

itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87611-GONIOPHOTOMETRY

PAGE: 1 OF 8

ISSUE DATE: 06/17/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: FSLEDH3YYW/120 - FSLEDH3YYW/120/TL

LUMINAIRE: CAST WHITE PAINTED METAL HOUSING/FACEPLATE, CAST WHITE PAINTED METAL CIRCUIT BOARD MOUNTING BASE WITH UNFINISHED CIRCUIT BOARD MOUNTING SURFACE, 1 WHITE CIRCUIT BOARD WITH 3 LEDS, CLEAR FLAT GLASS LENS.

LAMPS: THREE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

INPUT ELECTRICAL: 120.0 VOLTS, 3.00 WATTS, 0.0264 AMPS

MOUNTING: RECESSED WALL

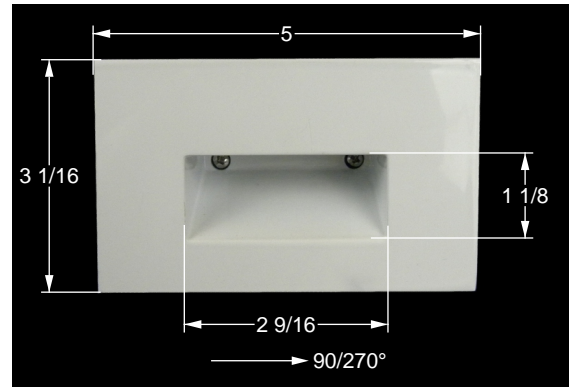
LED DRIVER: INTEGRAL TO CIRCUIT BOARD

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LUMINAIRE.

NOTE 2: THIS REPORT WAS PRORATED FROM ITL REPORT NUMBER 87579. BOTH REPORTS REPRESENT A LUMINAIRE WITH 3 LEDS. FACTORS GENERATED FROM COMPARATIVE TESTING HAVE BEEN DERIVED FOR LIGHT OUTPUT, COLOR TEMPERATURE AND WATTAGE AND APPLIED TO THIS REPORT. ACTUAL PERFORMANCE MAY VARY.

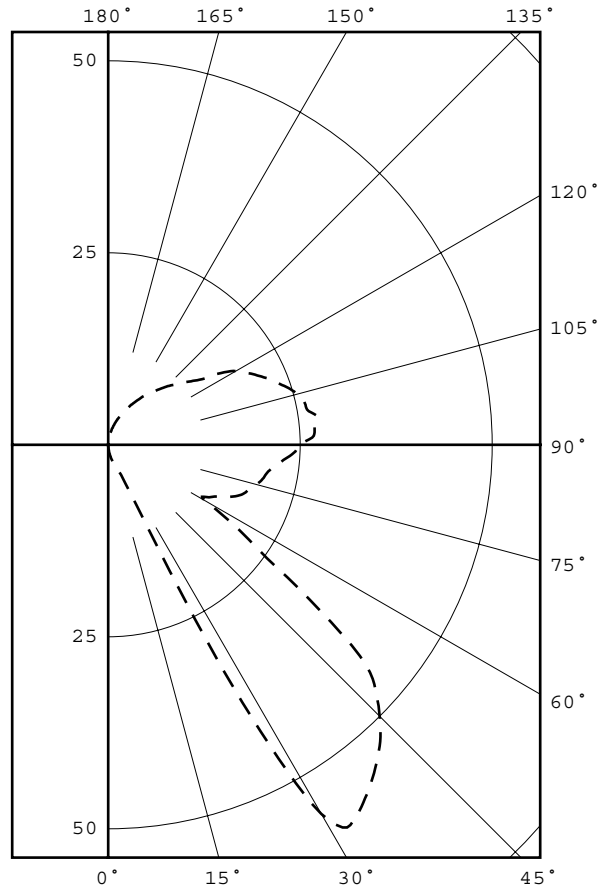
TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET



CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.5	0.3	0.0	0.0	0.0	0.0
15	2.2	1.5	0.0	0.0	0.0	0.2
25	8.6	2.8	0.0	0.0	0.0	1.6
35	57.5	22.2	0.0	0.0	0.0	8.5
45	50.0	48.8	0.0	0.0	0.0	12.2
55	24.1	39.2	0.0	0.0	0.0	10.3
65	15.9	16.3	0.0	0.0	0.0	6.2
75	20.0	11.5	0.0	0.0	0.0	6.1
85	22.9	13.6	0.0	0.0	0.0	7.1
90	24.9	14.7	0.0	0.0	0.0	
95	27.0	14.8	0.0	0.0	0.0	8.2
105	25.5	14.2	0.0	0.0	0.0	7.4
115	21.4	11.5	0.0	0.0	0.0	5.8
125	14.9	8.8	0.0	0.0	0.0	3.8
135	10.7	6.6	0.0	0.0	0.0	2.4
145	7.5	4.7	0.0	0.0	0.0	1.4
155	4.7	3.0	0.0	0.0	0.0	0.7
165	2.4	1.6	0.0	0.0	0.0	0.2
175	0.1	0.2	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	



LEGEND:
 0-deg -----
 90-deg =====
 180-deg -----

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	1.8	2.2
0- 40	10.2	12.5
0- 60	32.7	39.9
0- 90	52.1	63.7
90-120	21.3	26.0
90-130	25.1	30.7
90-150	28.9	35.3
90-180	29.8	36.3
0-180	81.9	100.0

EFFICACY = 27.3 lm/W

CIE TYPE - SEMI-DIRECT

PLANE : 0-DEG 90-DEG

BEAM ANGLE (50%) : 26.7 X N/A DEGREES

FIELD ANGLE (10%) : 126.9 X N/A DEGREES

Checked J. VILLANUEVA

Approved R. BEATTIE
Lighting Engineer



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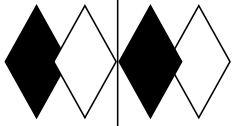
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PAGE: 2 OF 8

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	38750.	54029.	0.
55	15565.	35741.	0.
65	9479.	14036.	0.
75	11071.	8913.	0.
85	12240.	10540.	0.



