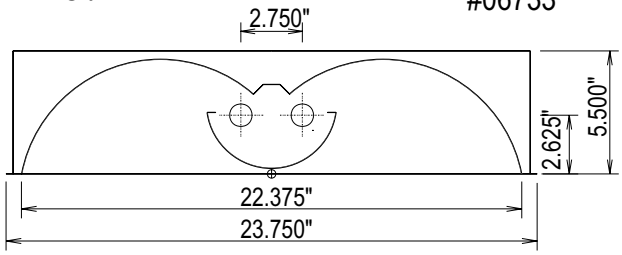
LTL LUMINAIRE TESTING LABORATORY, INC.

IES SUSTAINING MEMBER

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

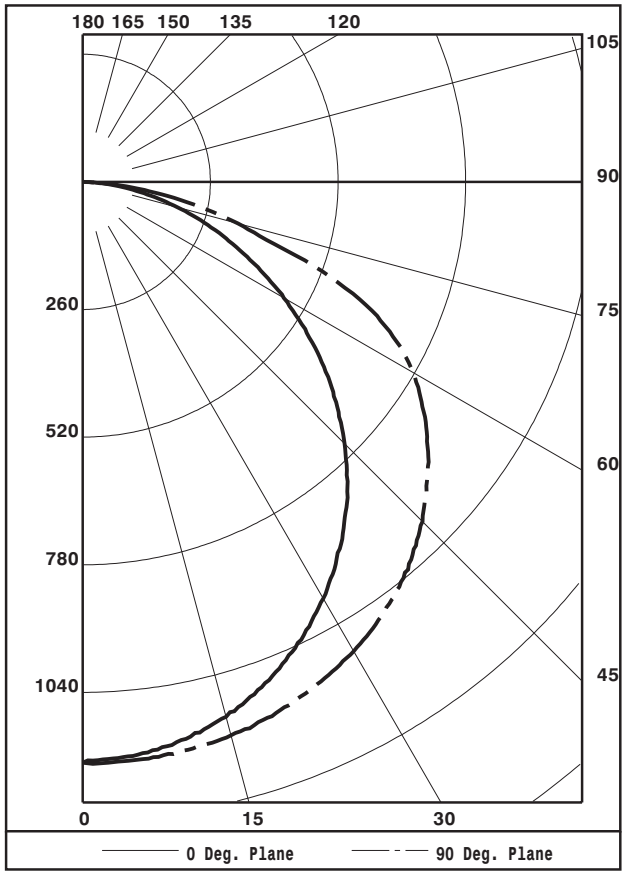
LTL NUMBER: 06733 DATE: 05-31-2002
PREPARED FOR: ALM ARCHITECTURAL LIGHTING
CATALOG NUMBER: ZB-24G-232-OCT-ELB-120V
LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL STEEL REFLECTOR, FORMED WHITE ENAMEL PERFORATED STEEL SHIELD WITH TRANSLUCENT WHITE ACRYLIC INSERT BELOW LAMPS.
LAMPS: TWO PHILIPS F32T8/TL841 RATED AT 2850 LUMENS EACH.
BALLAST: ONE ADVANCE REL-2P32-SC
MOUNTING: RECESSED
LUMEN TO CANDELA RATIO USED = 9.18
TOTAL INPUT WATTS = 61.3 AT 120.0 VOLTS
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

#06733



CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	1183	1183	1183	1183	1183	
5	1174	1177	1181	1181	1183	112
15	1128	1136	1150	1160	1167	325
25	1036	1056	1090	1116	1129	501
35	913	943	999	1048	1071	624
45	755	801	884	951	979	675
55	571	635	739	818	853	649
65	376	454	567	645	669	539
75	199	265	319	311	327	307
85	45	53	64	68	69	72
90	0	0	0	0	0	



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	938	16.5	24.7
0- 40	1562	27.4	41.1
0- 60	2886	50.6	75.9
0- 90	3804	66.7	100.0
90-180	0	0.0	0.0
0-180	3804	66.7	100.0

