

# itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.  
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REPORT NUMBER: ITL72889

ISSUE DATE: 05/23/12

PREPARED FOR: TECH LIGHTING

CATALOG NUMBER: E3SFB-HANM

LUMINAIRE: FABRICATED METAL HOUSING WITH BLACK PAINTED GENERAL INTERIOR FINISH, FABRICATED BLACK PAINTED METAL ADJUSTABLE LAMP MOUNTING ASSEMBLY. CAST BLACK PAINTED METAL LAMP RETAINING COLLAR WITH MACHINED BLACK PAINTED METAL BAFFLE. CAST WHITE PAINTED METAL TRIM WITH BLACK PAINTED TOP SURFACE. ASSEMBLY IN THE LOWEST POSITION AND AIMED STRAIGHT DOWN.

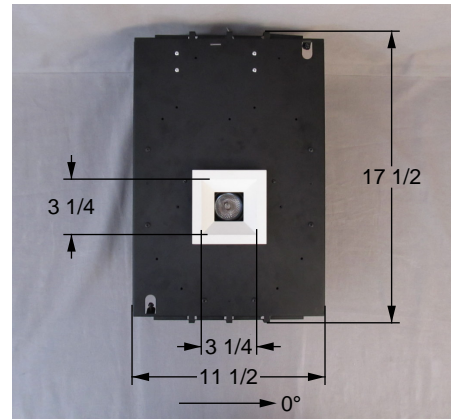
LAMP: ONE 75-WATT MR-16 HALOGEN INCANDESCENT, USHIO EYJ/EZZ/FG, VERTICAL BASE-UP POSITION.

MOUNTING: RECESSED

NOTE: THE LUMEN RATING FOR THIS REPORT WAS DERIVED BY TAKING THE ACTUAL MEASURED ABSOLUTE LUMEN OUTPUT OF THE LAMP SAMPLE USED FOR THIS TEST AND APPLYING A FACTOR FROM THE RATIO OF THE MANUFACTURER'S RATED CBCP (CENTER BEAM CANDLE POWER) TO THE ACTUAL MEASURED ABSOLUTE CBCP OF THIS LAMP.

TEST DISTANCE = 25.25 FEET

REPORT IS BASED ON 932 LUMENS PER LAMP.



## CANDELA DISTRIBUTION

## FLUX

	0.0	90.0	180.0	270.0	
0	4215	4215	4215	4215	
5	4406	4228	3715	3673	330
15	1020	935	1062	1132	298
25	111	101	78	110	62
35	20	20	24	22	18
45	9	9	10	8	7
55	1	1	1	1	2
65	0	0	0	0	0
75	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0

## ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	690	74.0	96.2
0- 40	707	75.9	98.7
0- 60	717	76.9	100.0
0- 90	717	76.9	100.0
90-180	0	0.0	0.0
0-180	717	76.9	100.0

