

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: P21177-R2

Luminaire Tested: **ELSG405830TBZ(25deg Beam-35deg tilt)**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P21177-R2
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ELSG405830TBZ(25deg Beam-35deg tilt)
Description: ****THIS IS A REVISION OF P21177 TO UPDATE THE CATALOG NUMBER****
HALO 4 INCH RECESSED FIXTURE WITH SQUARE TUSCAN BRONZE TRIM,
TUSCAN BRONZE GIMBAL, NARROW 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) SMT LED 3000K
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 592 (1 lamp)
Luminaire Lumens: 592.1 lumens
Efficiency: 100.0%
Efficacy: 43.5 lumens/watt
Spacing Criteria (0/90/45): 2.59 / 0.66 / 1.56
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

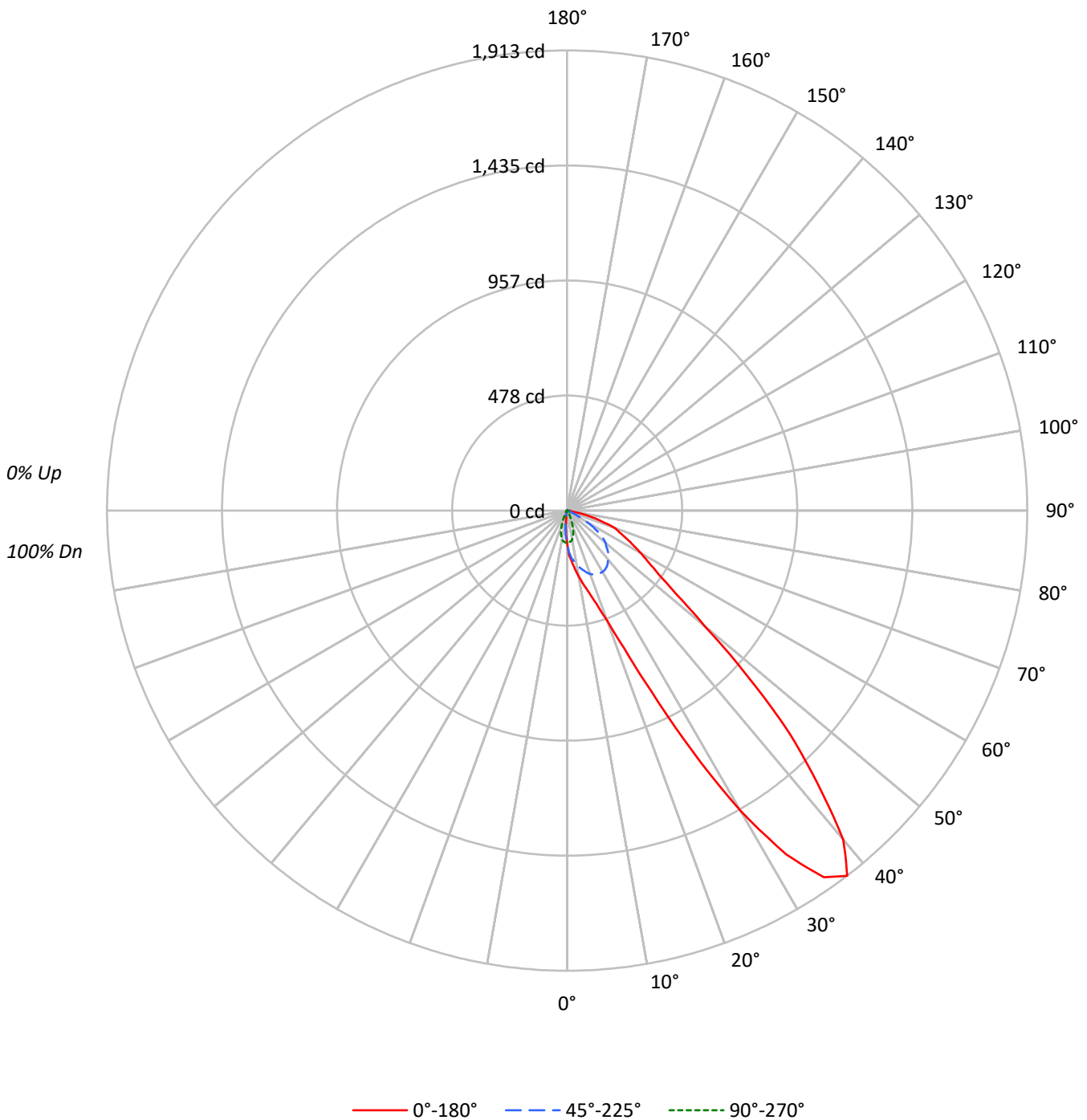
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (A_{in}): 0.1191
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89					87				
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76					74				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	73	65	59	82	72	64	58	70	63	57	67	61	57	65	60	56					54				
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49					46				
6	72	59	50	44	70	58	49	43	56	49	43	54	48	43	53	47	42					40				
7	66	53	44	38	64	52	44	38	51	43	38	49	42	37	48	42	37					35				
8	61	48	39	34	60	47	39	34	46	39	33	45	38	33	43	37	33					31				
9	57	44	35	30	56	43	35	30	42	35	30	41	34	29	40	34	29					27				
10	53	40	32	27	52	39	32	27	38	31	26	37	31	26	36	31	26					24				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16528	16528	16528
5°	26002	16220	7553
10°	34694	15155	2004
15°	45077	12642	1532
20°	63924	8532	525
25°	112688	4355	272
30°	205238	2136	142
35°	280224	1958	151
40°	287575	1771	161
45°	227640	872	0
50°	143151	576	0
55°	100427	215	0
60°	87082	247	0
65°	78219	292	0
70°	76095	361	0
75°	51470	477	0
80°	11365	710	710
85°	18398	1415	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	12.7	2.2	2.2
10°-20°	40.0	6.7	6.7
20°-30°	87.7	14.8	14.8
