LTL LUMINAIRE TESTING LABORATORY, INC.

IES SUSTAINING MEMBER

905 Harrison Street · Allentown, PA 18103 · (610) 770-1044 · Fax (610) 770-8912 · www.LuminaireTesting.com

LTL NUMBER: 04828 DATE: 10-12-1999

PREPARED FOR: LAMAR LIGHTING COMPANY, INC.

CATALOG NUMBER: C2232E81PA

LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL STEEL REFLECTOR, CLEAR ACRYLIC PRISMATIC LENS.

LAMPS: TWO PHILIPS F32T8/TL741 RATED AT 2850 LUMENS EACH

BALLAST: ONE ADVANCE REL-2P32-SC

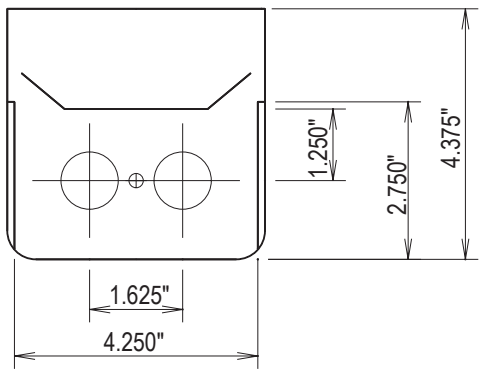
MOUNTING: SURFACE

LUMEN TO CANDELA RATIO USED = 9.18

TOTAL INPUT WATTS = 55.3 AT 120.0 VOLTS

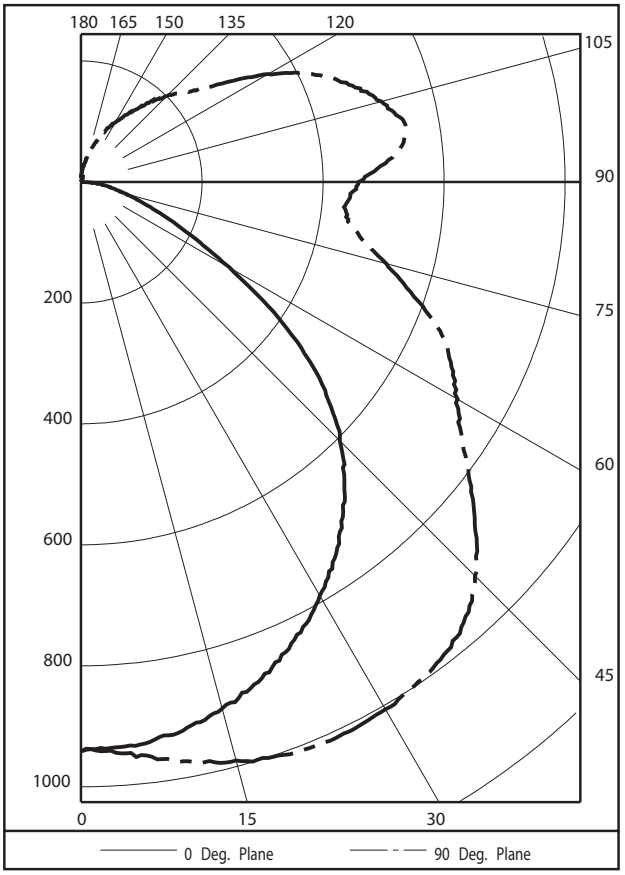
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

#04828



CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	941	941	941	941	941	
5	935	942	949	946	948	90
15	901	927	966	983	990	270
25	835	889	956	994	1011	434
35	738	814	912	970	994	558
45	605	701	822	896	921	613
55	407	519	665	746	772	564
65	186	334	515	634	670	474
75	79	206	378	489	523	365
85	23	174	337	414	439	317
90	1	133	364	440	459	
95	0	108	350	486	520	326
105	0	91	274	451	514	282
115	0	74	197	355	422	209
125	0	66	166	244	283	139
135	0	56	124	180	201	89
145	0	37	91	124	139	51
155	0	26	58	82	90	25
165	0	21	32	41	46	9
175	0	13	15	16	18	1
180	0	0	0	0	0	



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	795	13.9	16.5
0- 40	1353	23.7	28.1
0- 60	2530	44.4	52.5
0- 90	3686	64.7	76.5
90-120	816	14.3	16.9
90-130	955	16.8	19.8
90-150	1095	19.2	22.7
90-180	1130	19.8	23.5
0-180	4815	84.5	100.0

TOTAL LUMINAIRE EFFICIENCY: 84.5%

TOTAL REFLECTANCE OF PAINT: 90.5%

CIE TYPE:	SEMI-DIRECT	
PLANE:	0-DEG	90-DEG
SPACING CRITERIA:	1.2	1.6

TESTED BY HERSCHEL SCHRECK

CHECKED BY MIKE GRATHER

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	96	96	96	96	91	91	91	91	83	83	83	75	75	75	68	68	68	65
1	86	81	77	74	82	78	74	71	70	67	65	64	61	59	57	56	54	51
2	78	70	64	59	74	67	62	57	61	56	53	55	52	48	50	47	44	42
3	71	62	55	49	67	59	52	47	53	48	44	49	44	41	44	41	38	35
4	65	54	47	41	61	52	45	40	47	42	37	43	38	35	39	35	32	30
5	59	48	40	34	56	46	39	33	42	36	31	38	33	29	34	30	27	25
6	54	43	35	30	51	41	34	29	37	31	27	34	29	25	31	27	23	21
7	50	38	31	25	47	37	30	25	33	27	23	31	25	22	28	23	20	18
8	46	34	27	22	43	33	26	21	30	24	20	27	22	19	25	21	17	15
9	42	31	24	19	40	29	23	18	27	21	17	25	20	16	22	18	15	13
10	39	28	21	17	37	27	20	16	24	19	15	22	18	14	20	16	13	11