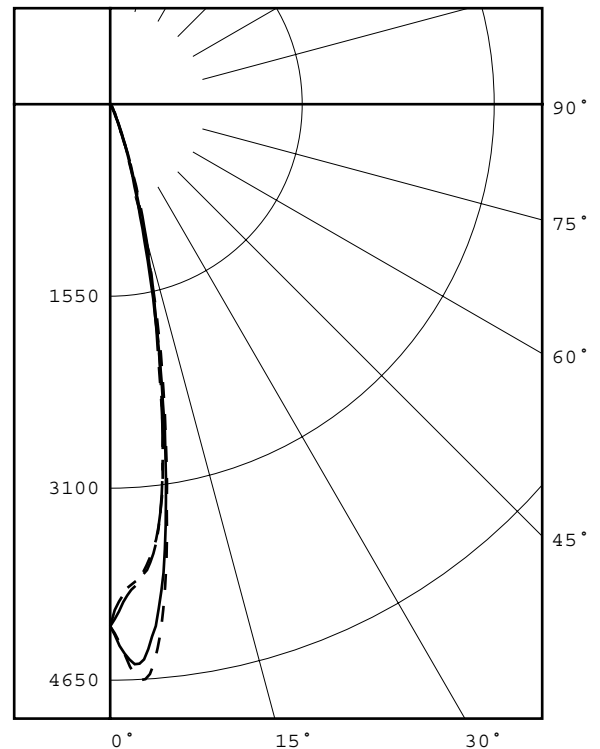
TOTAL LUMINAIRE EFFICIENCY = 76.9 %

## CIE TYPE - DIRECT

PLANE	: 0-DEG	90-DEG	180-DEG
SPACING CRITERIA	: 0.39	0.38	0.37
LUMINOUS LENGTH	: 3.250	3.250	

## LUMINANCE DATA IN CANDELA/SQ M

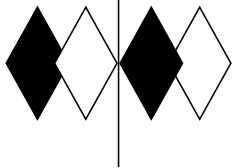
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	1868.	1868.	2075.
55	256.	256.	256.
65	0.	0.	0.
75	0.	0.	0.
85	0.	0.	0.



