

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P21164

Luminaire Tested: **ELG405830TBZ(35 deg Beam-35deg tilt)**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P21164
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ELG405830TBZ(35 deg Beam-35deg tilt)
Description: HALO 4 INCH RECESSED FIXTURE WITH ROUND TUSCAN BRONZE TRIM, TUSCAN BRONZE GIMBAL, MEDIUM UPPER REFLECTOR AND CLEAR LENS .
---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS
CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE OF 28.75 FEET----
Light Source: (1) SMT LED 3000K
(1) 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 605 (1 lamp)
Luminaire Lumens: 605.5 lumens
Efficiency: 100.1%
Efficacy: 44.5 lumens/watt
Spacing Criteria (0/90/45): 2.5 / 0.7 / 1.45
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

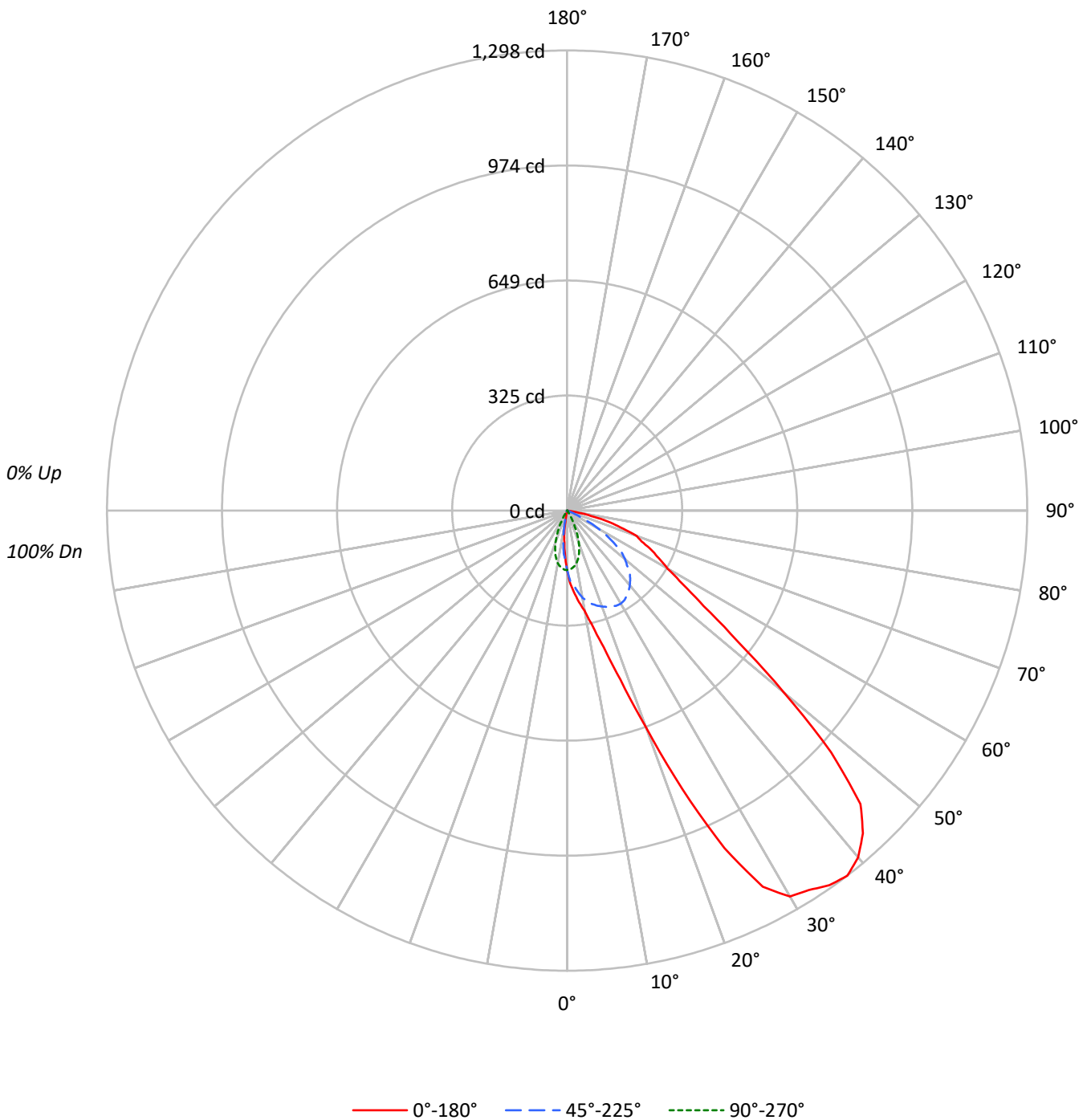
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (Ain): 0.11939
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	94	88	83	99	92	87	82	89	84	80	86	82	78	83	80	77				75	
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66				64	
4	86	74	66	60	83	73	65	60	71	64	59	68	63	58	66	61	57				55	
5	79	67	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50				48	
6	73	60	51	45	71	59	51	45	57	50	45	55	49	44	54	48	44				42	
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39				37	
8	62	49	41	35	61	48	40	35	47	40	35	46	39	35	45	39	34				32	
9	58	45	37	31	57	44	36	31	43	36	31	42	36	31	41	35	31				29	
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28				26	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20722	20722	20722
5°	28849	20182	11144
10°	36072	18913	1879
15°	50951	16345	511
20°	85320	12601	263
25°	143038	7621	136
30°	179031	2991	142
35°	194245	753	0
40°	205618	644	0
45°	204091	523	0
50°	153130	192	0
55°	101072	215	0
60°	80668	247	0
65°	76467	292	0
70°	75013	361	0
75°	57189	477	0
80°	18468	710	0
85°	5661	1415	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	15.3	2.5	2.5
10°-20°	45.2	7.5	7.5
