1498	
55.0	1202	1211	1296	1072	786	1143	1118
57.5	1050	1081	1121	818	576	958	
60.0	1126	1121	1099	755	527	951	
62.5	1233	1135	1077	710	500	947	
65.0	1273	1135	992	688	469	921	883
67.5	1180	1112	871	634	424	855	
70.0	974	947	755	581	389	741	
72.5	652	675	590	478	326	558	
75.0	313	416	416	371	273	374	403
77.5	130	143	264	210	174	192	
80.0	45	54	143	89	98	89	
82.5	18	18	54	31	40	33	
85.0	0	0	9	18	31	11	25
87.5	0	0	0	9	18	4	
90.0	0	0	0	0	0	0	

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ONE SYL. 1000 W HALOGEN PAR LAMP, CAT# 1000PAR64Q/MFL. LUMEN RATING = 19400 LMS.
OPERATING AT 120 VAC AND 1000 WATTS

AVERAGE LUMINANCE DATA

ANGLE	CD./SQ.M. (FOOTLAMBERTS)				
	ALONG	22.5	45	67.5	ACROSS
0	1358620(396533)	1358620(396533)	1358620(396533)	1358620(396533)	1358620(396533)
30	89894(26237)	79479(23197)	83328(24320)	86912(25366)	87235(25460)
40	85090(24834)	90591(26440)	80054(23365)	83059(24242)	78175(22816)
45	92183(26904)	91974(26844)	89428(26101)	79714(23265)	68502(19993)
50	81340(23740)	78590(22937)	87985(25679)	73300(21393)	57153(16681)
55	54010(15763)	54511(15909)	58449(17059)	48332(14106)	35472(10353)
60	58043(16940)	58012(16931)	56718(16554)	39026(11390)	27178(7932)
65	77663(22667)	69280(20220)	60709(17718)	42099(12287)	28722(8383)
70	73405(21424)	71639(20909)	57070(16656)	43867(12803)	29294(8550)
75	31147(9090)	41540(12124)	41431(12092)	37059(10816)	27246(7952)
80	6632(1935)	7989(2331)	21304(6218)	13283(3876)	14590(4258)
85	0(0)	0(0)	2649(773)	5304(1548)	9285(2710)

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 WITH SPECULAR HOUSING
 ONE SYL. 1000 W HALOGEN PAR LAMP,CAT# 1000PAR64Q/MFL. LUMEN RATING = 19400 LMS.
 OPERATING AT 120 VAC AND 1000 WATTS

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	1.051	1.051	1.051	0.5	1.021	1.021	1.021	1.02	1.001	1.001	1.001	1.00	.95	.95	.95	.91	.91	.91	.88	.88	.88	.86				
1	1.00	.97	.94	.92	.97	.95	.93	.91	.95	.93	.91	.89	.90	.88	.87	.86	.85	.84	.84	.83	.82	.80				
2	.94	.90	.87	.83	.93	.89	.85	.82	.91	.87	.84	.81	.84	.82	.79	.82	.80	.78	.79	.78	.76	.75				
3	.90	.84	.80	.76	.88	.83	.79	.75	.87	.82	.78	.75	.80	.76	.74	.78	.75	.73	.76	.73	.71	.70				
4	.86	.79	.74	.71	.84	.78	.74	.70	.83	.77	.73	.70	.76	.72	.69	.74	.71	.68	.72	.70	.67	.66				
5	.82	.75	.70	.66	.81	.74	.69	.66	.79	.73	.69	.65	.72	.68	.65	.70	.67	.64	.69	.66	.64	.63				
6	.79	.71	.66	.63	.77	.70	.66	.62	.76	.70	.65	.62	.68	.65	.61	.67	.64	.61	.66	.63	.61	.60				
7	.75	.67	.62	.59	.74	.67	.62	.59	.73	.66	.62	.58	.65	.61	.58	.64	.61	.58	.63	.60	.58	.56				
8	.73	.65	.60	.56	.72	.64	.59	.56	.70	.63	.59	.56	.62	.58	.56	.62	.58	.55	.61	.58	.55	.54				
9	.70	.62	.57	.54	.69	.61	.57	.54	.68	.61	.57	.54	.60	.56	.53	.59	.56	.53	.59	.55	.53	.52				
10	.67	.59	.54	.51	.66	.59	.54	.51	.65	.59	.54	.51	.58	.54	.51	.57	.54	.51	.57	.53	.51	.50				

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.