



LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING
MEMBER
of the
IESNA

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

LTL NUMBER: 17146

DATE: 11-17-2009

PREPARED FOR: USA ILLUMINATION, INC.

CATALOG NUMBER: 1653-BL712-A

LUMINAIRE: FORMED STEEL HOUSING, CAST WHITE ENAMEL ALUMINUM AND STEEL TRIM WITH FROSTED GLASS ENCLOSURE.

LAMP: ONE VBU M130 39 WATT MR16 CERAMIC METAL HALIDE REFLECTOR LAMP RATED AT 2100 LUMENS.

LAMP CATALOG NUMBER: GE CMH39MR16/930/FL

BALLAST: ONE HATCH TRANSFORMERS MC39-1-J-120X

MOUNTING: RECESSED

NOTE: THIS TEST WAS PRORATED TO A LUMEN RATING OF 1000 TO REPRESENT THE LUMEN RATING OF A GE 20 WATT CMHMR16 LAMP. THIS PRORATE WAS PERFORMED USING MEASURED PHOTOMETRIC DATA FROM LTL TEST NUMBER 13910.

Candela Distribution

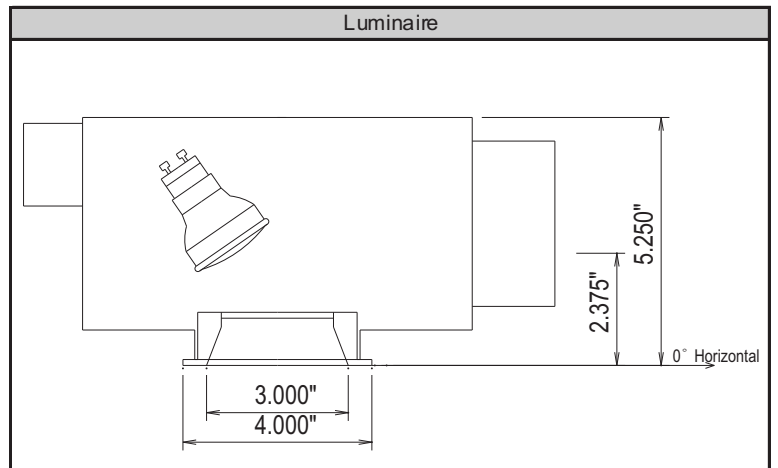
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	
5	290	280	252	218	186	162	145	136	132	136	145	162	186	218	252	280	19.6
15	662	566	378	230	150	108	86	74	71	74	86	108	150	230	378	566	69.7
25	968	739	372	179	105	71	52	45	43	45	52	71	105	179	372	739	117.1
35	726	526	236	106	63	45	36	33	32	33	36	45	63	106	236	526	110.0
45	281	219	108	49	34	30	28	27	27	27	28	30	34	49	108	219	63.9
55	74	68	42	25	21	22	22	22	21	22	22	22	21	25	42	68	30.7
65	11	14	13	10	9	11	12	13	13	13	12	11	9	10	13	14	12.0
75	2	2	2	3	3	4	4	5	6	5	4	4	3	3	2	2	3.7
85	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0.6
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
175	0	0	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	

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	206.5	20.6%	48.3%
0-40	316.5	31.6%	74.1%
0-60	411.0	41.1%	96.2%
0-90	427.2	42.7%	100.0%
90-180	0.0	0.0%	0.0%
0-180	427.2	42.7%	100.0%

Total luminaire efficiency: 42.7%

CIE Type: Direct
Spacing Criterion: 0 deg: 2.02 90 deg: 0.80
180 deg: 0.33 270 deg: 0.80



Approved By: MG

THIS REPORT BASED ON LM-46 AND OTHER PERTINENT IESNA PROCEDURES.