### LEGEND:

0-deg	---
90-deg	---
180-deg	---
270-deg	---

Checked S. BERGIN  
Approved R. BEATTIE  
Lighting Engineer



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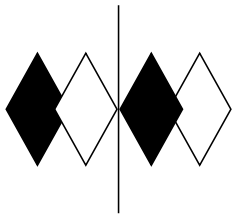
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CANDELA DISTRIBUTION  
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5
0.0	4215	4215	4215	4215	4215	4215	4215	4215	4215	4215	4215	4215	4215	4215
0.5	4271	4293	4280	4297	4284	4283	4265	4186	4084	4181	4171	4086	4157	4174
1.0	4347	4391	4392	4401	4372	4339	4274	4156	4016	4093	4061	3999	4096	4135
1.5	4440	4502	4502	4491	4437	4375	4274	4117	3964	4000	3958	3921	4020	4105
2.0	4542	4597	4590	4576	4488	4385	4280	4108	3909	3921	3865	3824	3967	4096
2.5	4615	4667	4659	4618	4526	4413	4269	4092	3882	3870	3784	3762	3923	4111
3.0	4656	4698	4666	4619	4522	4421	4267	4060	3859	3819	3720	3708	3894	4098
3.5	4650	4682	4619	4574	4491	4400	4232	4047	3839	3795	3657	3644	3847	4094
4.0	4611	4598	4546	4498	4408	4316	4198	4028	3807	3757	3612	3545	3790	4066
4.5	4525	4499	4432	4397	4311	4244	4148	3988	3773	3727	3586	3485	3735	4016
5.0	4406	4370	4287	4294	4228	4123	4041	3930	3715	3666	3558	3442	3673	3937
5.5	4274	4213	4149	4169	4089	3993	3935	3828	3645	3598	3490	3393	3606	3863
6.0	4100	4031	3985	4016	3949	3857	3784	3718	3554	3515	3420	3310	3535	3778
6.5	3922	3870	3834	3859	3807	3706	3645	3600	3451	3418	3328	3231	3434	3662
7.0	3719	3669	3657	3691	3621	3516	3478	3451	3321	3293	3221	3133	3322	3530
7.5	3507	3474	3468	3490	3430	3318	3292	3299	3185	3162	3106	3013	3201	3371
8.0	3286	3285	3288	3309	3235	3110	3106	3114	3032	3018	2978	2879	3041	3195
8.5	3096	3085	3102	3114	3047	2921	2915	2933	2863	2873	2840	2747	2859	3014
9.0	2905	2905	2912	2931	2855	2716	2729	2754	2710	2704	2685	2599	2705	2827
9.5	2718	2718	2738	2741	2671	2528	2546	2584	2540	2531	2513	2450	2525	2628
10.0	2540	2543	2546	2551	2459	2348	2364	2407	2376	2350	2356	2287	2341	2440
10.5	2358	2373	2371	2365	2283	2172	2188	2241	2220	2189	2190	2139	2165	2254
11.0	2203	2194	2161	2164	2099	2000	2025	2078	2072	2037	2053	2000	2009	2089
11.5	2054	2028	1987	1970	1923	1821	1862	1931	1929	1900	1913	1868	1875	1932
12.0	1877	1850	1814	1810	1743	1663	1695	1786	1780	1767	1786	1757	1755	1792
12.5	1717	1680	1653	1646	1603	1521	1565	1649	1650	1652	1669	1655	1638	1665
13.0	1559	1511	1475	1480	1439	1391	1421	1516	1525	1533	1559	1548	1538	1547
13.5	1406	1356	1333	1336	1301	1256	1312	1397	1398	1423	1450	1443	1439	1433
14.0	1273	1208	1186	1188	1146	1134	1204	1270	1280	1303	1346	1335	1328	1312
14.5	1148	1090	1066	1072	1037	1012	1092	1166	1165	1188	1240	1234	1230	1213
15.0	1020	967	958	962	935	910	981	1053	1062	1073	1130	1135	1132	1104
15.5	914	870	863	866	843	813	880	949	960	972	1021	1039	1035	1004
16.0	817	792	776	785	763	730	785	850	868	880	924	943	943	906
16.5	735	725	711	716	693	664	701	756	787	785	834	843	853	812
17.0	654	658	647	644	635	599	625	679	705	706	738	760	766	719
17.5	574	581	591	580	584	541	563	606	638	634	658	675	691	643
18.0	503	509	528	510	535	497	497	538	577	569	591	602	616	560
18.5	445	446	466	454	483	458	449	484	526	518	541	545	558	501
19.0	394	393	411	403	430	420	409	436	462	464	490	499	492	442
19.5	352	348	363	357	382	372	372	388	400	405	445	443	432	391
20.0	309	305	320	314	340	323	332	345	344	357	394	388	380	344
22.5	167	171	175	174	178	169	176	164	164	176	208	204	190	179
25.0	111	114	118	110	101	102	110	90	78	102	122	111	110	110
27.5	83	97	98	71	51	63	80	51	46	60	106	90	66	85
30.0	46	63	83	39	45	35	73	36	35	41	89	52	45	46
32.5	30	35	49	28	25	26	49	28	26	29	70	37	30	34
35.0	20	24	28	20	20	22	30	24	24	24	37	27	22	22
37.5	13	15	20	20	16	16	26	16	19	18	25	19	17	16
40.0	9	11	14	12	11	13	17	13	12	13	17	13	11	10
42.5	8	11	11	10	9	10	12	12	9	12	12	7	7	9
45.0	9	11	11	10	9	9	11	9	10	9	12	8	8	9
47.5	7	10	11	9	8	7	8	7	7	9	12	9	8	9
50.0	4	9	10	8	7	7	8	6	5	6	9	6	5	7
52.5	2	7	7	1	1	2	9	1	1	3	9	3	1	5
55.0	1	1	5	1	1	1	6	1	1	1	7	1	1	1
57.5	1	1	1	1	1	1	1	1	1	1	4	1	1	1
60.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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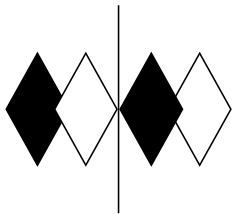
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CANDELA DISTRIBUTION

LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5
82.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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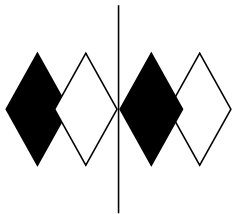
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CANDELA DISTRIBUTION  
LATERAL ANGLE

