

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P1219801

Luminaire Tested: HLC4FS1E-24P-3500K

Issue Date: 12/22/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-2019
Report Number: P1219801
Test Lab: INNOVATION CENTER
Issue Date: 12/22/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLC4FS1E-24P-3500K
Description: 4" Surface Mount LED Disk Light

Light Source:
Ballast/Driver: -

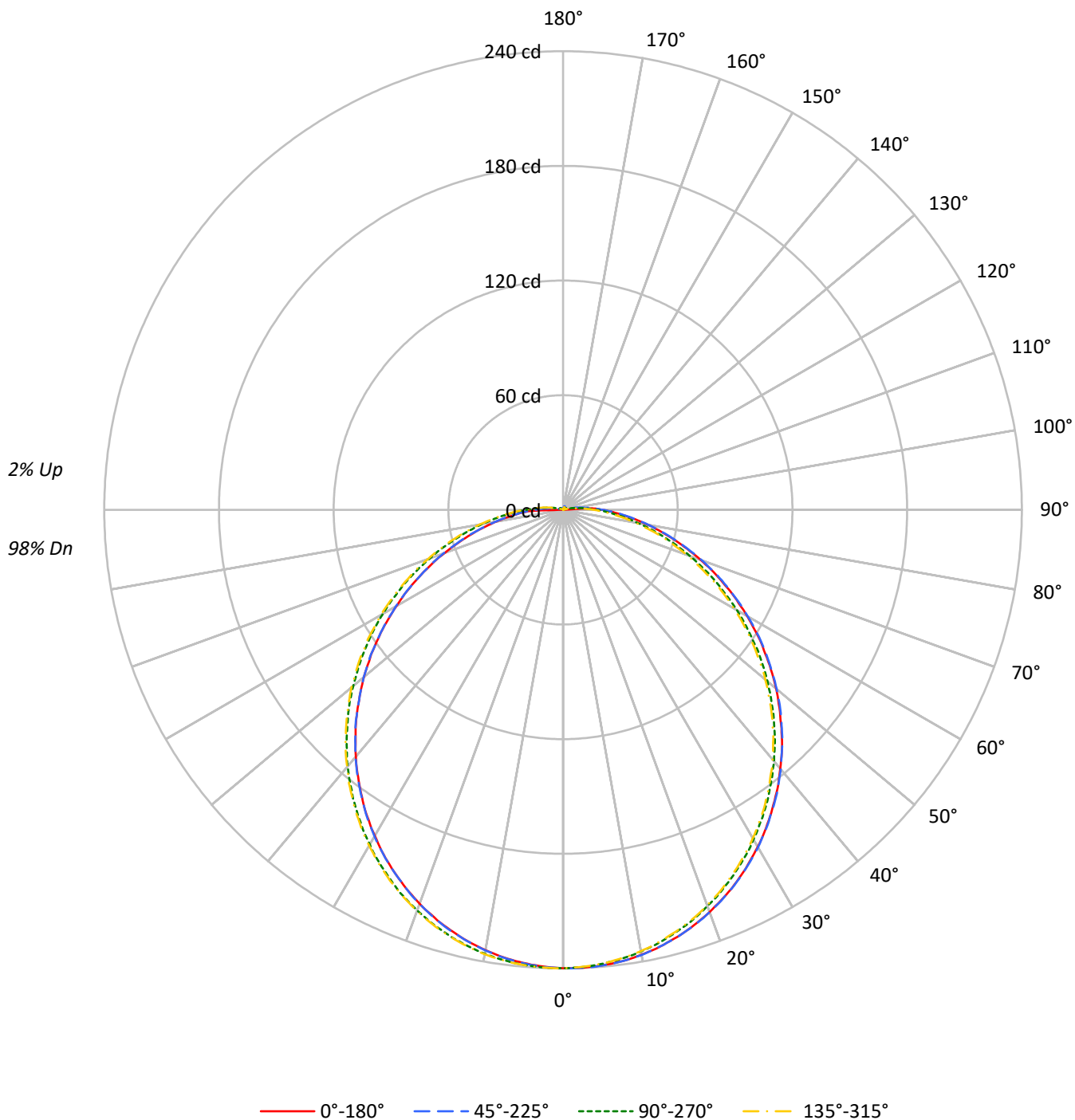
Summary

Lumens per Lamp: 660 (1 lamp)
Luminaire Lumens: 730.0 lumens
Efficiency: 110.6%
Efficacy: 73.0 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.36
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): 122
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: >0.9
Total Harmonic Distortion (THDi): <20
Frequency (hertz): 60
Stabilization Time: HR
Operation Time: HR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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CATALOG NUMBER: HLC4FS1E-24P-3500K

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
RCR																				
0	131	131	131	131	128	128	128	128	121	121	121	116	116	116	111	111	111	108		
1	118	113	107	103	115	110	105	101	105	101	97	100	97	94	95	93	90	88		
2	107	98	89	83	104	95	88	82	91	85	79	87	82	77	83	79	75	72		
3	98	85	76	68	95	83	75	68	80	72	66	76	70	65	73	68	63	60		
4	89	75	65	58	86	74	64	57	71	63	56	68	61	55	65	59	54	51		
5	82	67	57	50	79	66	56	49	63	55	48	61	53	48	58	52	47	44		
6	76	61	50	43	73	59	50	43	57	49	42	55	47	42	53	46	41	39		
