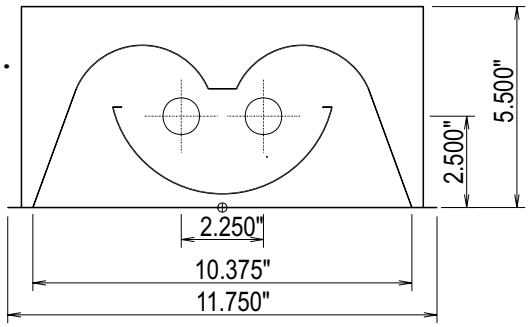
LTL LUMINAIRE TESTING LABORATORY, INC.

IES SUSTAINING MEMBER

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

LTL NUMBER: 06186 DATE: 10-15-2001
PREPARED FOR: ALM ARCHITECTURAL LIGHTING
CATALOG NUMBER: ZB-14G-232-OCT-ELB-120V
LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL STEEL REFLECTORS, FORMED WHITE ENAMEL PERFORATED STEEL SHIELD WITH TRANSLUCENT WHITE ACRYLIC INSERT SURROUNDING LAMPS.
LAMPS: TWO PHILIPS F32T8/TL741 RATED AT 2850 LUMENS EACH.
BALLAST: ONE ADVANCE REL-2P32-SC
MOUNTING: RECESSED

#06186



LUMEN TO CANDELA RATIO USED = 9.18
TOTAL INPUT WATTS = 58.4 AT 120.0 VOLTS
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

CANDELA DISTRIBUTION					FLUX
	0.0	22.5	45.0	67.5	90.0	
0	1290	1290	1290	1290	1290	
5	1277	1282	1287	1286	1286	122
15	1224	1231	1243	1245	1249	350
25	1126	1136	1146	1136	1132	524
35	989	999	980	941	928	606
45	815	814	750	718	719	589
55	617	586	529	534	539	498
65	412	330	339	347	352	346
75	218	153	165	170	170	181
85	36	35	38	40	39	44
90	0	0	0	0	0	

ZONAL LUMEN SUMMARY

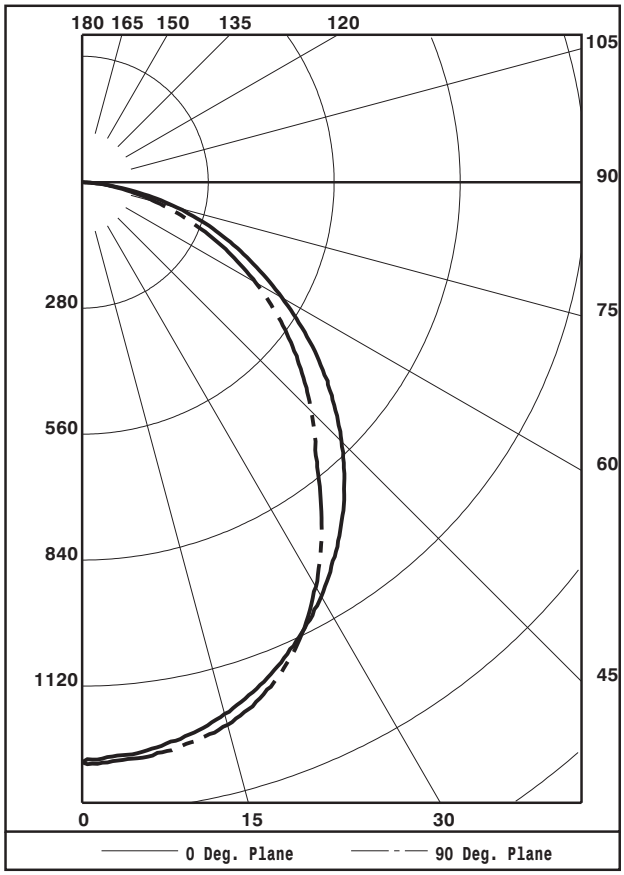
ZONE	LUMENS	%LAMP	%FIXT
0- 30	996	17.5	30.5
0- 40	1602	28.1	49.1
0- 60	2689	47.2	82.5
0- 90	3260	57.2	100.0
90-180	0	0.0	0.0
0-180	3260	57.2	100.0