30°-40°	158.6	26.8	26.8
40°-50°	140.1	23.7	23.7
50°-60°	83.0	14.0	14.0
60°-70°	49.5	8.4	8.4
70°-80°	17.7	3.0	3.0
80°-90°	2.9	0.5	0.5
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°	140.4	23.7	23.7
0°-40°	299.0	50.5	50.5
0°-60°	522.1	88.2	88.2
0°-90°	592.1	100.0	100.0
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°	592.1	100.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	134	134	134	134	134	
5°	210	197	131	76	61	22
15°	353	256	99	13	12	106
25°	828	292	32	5	2	422
35°	1861	286	13	1	1	1117
45°	1305	240	5	1	0	981
55°	467	160	1	1	0	443
65°	268	32	1	1	0	270
75°	108	11	1	1	0	114
85°	13	2	1	1	0	12
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°	134	134	134	134	134	134	134	134	134	134	134
2.5°	187	186	186	185	184	182	181	177	174	171	167
5°	210	209	209	208	207	206	205	203	200	197	193
7.5°	244	243	243	240	236	232	227	221	216	210	205
10°	277	275	273	268	263	256	251	245	236	228	219
12.5°	314	313	310	304	297	287	278	265	253	243	232
15°	353	352	347	339	328	315	302	287	271	256	243
17.5°	407	404	396	383	364	345	328	308	289	270	252
20°	487	482	467	442	414	385	355	327	303	281	259
22.5°	619	609	577	530	479	430	388	347	315	287	263
25°	828	803	734	649	564	484	423	369	326	292	263
27.5°	1124	1077	955	801	656	540	453	388	333	294	262
30°	1441	1377	1195	969	750	587	474	400	338	294	259
32.5°	1694	1624	1388	1104	828	616	481	402	338	292	255
35°	1861	1799	1503	1173	863	620	476	395	333	286	250
37.5°	1913	1836	1511	1167	846	599	459	381	322	277	241
40°	1786	1691	1408	1090	781	558	438	363	311	265	231
42.5°	1542	1464	1238	951	684	506	412	344	295	253	216
45°	1305	1226	1028	784	588	459	384	325	278	240	205
47.5°	1011	950	803	644	510	422	355	303	260	221	189
50°	746	711	632	537	453	381	328	280	242	208	164
52.5°	571	552	510	457	397	341	296	256	223	188	135
55°	467	457	434	393	349	304	267	236	204	160	107
57.5°	402	393	374	343	308	272	243	216	181	128	78
60°	353	347	329	304	274	246	223	194	150	96	47
62.5°	309	304	290	269	246	223	202	165	113	62	24
65°	268	265	257	241	223	202	173	126	75	32	15