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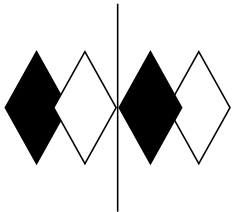
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CANDELA DISTRIBUTION LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5.0	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
7.5	1.0	1.0	0.9	0.8	0.7	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
10.0	1.4	1.3	1.3	1.2	1.0	0.9	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0
12.5	1.8	1.8	1.7	1.6	1.4	1.1	0.9	0.6	0.3	0.1	0.0	0.0	0.0	0.0
15.0	2.2	2.2	2.2	2.1	1.7	1.5	1.1	0.8	0.4	0.1	0.0	0.0	0.0	0.0
17.5	2.7	2.7	2.6	2.3	2.1	1.8	1.4	0.9	0.5	0.1	0.0	0.0	0.0	0.0
20.0	3.3	3.3	3.1	2.9	2.4	2.1	1.7	1.1	0.6	0.1	0.0	0.0	0.0	0.0
22.5	4.0	4.0	3.8	3.5	2.9	2.4	1.9	1.3	0.7	0.1	0.0	0.0	0.0	0.0
25.0	8.6	7.9	5.3	4.2	3.5	2.8	2.1	1.5	0.8	0.2	0.0	0.0	0.0	0.0
27.5	37.8	37.6	30.7	9.7	4.2	3.2	2.3	1.7	0.9	0.2	0.0	0.0	0.0	0.0
30.0	55.5	54.7	48.3	37.8	9.8	3.8	2.7	1.9	1.0	0.2	0.0	0.0	0.0	0.0
32.5	58.7	58.6	58.3	53.8	36.2	5.0	3.0	2.0	1.1	0.3	0.0	0.0	0.0	0.0
35.0	57.5	57.4	57.5	57.0	50.7	22.2	3.5	2.2	1.2	0.3	0.0	0.0	0.0	0.0
37.5	56.0	56.0	56.1	55.7	54.9	38.7	3.9	2.4	1.3	0.3	0.0	0.0	0.0	0.0
40.0	54.3	54.3	54.4	54.0	53.5	50.7	10.3	2.6	1.4	0.3	0.0	0.0	0.0	0.0
42.5	52.4	52.3	52.6	52.2	51.8	50.7	24.4	2.9	1.6	0.3	0.0	0.0	0.0	0.0
45.0	50.0	50.0	50.3	50.1	49.8	48.8	34.1	3.0	1.7	0.3	0.0	0.0	0.0	0.0
47.5	47.2	47.3	47.7	47.7	47.5	46.7	37.4	4.0	1.7	0.4	0.0	0.0	0.0	0.0
50.0	42.8	43.0	44.1	45.1	45.1	44.3	35.8	8.9	1.7	0.4	0.0	0.0	0.0	0.0
52.5	33.0	33.2	37.5	41.4	42.4	41.9	33.9	10.0	1.8	0.5	0.0	0.0	0.0	0.0
55.0	24.1	24.2	26.0	33.2	39.0	39.2	32.0	10.3	1.9	0.5	0.0	0.0	0.0	0.0
57.5	19.3	19.4	21.3	23.6	32.3	36.2	29.7	10.2	2.1	0.5	0.0	0.0	0.0	0.0
60.0	14.6	14.7	15.6	19.1	22.2	32.1	27.5	9.6	2.2	0.5	0.0	0.0	0.0	0.0
62.5	14.8	14.7	14.5	14.5	17.9	22.8	25.1	9.1	2.3	0.6	0.0	0.0	0.0	0.0
65.0	15.9	15.8	15.5	14.4	13.2	16.3	21.6	8.6	2.5	0.6	0.0	0.0	0.0	0.0
67.5	17.6	17.5	16.9	15.6	13.1	11.6	15.2	8.2	2.9	0.6	0.0	0.0	0.0	0.0
70.0	18.7	18.7	18.4	17.3	14.2	10.2	11.2	7.6	3.0	0.7	0.0	0.0	0.0	0.0
72.5	19.3	19.3	19.0	18.1	15.4	10.9	7.5	6.4	3.0	0.7	0.0	0.0	0.0	0.0
75.0	20.0	20.0	19.7	18.6	15.7	11.5	7.5	5.5	3.0	0.8	0.0	0.0	0.0	0.0
