



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: 17147

DATE: 11-17-2009

PREPARED FOR: USA ILLUMINATION, INC.

CATALOG NUMBER: 1656-BL716-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 13911.

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	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	
5	167	164	155	143	132	122	115	111	110	111	115	122	132	143	155	164	13.1
15	291	262	206	155	121	99	87	81	79	81	87	99	121	155	206	262	43.1
25	581	441	252	149	103	80	71	67	66	67	71	80	103	149	252	441	86.7
35	958	615	252	122	79	65	61	60	59	60	61	65	79	122	252	615	136.5
45	867	530	180	80	56	52	52	50	48	50	52	52	56	80	180	530	137.8
55	361	233	91	42	36	36	37	34	30	34	37	36	36	42	91	233	79.7
65	66	52	30	20	20	21	19	18	16	18	19	21	20	20	30	52	29.0
75	4	6	7	9	10	10	10	9	8	9	10	10	10	9	7	6	9.3
85	0	0	1	2	3	3	3	2	2	2	3	3	3	2	1	0	2.1
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	

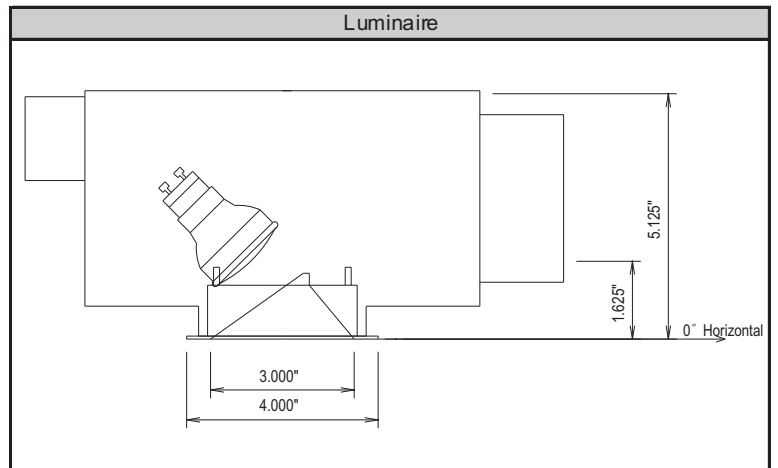
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	142.8	14.3%	26.6%
0-40	279.3	27.9%	52.0%
0-60	496.9	49.7%	92.5%
0-90	537.2	53.7%	100.0%
90-180	0.0	0.0%	0.0%
0-180	537.2	53.7%	100.0%