67.5°	234	232	226	215	198	173	135	82	41	18	14
70°	211	208	201	186	165	130	86	45	20	14	12
72.5°	153	153	151	140	116	82	47	23	14	12	11
75°	108	107	106	95	70	41	23	14	12	11	7
77.5°	61	61	61	50	33	19	15	13	11	8	5
80°	16	15	16	16	15	13	12	11	9	4	3
82.5°	12	11	12	12	12	11	11	8	4	2	2
85°	13	12	13	11	11	9	9	5	3	2	2
87.5°	11	11	10	9	8	6	5	3	2	2	2
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°	134	134	134	134	134	134	134	134	134	134	134
2.5°	162	158	153	148	143	140	136	134	124	114	103
5°	187	181	172	163	153	145	137	131	106	76	65
7.5°	200	194	186	176	162	149	137	128	82	52	26
10°	211	201	192	182	168	151	134	121	62	21	16
12.5°	220	209	196	184	169	149	128	111	40	16	13
15°	229	215	201	185	167	145	119	99	21	13	12
17.5°	237	220	204	185	164	136	107	84	15	13	10
20°	241	223	204	183	158	125	93	65	13	10	5
22.5°	242	222	201	178	147	110	75	47	12	8	2
25°	240	219	196	169	133	92	57	32	12	5	1
27.5°	236	213	188	157	115	71	40	22	9	2	1
30°	231	207	179	141	95	53	27	15	7	2	1
32.5°	228	200	166	122	72	37	19	14	4	1	1
35°	221	188	149	99	53	24	14	13	2	1	1
37.5°	209	174	127	77	35	16	13	13	1	1	0
40°	196	156	104	56	22	14	13	11	1	1	0
42.5°	182	132	81	36	15	13	12	8	1	1	0
45°	161	109	57	21	13	12	10	5	1	1	0
47.5°	135	84	35	15	12	11	6	4	1	1	0
50°	111	59	20	13	11	9	4	3	1	1	0
52.5°	82	34	14	11	9	4	2	1	0	1	0
55°	56	19	12	11	7	3	1	1	1	1	0
57.5°	30	15	11	9	4	2	1	2	1	1	0
60°	18	13	11	6	3	2	1	1	1	1	0
62.5°	14	12	8	3	1	1	1	1	1	1	0
65°	12	10	4	2	1	1	1	1	1	1	0
67.5°	12	8	3	2	1	1	1	1	1	1	0
70°	9	4	2	2	1	1	1	1	1	1	0
72.5°	6	4	2	2	1	2	2	1	1	1	0
75°	4	2	1	1	1	1	1	1	1	1	0
77.5°	2	2	1	1	1	1	1	2	1	1	0
80°	2	2	1	1	1	1	1	1	1	1	0
82.5°	2	2	1	1	0	1	1	1	0	1	0
85°	2	2	1	1	1	1	1	1	1	1	0
87.5°	2	2	1	1	1	1	1	2	1	1	1
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	180°
0°	134
2.5°	99
5°	61
7.5°	20
10°	16
12.5°	12
15°	12
17.5°	8
20°	4
22.5°	2
25°	2
27.5°	1
30°	1
32.5°	1
35°	1
37.5°	1
40°	1
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°	1
70°	0
72.5°	1
75°	0
77.5°	0
80°	1
82.5°	0
85°	0
87.5°	1
90°	0

(END OF REPORT)