20°-30°	102.7	17.0	17.0
30°-40°	153.7	25.4	25.4
40°-50°	141.0	23.3	23.3
50°-60°	82.5	13.6	13.6
60°-70°	47.6	7.9	7.9
70°-80°	15.9	2.6	2.6
80°-90°	1.5	0.3	0.3
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	163.2	27.0	27.0
0°-40°	316.9	52.3	52.4
0°-60°	540.4	89.3	89.3
0°-90°	605.5	100.0	100.1
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	605.5	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	168	168	168	168	168	
5°	233	211	163	116	90	24
15°	399	273	128	9	4	126
25°	1051	299	56	3	1	477
35°	1290	293	5	1	0	805
45°	1170	250	3	1	0	857
55°	470	164	1	1	0	450
65°	262	33	1	1	0	259
75°	120	4	1	1	0	122
85°	4	2	1	1	0	7
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	168	168	168	168	168	168	168	168	168	168	168
2.5°	207	206	206	206	205	204	203	202	200	198	196
5°	233	233	232	230	228	225	222	218	214	211	207
7.5°	261	261	260	258	255	252	248	244	238	231	224
10°	288	287	286	283	279	274	269	263	257	250	242
12.5°	334	332	328	321	312	301	290	280	271	262	253
15°	399	396	386	372	355	338	320	301	285	273	260
17.5°	500	494	479	455	423	388	354	327	301	281	266
20°	650	638	607	562	510	456	400	353	318	288	268
22.5°	850	831	779	701	613	529	452	383	332	294	269
25°	1051	1033	972	866	730	606	500	411	344	299	269
27.5°	1196	1186	1140	1028	859	685	543	435	354	302	270
30°	1257	1254	1228	1134	960	748	574	449	358	303	269
32.5°	1269	1269	1243	1163	1006	781	585	448	356	300	267
35°	1290	1291	1260	1169	1004	773	571	434	348	293	263
37.5°	1298	1301	1261	1155	967	734	537	410	334	285	256
40°	1277	1262	1217	1099	898	670	490	383	313	275	244
42.5°	1235	1224	1158	1010	793	587	440	352	295	263	227
45°	1170	1146	1052	876	667	504	394	321	280	250	213
47.5°	1010	981	870	712	557	431	351	296	265	229	197
50°	798	767	680	568	458	372	314	277	247	213	171
52.5°	605	584	528	451	381	326	285	258	228	193	143
55°	470	456	419	374	327	290	264	239	206	164	116
57.5°	386	377	353	321	290	264	244	218	182	134	85
60°	327	321	306	287	264	245	223	193	151	102	53
62.5°	291	288	278	263	245	223	199	164	115	67	24