77.5	20.6	20.6	20.2	19.2	16.2	12.0	7.8	5.6	3.1	0.8	0.0	0.0	0.0	0.0
80.0	21.0	21.0	20.7	19.5	16.7	12.5	8.3	5.9	3.3	0.9	0.0	0.0	0.0	0.0
82.5	21.8	21.7	21.3	19.9	17.0	12.9	8.6	6.1	3.3	0.9	0.0	0.0	0.0	0.0
85.0	22.9	22.8	22.3	20.9	17.9	13.6	9.0	6.3	3.4	0.9	0.0	0.0	0.0	0.0
87.5	24.2	24.1	23.5	22.1	19.2	14.2	9.6	6.5	3.5	0.9	0.0	0.0	0.0	0.0
90.0	24.9	24.9	24.7	23.4	20.0	14.7	10.0	6.7	3.5	0.9	0.0	0.0	0.0	0.0
92.5	26.8	26.8	26.2	25.2	21.5	14.7	10.3	6.8	3.6	0.9	0.0	0.0	0.0	0.0
95.0	27.0	27.0	26.6	25.1	21.5	14.8	10.4	6.9	3.5	0.9	0.0	0.0	0.0	0.0
97.5	27.5	27.2	26.5	25.0	20.9	14.9	10.5	6.8	3.5	0.9	0.0	0.0	0.0	0.0
100.0	26.3	26.2	25.6	24.2	20.5	14.9	10.5	6.7	3.4	0.9	0.0	0.0	0.0	0.0
102.5	26.1	25.9	25.1	23.8	20.2	14.6	10.3	6.5	3.2	0.8	0.0	0.0	0.0	0.0
105.0	25.5	25.3	24.6	22.9	19.5	14.2	10.0	6.3	3.1	0.8	0.0	0.0	0.0	0.0
107.5	24.6	24.5	23.6	22.1	18.4	13.6	9.6	6.0	3.0	0.7	0.0	0.0	0.0	0.0
110.0	23.5	23.5	22.6	21.0	17.6	12.9	9.2	5.8	2.9	0.7	0.0	0.0	0.0	0.0
112.5	22.5	22.4	21.4	19.8	16.8	12.3	8.7	5.6	2.8	0.7	0.0	0.0	0.0	0.0
115.0	21.4	21.3	20.4	18.9	15.8	11.5	8.3	5.3	2.7	0.6	0.0	0.0	0.0	0.0
117.5	20.3	20.2	19.6	17.7	14.2	10.7	7.8	5.0	2.5	0.6	0.0	0.0	0.0	0.0
120.0	19.2	19.0	18.1	15.9	12.7	10.0	7.4	4.8	2.4	0.6	0.0	0.0	0.0	0.0
122.5	17.4	17.2	16.2	13.9	11.6	9.4	7.0	4.5	2.3	0.6	0.0	0.0	0.0	0.0
125.0	14.9	14.8	14.0	12.7	10.9	8.8	6.5	4.3	2.2	0.5	0.0	0.0	0.0	0.0
127.5	13.6	13.5	12.9	11.7	10.2	8.3	6.1	4.0	2.1	0.5	0.0	0.0	0.0	0.0
130.0	12.5	12.4	11.9	10.9	9.4	7.6	5.7	3.7	2.0	0.5	0.0	0.0	0.0	0.0
132.5	11.6	11.6	11.0	10.1	8.8	7.1	5.3	3.6	1.9	0.4	0.0	0.0	0.0	0.0
135.0	10.7	10.6	10.2	9.3	8.1	6.6	5.0	3.3	1.7	0.4	0.0	0.0	0.0	0.0
137.5	9.8	9.8	9.4	8.6	7.5	6.1	4.6	3.1	1.7	0.4	0.0	0.0	0.0	0.0
140.0	9.0	9.0	8.6	7.9	6.9	5.6	4.3	2.9	1.6	0.3	0.0	0.0	0.0	0.0
142.5	8.3	8.2	7.8	7.2	6.3	5.1	3.9	2.7	1.4	0.3	0.0	0.0	0.0	0.0
145.0	7.5	7.4	7.1	6.5	5.6	4.7	3.6	2.4	1.3	0.3	0.0	0.0	0.0	0.1
147.5	6.7	6.7	6.4	5.9	5.1	4.3	3.2	2.3	1.2	0.3	0.0	0.0	0.0	0.0
150.0	6.0	6.0	5.7	5.3	4.6	3.8	3.0	2.0	1.1	0.3	0.0	0.0	0.0	0.0
152.5	5.3	5.3	5.1	4.7	4.1	3.4	2.6	1.8	1.0	0.3	0.0	0.0	0.0	0.0
155.0	4.7	4.7	4.5	4.2	3.6	3.0	2.3	1.7	0.9	0.2	0.0	0.0	0.0	0.0
157.5	4.1	4.1	3.9	3.6	3.2	2.7	2.1	1.4	0.8	0.2	0.0	0.0	0.0	0.0