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Candela Tabulation (5 degree Vertical Increments)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
5	290	280	252	218	186	162	145	136	132	136	145	162	186	218	252	280
10	452	412	321	233	171	133	111	100	96	100	111	133	171	233	321	412
15	662	566	378	230	150	108	86	74	71	74	86	108	150	230	378	566
20	864	695	398	211	127	88	67	56	53	56	67	88	127	211	398	695
25	968	739	372	179	105	71	52	45	43	45	52	71	105	179	372	739
30	918	672	310	143	84	56	42	38	37	38	42	56	84	143	310	672
35	726	526	236	106	63	45	36	33	32	33	36	45	63	106	236	526
40	482	357	166	73	45	36	32	29	29	29	32	36	45	73	166	357
45	281	219	108	49	34	30	28	27	27	27	28	30	34	49	108	219
50	150	126	68	34	26	26	25	25	24	25	25	26	26	34	68	126
55	74	68	42	25	21	22	22	22	21	22	22	22	21	25	42	68
60	32	34	25	17	15	16	17	18	18	18	17	16	15	17	25	34
65	11	14	13	10	9	11	12	13	13	13	12	11	9	10	13	14
70	4	4	5	5	5	6	8	8	8	8	8	6	5	5	5	4
75	2	2	2	3	3	4	4	5	6	5	4	4	3	3	2	2
80	1	1	1	1	1	2	2	3	3	3	2	2	1	1	1	1
85	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	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

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	4.7	45-50	26.4	90-95	0.0	135-140	0.0
5-10	15.0	50-55	18.3	95-100	0.0	140-145	0.0
10-15	27.6	55-60	12.4	100-105	0.0	145-150	0.0
15-20	42.1	60-65	7.8	105-110	0.0	150-155	0.0
20-25	55.1	65-70	4.2	110-115	0.0	155-160	0.0
25-30	62.0	70-75	2.3	115-120	0.0	160-165	0.0
30-35	59.9	75-80	1.3	120-125	0.0	165-170	0.0
35-40	50.1	80-85	0.5	125-130	0.0	170-175	0.0
40-45	37.4	85-90	0.1	130-135	0.0	175-180	0.0



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.521	0.521	0.521	0.521	0.509	0.509	0.509	0.509	0.497	0.497	0.497	0.497
1	0.49	0.474	0.46	0.447	0.479	0.465	0.452	0.44	0.468	0.455	0.444	0.433
2	0.459	0.43	0.407	0.388	0.448	0.422	0.401	0.383	0.438	0.415	0.395	0.379
3	0.428	0.391	0.363	0.34	0.418	0.385	0.358	0.337	0.409	0.378	0.354	0.335
4	0.4	0.356	0.325	0.302	0.391	0.351	0.322	0.3	0.382	0.346	0.319	0.298
5	0.374	0.326	0.293	0.27	0.365	0.321	0.291	0.268	0.357	0.317	0.288	0.267
6	0.349	0.299	0.266	0.243	0.342	0.295	0.264	0.242	0.335	0.292	0.262	0.241
7	0.327	0.275	0.243	0.22	0.32	0.272	0.241	0.219	0.314	0.269	0.24	0.219
8	0.307	0.254	0.222	0.2	0.3	0.252	0.221	0.2	0.295	0.249	0.22	0.199
9	0.288	0.236	0.204	0.183	0.283	0.233	0.203	0.183	0.277	0.231	0.202	0.183
10	0.271	0.219	0.189	0.168	0.266	0.217	0.188	0.168	0.261	0.215	0.187	0.168

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.475	0.475	0.475	0.475	0.454	0.454	0.454	0.436	0.436	0.436	0.427
1	0.448	0.438	0.428	0.42	0.421	0.414	0.407	0.407	0.401	0.395	0.387
2	0.419	0.401	0.384	0.37	0.387	0.374	0.362	0.375	0.364	0.355	0.347
3	0.392	0.367	0.346	0.329	0.356	0.338	0.324	0.346	0.331	0.319	0.311
4	0.367	0.336	0.313	0.294	0.327	0.307	0.29	0.318	0.301	0.287	0.279
5	0.343	0.309	0.284	0.264	0.301	0.279	0.262	0.294	0.275	0.259	0.252
6	0.321	0.285	0.259	0.239	0.278	0.255	0.237	0.272	0.252	0.236	0.228
7	0.302	0.263	0.237	0.217	0.257	0.234	0.216	0.252	0.231	0.215	0.207
8	0.284	0.244	0.217	0.198	0.239	0.215	0.197	0.234	0.213	0.196	0.189
9	0.267	0.227	0.2	0.182	0.222	0.198	0.181	0.218	0.196	0.18	0.174
10	0.252	0.211	0.185	0.167	0.208	0.184	0.167	0.204	0.182	0.166	0.16

Average Luminance Table (cd/m²)

	0	45	90
0	32980	32980	32980
45	68433	26272	8178
55	22193	12584	6219
65	4506	5171	3743
75	1396	1544	1928
85	117	248	496

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 values should be used with caution.

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) 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. 2) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT, FIELD PERFORMANCE MAY DIFFER.