7	70	55	45	38	68	54	44	38	52	43	37	50	43	37	48	42	36	34		
8	65	50	40	34	63	49	40	34	47	39	33	46	38	33	44	38	33	30		
9	61	46	37	30	59	45	36	30	44	36	30	42	35	30	41	34	29	27		
10	57	42	34	28	56	42	33	27	40	33	27	39	32	27	38	31	27	25		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	30191	30191	30191	30191
5°	30218	30117	30067	30193
10°	30210	29980	29903	30146
15°	30136	29797	29667	30045
20°	30013	29558	29383	29879
25°	29813	29286	29022	29660
30°	29601	28948	28613	29383
35°	29329	28622	28177	29098
40°	29046	28208	27715	28799
45°	28761	27765	27195	28405
50°	28487	27332	26608	28056
55°	28151	26834	25956	27690
60°	28014	26454	25296	27360
65°	27873	26086	24716	27218
70°	28186	25978	24249	27229
75°	29321	26452	24264	28105
80°	32686	28845	25728	31236
85°	45629	39420	34078	43319

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 89°

Luminance: 170901 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	22.7	3.1	3.4
10°-20°	64.8	8.9	9.8
20°-30°	97.7	13.4	14.8
30°-40°	117.3	16.1	17.8
40°-50°	121.5	16.6	18.4
50°-60°	110.8	15.2	16.8
60°-70°	88.1	12.1	13.4
70°-80°	59.0	8.1	8.9
80°-90°	31.1	4.3	4.7
90°-100°	10.9	1.5	1.7
100°-110°	2.5	0.3	0.4
110°-120°	0.9	0.1	0.1
120°-130°	0.8	0.1	0.1
130°-140°	0.7	0.1	0.1
140°-150°	0.6	0.1	0.1
150°-160°	0.4	0.1	0.1
160°-170°	0.1	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	185.2	25.4	28.1
0°-40°	302.5	41.4	45.8
0°-60°	534.8	73.3	81.0
0°-90°	713.0	97.7	108.0
90°-120°	14.3	2.0	2.2
90°-150°	16.5	2.3	2.5
90°-180°	17.0	2.3	2.6
0°-180°	730.0	100.0	110.6

