



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: 17159

DATE: 11-17-2009

PREPARED FOR: USA ILLUMINATION, INC.

CATALOG NUMBER: 9277-HX821

LUMINAIRE: FORMED STEEL HOUSING, CAST ALUMINUM AND STEEL LAMP HOLDER/
TRIM WITH BLACK ENAMEL VERTICAL GROOVES INSIDE.

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 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 REPORT
NUMBER 14450.

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	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	
5	129	126	118	108	99	90	84	81	80	81	84	90	99	108	118	126	9.8
15	227	204	165	125	93	75	61	53	49	53	61	75	93	125	165	204	33.1
25	663	419	207	129	84	59	41	31	27	31	41	59	84	129	207	419	79.8
35	2093	909	227	116	68	39	22	13	11	13	22	39	68	116	227	909	190.1
45	2605	1000	193	85	45	17	6	4	4	4	6	17	45	85	193	1000	246.0
55	1102	358	83	49	11	2	3	4	4	4	3	2	11	49	83	358	123.4
65	147	61	21	1	1	1	2	3	3	3	2	1	1	1	21	61	24.8
75	1	0	0	0	0	1	2	2	3	2	2	1	0	0	0	0	2.2
85	0	0	0	0	0	0	1	2	2	2	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	

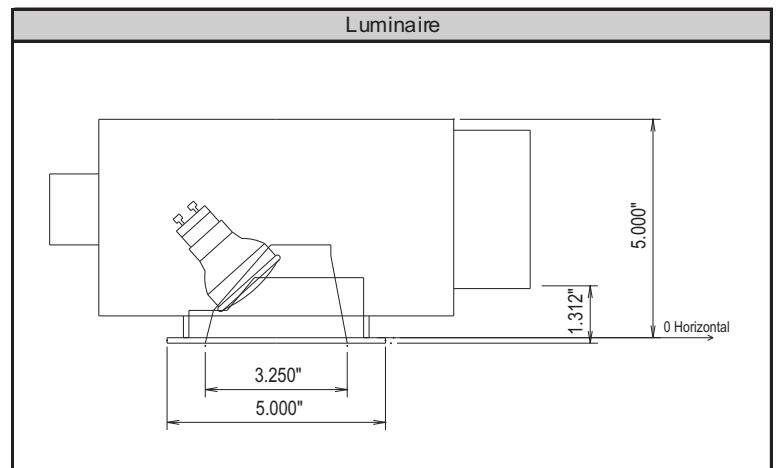
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	122.7	12.3%	17.3%
0-40	312.8	31.3%	44.1%
0-60	682.2	68.2%	96.1%
0-90	709.8	71.0%	100.0%
90-180	0.0	0.0%	0.0%
0-180	709.8	71.0%	100.0%