Total luminaire efficiency: 53.7%

CIE Type: Direct

Spacing Criterion: 0 deg: 2.87 90 deg: 1.06
180 deg: 0.60 270 deg: 1.06



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	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133
5	167	164	155	143	132	122	115	111	110	111	115	122	132	143	155	164
10	216	205	179	151	128	111	100	94	92	94	100	111	128	151	179	205
15	291	262	206	155	121	99	87	81	79	81	87	99	121	155	206	262
20	410	341	231	154	113	89	77	73	71	73	77	89	113	154	231	341
25	581	441	252	149	103	80	71	67	66	67	71	80	103	149	252	441
30	787	544	260	138	92	72	66	64	63	64	66	72	92	138	260	544
35	958	615	252	122	79	65	61	60	59	60	61	65	79	122	252	615
40	1008	615	223	102	67	58	57	56	54	56	57	58	67	102	223	615
45	867	530	180	80	56	52	52	50	48	50	52	52	56	80	180	530
50	605	380	133	59	45	44	45	42	40	42	45	44	45	59	133	380
55	361	233	91	42	36	36	37	34	30	34	37	36	36	42	91	233
60	176	123	56	29	27	28	28	23	21	23	28	28	27	29	56	123
65	66	52	30	20	20	21	19	18	16	18	19	21	20	20	30	52
70	17	18	15	14	15	15	14	13	12	13	14	15	15	14	15	18
75	4	6	7	9	10	10	10	9	8	9	10	10	10	9	7	6
80	2	2	3	5	6	6	6	5	5	5	6	6	6	5	3	2
85	0	0	1	2	3	3	3	2	2	2	3	3	3	2	1	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	3.2	45-50	63.9	90-95	0.0	135-140	0.0
5-10	9.8	50-55	47.9	95-100	0.0	140-145	0.0
10-15	17.2	55-60	31.8	100-105	0.0	145-150	0.0
15-20	25.9	60-65	18.7	105-110	0.0	150-155	0.0
20-25	36.8	65-70	10.3	110-115	0.0	155-160	0.0
25-30	49.9	70-75	5.8	115-120	0.0	160-165	0.0
30-35	63.4	75-80	3.5	120-125	0.0	165-170	0.0
35-40	73.1	80-85	1.7	125-130	0.0	170-175	0.0
40-45	74.0	85-90	0.4	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	0.655	0.655	0.655	0.655	0.64	0.64	0.64	0.64	0.625	0.625	0.625	0.625
1	0.609	0.586	0.565	0.546	0.595	0.573	0.554	0.537	0.581	0.561	0.544	0.528
2	0.562	0.52	0.485	0.456	0.548	0.509	0.478	0.451	0.534	0.499	0.47	0.446
3	0.516	0.461	0.419	0.386	0.503	0.452	0.413	0.382	0.49	0.444	0.408	0.379
4	0.475	0.41	0.364	0.329	0.462	0.403	0.36	0.327	0.45	0.396	0.356	0.325
5	0.437	0.367	0.319	0.284	0.425	0.361	0.316	0.282	0.414	0.355	0.312	0.281
6	0.403	0.329	0.281	0.247	0.392	0.324	0.279	0.246	0.382	0.319	0.276	0.245
7	0.372	0.297	0.249	0.217	0.362	0.293	0.247	0.216	0.353	0.288	0.245	0.215
8	0.345	0.269	0.223	0.191	0.336	0.265	0.221	0.191	0.328	0.262	0.22	0.19
9	0.32	0.245	0.2	0.17	0.312	0.242	0.199	0.17	0.305	0.239	0.198	0.169
10	0.299	0.224	0.181	0.152	0.291	0.222	0.18	0.152	0.285	0.219	0.179	0.152

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	0.597	0.597	0.597	0.597	0.571	0.571	0.571	0.548	0.548	0.548	0.537
1	0.554	0.539	0.525	0.512	0.518	0.507	0.496	0.499	0.49	0.482	0.471
2	0.509	0.481	0.457	0.436	0.464	0.444	0.426	0.448	0.431	0.417	0.406
3	0.467	0.429	0.398	0.372	0.414	0.388	0.366	0.401	0.379	0.36	0.349
4	0.429	0.383	0.348	0.321	0.371	0.341	0.316	0.36	0.334	0.312	0.301
5	0.394	0.344	0.306	0.278	0.333	0.301	0.275	0.324	0.295	0.272	0.261
6	0.364	0.31	0.271	0.243	0.301	0.267	0.241	0.293	0.262	0.239	0.228
7	0.337	0.28	0.242	0.213	0.273	0.238	0.212	0.265	0.234	0.21	0.2
8	0.312	0.255	0.216	0.189	0.248	0.213	0.188	0.242	0.21	0.187	0.177
9	0.291	0.233	0.195	0.168	0.227	0.192	0.168	0.222	0.19	0.167	0.157
10	0.272	0.214	0.177	0.151	0.209	0.174	0.15	0.204	0.172	0.15	0.14

Average Luminance Table (cd/m²)

	0	45	90
0	22986	22986	22986
45	211103	43762	13523
55	108357	27465	10672
65	26995	12317	8171
75	2988	4570	6859
85	0	1575	5066

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) 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.