TOTAL LUMINAIRE EFFICIENCY: 66.7%
TOTAL REFLECTANCE OF PAINT: 89.0%
CIE TYPE: DIRECT

PLANE:	0-DEG	90-DEG
SPACING CRITERIA:	1.2	1.4
LUMINOUS LENGTH:	47.000	22.375

LUMINANCE IN CANDELA PER SQUARE METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
0	1744.	1744.	1744.
45	1574.	1842.	2040.
55	1467.	1899.	2192.
65	1311.	1977.	2333.
75	1133.	1816.	1862.
85	761.	1082.	1167.

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	79	79	79	79	78	78	78	78	74	74	74	71	71	71	68	68	68	67
1	73	70	67	64	71	68	66	63	65	63	61	63	61	59	60	59	58	56
2	66	61	56	53	65	60	55	52	57	54	51	55	52	50	53	51	49	47
3	61	54	48	44	59	53	48	44	51	46	43	49	45	42	47	44	41	40
4	55	47	42	37	54	46	41	37	45	40	36	43	39	36	42	38	35	34
5	50	42	35	31	49	41	35	31	39	34	30	38	34	30	37	33	30	28
6	46	37	31	27	45	36	31	26	35	30	26	34	29	26	33	29	26	24
7	42	33	27	23	41	33	27	23	32	26	23	31	26	23	30	26	22	21
8	39	30	24	20	38	29	24	20	28	23	20	27	23	19	27	22	19	18
9	36	27	21	17	35	26	21	17	25	20	17	25	20	17	24	20	17	15
10	33	24	19	15	32	24	18	15	23	18	15	22	18	15	22	18	15	13

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	1183	1183	1183	1183	1183
5	1174	1177	1181	1181	1183
10	1155	1162	1168	1173	1177
15	1128	1136	1150	1160	1167
20	1086	1101	1124	1141	1151
25	1036	1056	1090	1116	1129
30	980	1003	1047	1085	1104
35	913	943	999	1048	1071
40	840	875	945	1004	1031
45	755	801	884	951	979
50	666	721	816	887	917
55	571	635	739	818	853
60	473	544	653	740	775
65	376	454	567	645	669
70	288	360	465	501	500
75	199	265	319	311	327
80	118	162	166	184	189
85	45	53	64	68	69
90	0	0	0	0	0

ZONAL LUMEN SUMMARY

0- 5	28.
5- 10	84.
10- 15	137.
15- 20	187.
20- 25	232.
25- 30	270.
30- 35	301.
35- 40	323.
40- 45	336.
45- 50	339.
50- 55	333.
55- 60	316.
60- 65	290.
65- 70	249.
70- 75	187.
75- 80	120.
80- 85	60.
85- 90	13.

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	66	73	84	92	59	65	78	89
20	30	62	67	74	83	54	58	64	75
20	40	61	64	69	76	53	55	58	65
20	60	60	63	66	71	52	54	55	60
30	20	66	71	81	90	61	67	77	87
30	30	61	64	71	79	56	59	63	73
30	40	60	61	66	72	54	55	57	63
30	60	59	60	62	67	53	54	53	57
30	80	60	61	61	65	53	54	52	55
40	20	68	72	80	88	64	69	77	87
40	30	62	65	69	77	58	61	63	73
40	40	61	62	64	70	56	57	58	62
40	60	60	60	61	65	54	55	54	57
40	80	60	60	59	63	54	54	52	54
40	100	61	61	59	62	55	55	52	53
60	30	64	66	69	76	61	63	64	73
60	40	62	62	63	68	58	58	58	62
60	60	61	61	60	63	56	56	54	57
60	80	61	60	58	61	55	55	52	54
60	100	61	61	58	60	56	55	52	53
100	40	65	66	65	69	62	63	62	65
100	60	64	63	61	64	60	60	57	59
100	80	63	62	59	61	59	58	55	56
100	100	63	62	59	60	59	58	54	54

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.