TOTAL LUMINAIRE EFFICIENCY: 57.2%
TOTAL REFLECTANCE OF PAINT: 90.3%
CIE TYPE: DIRECT

PLANE:	0-DEG	90-DEG
SPACING CRITERIA:	1.2	1.2
LUMINOUS LENGTH:	47.000	10.375

LUMINANCE IN CANDELA PER SQUARE METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
0	4100.	4100.	4100.
45	3663.	3371.	3232.
55	3419.	2931.	2987.
65	3099.	2550.	2647.
75	2677.	2026.	2088.
85	1313.	1386.	1422.



TESTED BY HERSCHEL SCHRECK
CHECKED BY MIKE GRATHER

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IES 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	68	68	68	68	67	67	67	67	64	64	64	61	61	61	58	58	58	57
1	63	61	58	56	61	59	57	56	57	55	54	55	53	52	53	52	51	50
2	58	54	50	47	56	53	49	47	51	48	46	49	47	45	47	45	44	43
3	53	48	44	40	52	47	43	40	45	42	39	44	41	39	42	40	38	37
4	49	43	38	35	48	42	38	34	41	37	34	39	36	34	38	35	33	32
5	45	38	33	30	44	37	33	29	36	32	29	35	32	29	34	31	29	27
6	42	34	29	26	40	34	29	26	33	29	26	32	28	25	31	28	25	24
7	38	31	26	23	37	30	26	23	30	25	22	29	25	22	28	25	22	21
8	35	28	23	20	34	27	23	20	27	22	19	26	22	19	25	22	19	18
9	33	25	20	17	32	25	20	17	24	20	17	23	20	17	23	19	17	16
10	30	23	18	15	30	22	18	15	22	18	15	21	18	15	21	17	15	14

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	1290	1290	1290	1290	1290
5	1277	1282	1287	1286	1286
10	1257	1261	1270	1271	1273
15	1224	1231	1243	1245	1249
20	1182	1189	1200	1203	1200
25	1126	1136	1146	1136	1132
30	1063	1073	1074	1047	1039
35	989	999	980	941	928
40	906	915	871	824	812
45	815	814	750	718	719
50	718	706	624	628	628
55	617	586	529	534	539
60	513	457	430	440	444
65	412	330	339	347	352
70	316	234	249	254	257
75	218	153	165	170	170
80	120	87	93	95	97
85	36	35	38	40	39
90	0	0	0	0	0

ZONAL LUMEN SUMMARY

0- 5	31.
5- 10	91.
10- 15	149.
15- 20	201.
20- 25	245.
25- 30	279.
30- 35	299.
35- 40	307.
40- 45	302.
45- 50	288.
50- 55	264.
55- 60	233.
60- 65	194.
65- 70	152.
70- 75	111.
75- 80	71.
80- 85	34.
85- 90	10.

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	58	63	72	82	59	64	74	84
20	30	53	55	61	69	54	57	62	71
20	40	51	52	55	60	53	54	57	63
20	60	50	51	51	54	52	53	54	58
30	20	60	64	71	80	61	65	73	82
30	30	54	56	60	67	55	57	61	69
30	40	52	53	54	58	53	54	55	60
30	60	51	51	50	53	52	52	52	55
30	80	51	51	49	51	51	52	51	53
40	20	62	66	71	79	63	66	73	81
40	30	56	58	60	67	57	59	61	68
40	40	54	54	55	58	55	55	56	59
40	60	53	52	51	53	53	53	52	54
40	80	53	52	49	50	52	53	51	52
40	100	53	53	49	50	52	52	51	51
60	30	58	60	61	67	59	60	62	68
60	40	56	56	55	59	56	56	56	59
60	60	54	53	51	53	54	54	52	54
60	80	54	53	49	50	53	53	51	52
60	100	54	53	49	49	53	53	50	51
100	40	60	60	58	61	61	60	59	62
100	60	58	57	54	55	58	57	55	56
100	80	57	56	52	52	56	56	53	53
100	100	57	55	51	51	55	55	52	52

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.