	315.0	337.5	360.0
0.0	4215	4215	4215
0.5	4202	4229	4271
1.0	4208	4274	4347
1.5	4232	4328	4440
2.0	4271	4422	4542
2.5	4317	4504	4615
3.0	4344	4558	4656
3.5	4364	4560	4650
4.0	4349	4536	4611
4.5	4305	4481	4525
5.0	4242	4393	4406
5.5	4152	4275	4274
6.0	4035	4154	4100
6.5	3895	3992	3922
7.0	3750	3801	3719
7.5	3566	3599	3507
8.0	3374	3392	3286
8.5	3172	3168	3096
9.0	2973	2957	2905
9.5	2771	2758	2718
10.0	2561	2554	2540
10.5	2383	2394	2358
11.0	2220	2220	2203
11.5	2061	2068	2054
12.0	1910	1917	1877
12.5	1775	1764	1717
13.0	1642	1639	1559
13.5	1526	1501	1406
14.0	1404	1368	1273
14.5	1288	1236	1148
15.0	1170	1121	1020
15.5	1066	1013	914
16.0	964	903	817
16.5	867	818	735
17.0	768	728	654
17.5	672	644	574
18.0	598	556	503
18.5	525	492	445
19.0	458	436	394
19.5	402	385	352
20.0	355	343	309
22.5	192	179	167
25.0	116	109	111
27.5	97	96	83
30.0	84	70	46
32.5	64	39	30
35.0	34	24	20
37.5	22	16	13
40.0	14	11	9
42.5	9	9	8
45.0	9	9	9
47.5	9	8	7
50.0	7	5	4
52.5	5	3	2
55.0	3	1	1
57.5	3	1	1
60.0	0	0	0
62.5	0	0	0
65.0	0	0	0
67.5	0	0	0
70.0	0	0	0
72.5	0	0	0
75.0	0	0	0
77.5	0	0	0
80.0	0	0	0



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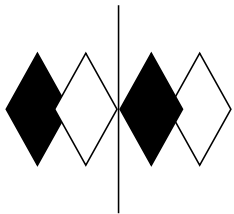
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CANDELA DISTRIBUTION  
LATERAL ANGLE

	315.0	337.5	360.0
82.5	0	0	0
85.0	0	0	0
87.5	0	0	0
90.0	0	0	0



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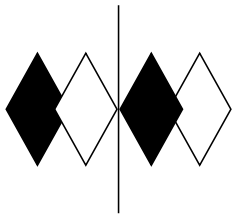
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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	100.
5- 10	230.
10- 15	194.
15- 20	103.
20- 25	42.
25- 30	20.
30- 35	11.
35- 40	6.
40- 45	4.
45- 50	3.
50- 55	2.
55- 60	1.
60- 65	0.
65- 70	0.
70- 75	0.
75- 80	0.
80- 85	0.
85- 90	0.

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	330.
0- 20	628.
0- 30	690.
0- 40	707.
0- 50	714.
0- 60	717.
0- 70	717.
0- 80	717.
0- 90	717.
0-100	717.
0-110	717.
0-120	717.
0-130	717.
0-140	717.
0-150	717.
0-160	717.
0-170	717.
0-180	717.



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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	92	92	92	92	89	89	89	89	85	85	85	82	82	82	78	78	78	77
1	89	87	86	85	87	86	84	83	83	82	81	80	79	78	77	77	76	75
2	86	84	81	80	85	82	80	79	80	78	77	78	77	75	76	75	74	73
3	84	80	78	76	82	79	77	75	78	76	74	76	74	73	74	73	72	71
4	81	78	75	73	80	77	74	72	75	73	72	74	72	71	73	71	70	69
5	79	75	72	70	78	75	72	70	73	71	69	72	70	69	71	70	68	68
6	77	73	70	68	77	73	70	68	72	69	68	71	69	67	70	68	67	66
7	76	71	68	66	75	71	68	66	70	68	66	69	67	66	68	67	65	65
8	74	69	67	65	73	69	66	65	68	66	64	68	66	64	67	65	64	63
9	72	68	65	63	72	67	65	63	67	65	63	66	64	63	66	64	63	62
10	71	66	64	62	70	66	63	62	66	63	62	65	63	61	65	63	61	61

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.