65°	262	259	250	237	220	199	169	126	77	33	8
67.5°	227	226	221	210	192	167	130	81	39	11	5
70°	208	205	195	179	156	123	80	42	15	5	4
72.5°	157	154	146	130	106	73	40	16	6	4	3
75°	120	116	104	86	60	33	14	6	4	4	3
77.5°	69	67	58	41	23	10	5	4	4	3	2
80°	26	23	17	10	6	5	4	4	3	2	2
82.5°	7	6	5	4	4	4	3	3	2	2	2
85°	4	4	4	3	3	3	2	2	2	2	1
87.5°	3	3	3	3	3	2	2	2	2	2	1
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	168	168	168	168	168	168	168	168	168	168	168
2.5°	194	191	187	184	180	176	171	167	149	138	132
5°	204	201	197	192	187	179	171	163	133	116	97
7.5°	217	211	204	198	191	181	170	158	118	80	63
10°	232	223	213	203	192	181	166	151	96	54	23
12.5°	243	231	219	205	191	176	159	141	71	21	10
15°	248	235	221	205	187	170	150	128	48	9	4
17.5°	252	237	221	203	183	163	138	113	26	5	3
20°	253	237	219	199	177	153	125	96	11	4	2
22.5°	251	235	215	194	169	141	108	77	6	3	2
25°	249	231	210	186	158	124	87	56	4	3	1
27.5°	247	227	203	177	144	104	66	36	4	2	1
30°	246	222	195	164	125	82	46	21	3	1	1
32.5°	243	215	184	147	103	60	28	10	3	1	1
35°	236	203	169	126	80	40	15	5	2	1	0
37.5°	224	189	149	102	57	22	7	4	2	1	0
40°	209	172	126	79	36	10	4	4	1	1	0
42.5°	194	149	102	56	18	5	4	3	1	1	0
45°	173	125	79	33	8	4	3	3	1	1	0
47.5°	148	101	53	15	5	3	3	2	1	1	0
50°	123	75	28	7	4	3	3	1	1	1	0
52.5°	96	48	11	4	3	3	2	1	1	1	0
55°	67	21	6	4	3	2	1	1	1	1	0
57.5°	38	9	4	3	2	1	1	1	1	1	0
60°	14	4	4	3	2	1	1	1	1	1	0
62.5°	6	4	3	2	2	1	1	1	1	1	0
65°	4	3	3	2	1	1	1	1	1	1	0
67.5°	4	3	2	1	1	1	1	1	1	1	0
70°	3	3	2	1	1	1	1	1	1	1	0
72.5°	3	2	2	1	1	1	1	1	1	1	0
75°	2	2	2	1	1	1	1	1	1	1	0
77.5°	2	2	1	1	1	1	1	1	1	1	0
80°	2	1	1	1	1	1	1	1	1	1	0
82.5°	1	1	1	1	1	1	1	1	1	1	0
85°	1	1	1	1	1	1	1	1	1	1	0
87.5°	1	1	1	1	1	1	1	1	1	1	0
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	180°
0°	168
2.5°	130
5°	90
7.5°	58
10°	15
12.5°	9
15°	4
17.5°	3
20°	2
22.5°	1
25°	1
27.5°	1
30°	1
32.5°	0
35°	0
37.5°	0
40°	0
42.5°	0
45°	0
47.5°	0
50°	0
52.5°	0
55°	0
57.5°	0
60°	0
62.5°	0
65°	0
67.5°	0
70°	0
72.5°	0
75°	0
77.5°	0
80°	0
82.5°	0
85°	0
87.5°	0
90°	0

(END OF REPORT)