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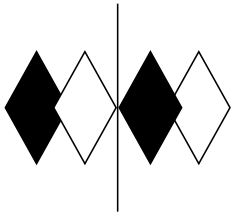
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CANDELA DISTRIBUTION
 LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
160.0	3.5	3.5	3.4	3.1	2.8	2.3	1.7	1.2	0.7	0.2	0.0	0.0	0.0	0.0
162.5	3.0	3.0	2.9	2.6	2.3	1.9	1.5	1.0	0.6	0.1	0.0	0.0	0.0	0.0
165.0	2.4	2.4	2.3	2.2	1.9	1.6	1.2	0.9	0.4	0.1	0.0	0.0	0.0	0.0
167.5	1.9	1.9	1.8	1.5	1.5	1.3	1.0	0.7	0.3	0.1	0.0	0.0	0.0	0.0
170.0	1.1	1.1	1.2	1.1	0.9	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0
172.5	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
175.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
177.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION
LATERAL ANGLE

	180.0
0.0	0.0
2.5	0.0
5.0	0.0
7.5	0.0
10.0	0.0
12.5	0.0
15.0	0.0
17.5	0.0
20.0	0.0
22.5	0.0
25.0	0.0
27.5	0.0
30.0	0.0
32.5	0.0
35.0	0.0
37.5	0.0
40.0	0.0
42.5	0.0
45.0	0.0
47.5	0.0
50.0	0.0
52.5	0.0
55.0	0.0
57.5	0.0
60.0	0.0
62.5	0.0
65.0	0.0
67.5	0.0
70.0	0.0
72.5	0.0
75.0	0.0
77.5	0.0
80.0	0.0
82.5	0.0
85.0	0.0
87.5	0.0
90.0	0.0
92.5	0.0
95.0	0.0
97.5	0.0
100.0	0.0
102.5	0.0
105.0	0.0
107.5	0.0
110.0	0.0
112.5	0.0
115.0	0.0
117.5	0.0
120.0	0.0
122.5	0.0
125.0	0.0
127.5	0.0
130.0	0.0
132.5	0.0
135.0	0.0
137.5	0.0
140.0	0.0
142.5	0.0
145.0	0.0
147.5	0.0
150.0	0.0
152.5	0.0
155.0	0.0
157.5	0.0



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CANDELA DISTRIBUTION
LATERAL ANGLE

	180.0
160.0	0.0
162.5	0.0
165.0	0.0
167.5	0.0
170.0	0.0
172.5	0.0
175.0	0.0
177.5	0.0
180.0	0.0



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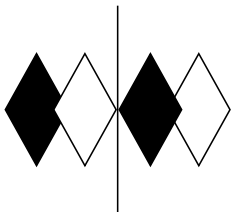
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5-DEGREE
 ZONAL LUMEN SUMMARY

0- 5	0.0
5- 10	0.0
10- 15	0.1
15- 20	0.1
20- 25	0.3
25- 30	1.3
30- 35	3.5
35- 40	5.0
40- 45	5.9
45- 50	6.3
50- 55	5.8
55- 60	4.5
60- 65	3.3
65- 70	2.9
70- 75	2.9
75- 80	3.1
80- 85	3.4
85- 90	3.7
90- 95	4.1
95-100	4.1
100-105	3.9
105-110	3.5
110-115	3.1
115-120	2.6
120-125	2.1
125-130	1.7
130-135	1.3
135-140	1.1
140-145	0.8
145-150	0.6
150-155	0.4
155-160	0.3
160-165	0.1
165-170	0.1
170-175	0.0
175-180	0.0

10-DEGREE
 ZONAL LUMEN SUMMARY

0- 10	0.0
0- 20	0.2
0- 30	1.8
0- 40	10.2
0- 50	22.4
0- 60	32.7
0- 70	38.9
0- 80	45.0
0- 90	52.1
0-100	60.3
0-110	67.7
0-120	73.4
0-130	77.2
0-140	79.6
0-150	81.0
0-160	81.6
0-170	81.9
0-180	81.9



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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

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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	11	01	10	11	01	10	11	01	10	10	41	10	41	10	41	10	41	10	91
1	97	91	85	80	90	85	80	75	74	70	66	64	61	58	54	52	50	45	45
2	86	77	69	62	80	72	65	59	62	57	52	53	49	45	45	42	39	35	35
3	78	66	57	49	72	61	53	47	53	47	41	46	40	36	39	34	31	27	27
4	70	57	47	40	65	53	45	38	46	39	33	39	34	29	33	29	25	21	21
5	64	50	40	33	59	46	38	31	40	33	27	34	28	24	29	24	20	17	17
6	58	44	34	27	54	41	32	26	35	28	23	30	24	20	25	21	17	14	14
7	53	39	30	23	49	36	28	22	31	24	19	27	21	17	22	18	14	11	11
8	49	35	26	20	45	32	24	18	28	21	16	24	18	14	20	15	12	9	9
9	45	31	23	17	42	29	21	16	25	18	14	22	16	12	18	13	10	8	8
10	42	28	20	14	39	26	19	14	23	16	12	19	14	10	16	12	8	6	6

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.