PLANE:	0-DEG	90-DEG
LUMINOUS LENGTH:	47.000	4.250
HEIGHT OF SIDE:	0.000	2.750

LUMINANCE IN CANDELA PER SQUARE METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
0	7301.	7301.	7301.
45	6639.	6192.	6140.
55	5506.	5441.	5428.
65	3415.	4771.	5150.
75	2368.	4184.	4589.
85	2048.	4815.	4654.

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	0.0	22.5	45.0	67.5	90.0
0	941	941	941	941	941
5	935	942	949	946	948
10	925	935	957	967	972
15	901	927	966	983	990
20	873	913	966	993	1007
25	835	889	956	994	1011
30	790	855	937	985	1006
35	738	814	912	970	994
40	679	767	873	946	974
45	605	701	822	896	921
50	520	623	750	823	848
55	407	519	665	746	772
60	283	417	582	684	719
65	186	334	515	634	670
70	123	265	450	566	601
75	79	206	378	489	523
80	48	182	334	431	461
85	23	174	337	414	439
90	1	133	364	440	459
95	0	108	350	486	520
100	0	98	315	489	545
105	0	91	274	451	514
110	0	84	228	408	470
115	0	74	197	355	422
120	0	74	181	295	357
125	0	66	166	244	283
130	0	64	144	208	231
135	0	56	124	180	201
140	0	47	107	152	172
145	0	37	91	124	139
150	0	33	74	103	114
155	0	26	58	82	90
160	0	23	44	59	70
165	0	21	32	41	46
170	0	14	23	25	29
175	0	13	15	16	18
180	0	0	0	0	0

ZONAL LUMEN SUMMARY

0- 5	23.
5- 10	68.
10- 15	113.
15- 20	157.
20- 25	199.
25- 30	236.
30- 35	267.
35- 40	291.
40- 45	306.
45- 50	307.
50- 55	294.
55- 60	270.
60- 65	247.
65- 70	226.
70- 75	196.
75- 80	169.
80- 85	158.
85- 90	159.
90- 95	163.
95-100	162.
100-105	150.
105-110	132.
110-115	114.
115-120	95.
120-125	77.
125-130	62.
130-135	50.
135-140	39.
140-145	30.
145-150	22.
150-155	15.
155-160	10.
160-165	6.
165-170	3.
170-175	1.
175-180	0.

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) ACCORDING TO IESNA PROCEDURES, THE BALLAST(S) AND LAMP(S) ARE PRESUMED TO PRODUCE 100% OF RATED OUTPUT. AN APPROPRIATE BALLAST FACTOR MUST BE APPLIED TO THE LUMEN OUTPUT RATINGS AND LUMINOUS INTENSITY VALUES GIVEN. 3) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25 C 1 C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.

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VISUAL COMFORT PROBABILITY TABLE

RATED LUMENS PER LAMP 2850.

100. FC. REFLECTANCES 80/50/20

ROOM		LUMINAIRES 0 DEG PLANE				LUMINAIRES 90 DEG PLANE			
W	L	8.5	10.0	13.0	16.0	8.5	10.0	13.0	16.0
20	20	52	58	67	76	42	49	62	75
20	30	47	52	57	64	33	39	46	58
20	40	44	48	53	57	29	33	39	46
20	60	42	46	50	54	26	29	33	39
30	20	51	55	63	73	44	50	60	72
30	30	44	49	53	61	35	39	45	55
30	40	41	45	49	53	30	33	37	44
30	60	38	42	46	50	26	29	32	36
30	80	37	41	44	48	24	27	29	33
40	20	51	55	62	71	47	53	61	71
40	30	44	48	52	59	37	41	46	55
40	40	40	44	47	51	32	35	38	44
40	60	37	40	43	47	27	30	32	36
40	80	36	39	41	45	24	27	29	32
40	100	36	38	40	44	23	25	27	30
60	30	45	48	51	57	39	43	47	55
60	40	40	43	46	50	33	36	39	44
60	60	37	39	42	46	28	31	32	36
60	80	35	37	39	43	25	28	29	32
60	100	34	36	38	42	23	26	27	30
100	40	42	45	47	51	37	40	43	47
100	60	37	40	42	46	31	34	35	39
100	80	35	37	39	42	27	30	31	34
100	100	34	35	37	40	25	28	28	31

THIS TABLE WAS CALCULATED ACCORDING TO IESNA LM-42-72. THE VCP CALCULATION PROCEDURE IS MOST ACCURATE FOR LUMINAIRES THAT EXHIBIT THE FOLLOWING CHARACTERISTICS. 1). LUMINAIRE IS RELATIVELY CONSISTANT IN LUMINANCE 2). LUMINAIRE HAS WELL-DEFINED LUMINOUS EDGES AND 3). LUMINAIRE UTILIZES FLUORESCENT LAMPS. CAUTION SHOULD BE USED WHEN APPLYING VCP VALUES BASED ON LUMINAIRES THAT DO NOT CONFORM TO THE ABOVE CONDITIONS.