Total luminaire efficiency: 71.0%

CIE Type: Direct

Spacing Criterion: 0 deg: 3.57 90 deg: 1.16
180 deg: 0.47 270 deg: 1.16



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	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
5	129	126	118	108	99	90	84	81	80	81	84	90	99	108	118	126
10	167	160	140	117	97	81	72	66	63	66	72	81	97	117	140	160
15	227	204	165	125	93	75	61	53	49	53	61	75	93	125	165	204
20	347	282	187	128	90	66	51	42	37	42	51	66	90	128	187	282
25	663	419	207	129	84	59	41	31	27	31	41	59	84	129	207	419
30	1307	644	220	124	76	50	31	21	18	21	31	50	76	124	220	644
35	2093	909	227	116	68	39	22	13	11	13	22	39	68	116	227	909
40	2559	1082	218	104	58	28	13	7	6	7	13	28	58	104	218	1082
45	2605	1000	193	85	45	17	6	4	4	4	6	17	45	85	193	1000
50	2000	683	138	66	31	6	3	4	4	4	3	6	31	66	138	683
55	1102	358	83	49	11	2	3	4	4	4	3	2	11	49	83	358
60	483	159	51	19	1	2	3	4	4	4	3	2	1	19	51	159
65	147	61	21	1	1	1	2	3	3	3	2	1	1	1	21	61
70	49	21	1	0	0	1	2	3	3	3	2	1	0	0	1	21
75	1	0	0	0	0	1	2	2	3	2	2	1	0	0	0	0
80	0	0	0	0	0	1	1	2	2	2	1	1	0	0	0	0
85	0	0	0	0	0	0	1	2	2	2	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	2.4	45-50	117.6	90-95	0.0	135-140	0.0
5-10	7.4	50-55	80.4	95-100	0.0	140-145	0.0
10-15	13.1	55-60	42.9	100-105	0.0	145-150	0.0
15-20	20.0	60-65	18.4	105-110	0.0	150-155	0.0
20-25	30.5	65-70	6.4	110-115	0.0	155-160	0.0
25-30	49.3	70-75	1.7	115-120	0.0	160-165	0.0
30-35	79.1	75-80	0.4	120-125	0.0	165-170	0.0
35-40	111.0	80-85	0.3	125-130	0.0	170-175	0.0
40-45	128.4	85-90	0.3	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	0.866	0.866	0.866	0.866	0.845	0.845	0.845	0.845	0.825	0.825	0.825	0.825
1	0.806	0.775	0.748	0.723	0.786	0.759	0.734	0.711	0.768	0.743	0.72	0.7
2	0.741	0.685	0.64	0.601	0.723	0.672	0.63	0.594	0.705	0.659	0.62	0.587
3	0.679	0.604	0.548	0.503	0.661	0.593	0.54	0.499	0.644	0.582	0.533	0.494
4	0.621	0.534	0.471	0.424	0.604	0.524	0.465	0.421	0.588	0.515	0.46	0.418
5	0.567	0.472	0.407	0.359	0.552	0.464	0.403	0.357	0.537	0.456	0.398	0.355
6	0.52	0.419	0.353	0.307	0.505	0.412	0.35	0.305	0.492	0.406	0.347	0.304
7	0.477	0.374	0.309	0.264	0.464	0.368	0.306	0.263	0.451	0.362	0.304	0.262
8	0.439	0.335	0.272	0.228	0.427	0.33	0.269	0.228	0.416	0.325	0.267	0.227
9	0.405	0.302	0.24	0.199	0.394	0.298	0.238	0.198	0.384	0.293	0.237	0.198
10	0.375	0.273	0.214	0.174	0.366	0.27	0.212	0.174	0.356	0.266	0.211	0.173

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	0.789	0.789	0.789	0.789	0.755	0.755	0.755	0.724	0.724	0.724	0.71
1	0.733	0.713	0.695	0.678	0.686	0.671	0.657	0.661	0.649	0.638	0.624
2	0.672	0.634	0.602	0.574	0.612	0.585	0.561	0.591	0.569	0.549	0.535
3	0.613	0.562	0.52	0.486	0.542	0.507	0.477	0.525	0.495	0.469	0.455
4	0.559	0.497	0.45	0.412	0.481	0.44	0.407	0.466	0.431	0.401	0.387
5	0.51	0.441	0.39	0.351	0.428	0.383	0.348	0.415	0.375	0.344	0.329
6	0.467	0.393	0.34	0.301	0.381	0.334	0.299	0.37	0.329	0.296	0.282
7	0.429	0.351	0.298	0.26	0.341	0.293	0.258	0.332	0.289	0.256	0.242
8	0.395	0.316	0.263	0.225	0.307	0.259	0.224	0.298	0.255	0.222	0.209
9	0.365	0.285	0.233	0.197	0.277	0.23	0.196	0.27	0.226	0.194	0.181
10	0.339	0.259	0.208	0.173	0.252	0.205	0.172	0.245	0.202	0.171	0.158

Average Luminance Table (cd/m²)

	0	45	90
0	18452	18452	18452
45	688379	50928	11885
55	358962	27197	3494
65	64935	9248	235
75	696	55	244
85	0	0	467

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.