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	240	240	240	240	240	
5°	239	238	238	239	239	23
15°	231	229	228	231	231	65
25°	215	211	209	214	215	99
35°	191	186	183	189	191	119
45°	162	156	153	160	162	125
55°	128	122	118	126	128	115
65°	94	88	83	91	94	93
75°	60	54	50	58	60	64
85°	32	27	24	30	32	29
90°	21	18	0	20	21	11
95°	0	10	0	12	0	2
105°	0	2	0	3	0	0
115°	0	2	0	2	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	239.9	239.9	239.9	239.9	239.9	239.9	239.9	239.9	239.9	239.9	239.9
1°	239.9	239.9	240.0	240.0	239.8	239.8	239.7	239.7	239.7	239.7	239.7
2°	239.9	239.8	239.9	240.0	239.5	239.6	239.5	239.5	239.4	239.4	239.5
3°	239.7	239.7	239.9	239.9	239.3	239.3	239.2	239.0	239.0	239.1	239.1
4°	239.5	239.5	239.7	239.7	238.9	239.0	238.8	238.6	238.6	238.7	238.7
5°	239.2	239.2	239.3	239.4	238.4	238.6	238.3	238.0	238.0	238.1	238.2
6°	238.9	238.8	239.0	239.1	237.8	238.0	237.7	237.3	237.4	237.5	237.5
7°	238.4	238.3	238.5	238.5	237.2	237.4	237.0	236.6	236.7	236.8	236.8
8°	237.9	237.7	237.9	238.1	236.4	236.8	236.3	235.8	235.9	236.0	236.0
9°	237.2	237.1	237.2	237.3	235.7	235.9	235.4	234.9	234.9	235.0	235.0
10°	236.4	236.3	236.5	236.6	234.6	235.0	234.5	233.8	234.0	234.0	234.1
11°	235.5	235.4	235.6	235.8	233.7	234.1	233.5	232.8	232.9	233.0	233.0
12°	234.7	234.5	234.6	234.9	232.7	233.1	232.3	231.6	231.8	231.8	231.8
13°	233.6	233.5	233.6	234.0	231.4	231.8	231.0	230.2	230.5	230.6	230.6
14°	232.4	232.4	232.5	232.8	230.1	230.6	229.7	228.8	229.1	229.2	229.2
15°	231.3	231.1	231.4	231.7	228.7	229.4	228.4	227.5	227.7	227.8	227.9
16°	230.0	229.8	230.0	230.5	227.3	227.9	226.9	226.1	226.2	226.5	226.4
17°	228.6	228.4	228.7	229.1	226.0	226.4	225.4	224.4	224.7	224.9	224.7
18°	227.1	227.2	227.3	227.7	224.3	224.9	223.9	222.7	222.8	223.2	223.1
19°	225.7	225.5	225.8	226.2	222.5	223.3	222.1	221.0	221.2	221.4	221.2
20°	224.1	223.9	224.1	224.7	220.7	221.4	220.2	219.2	219.4	219.6	219.5
21°	222.2	222.3	222.4	222.9	219.0	219.7	218.5	217.1	217.4	217.6	217.6
22°	220.5	220.3	220.7	221.2	217.2	217.8	216.6	215.2	215.4	215.7	215.6
23°	218.7	218.5	218.7	219.4	215.1	215.9	214.5	213.0	213.4	213.5	213.4
24°	216.9	216.6	216.9	217.4	213.0	213.7	212.4	210.9	211.2	211.6	211.2
25°	214.7	214.7	214.9	215.4	210.9	211.7	210.2	208.7	209.0	209.3	209.2
26°	212.7	212.5	212.9	213.4	208.7	209.4	208.1	206.5	206.8	207.0	206.8
27°	210.6	210.4	210.6	211.2	206.4	207.2	205.7	203.9	204.5	204.6	204.6
28°	208.2	208.2	208.5	209.1	204.3	204.9	203.4	201.6	202.1	202.4	202.2
29°	205.9	205.8	206.3	206.8	201.9	202.6	201.0	199.1	199.5	199.8	199.8
30°	203.7	203.5	204.0	204.5	199.2	200.3	198.5	196.7	196.9	197.1	197.3
31°	201.3	201.1	201.4	202.2	196.8	197.7	196.0	194.1	194.5	194.6	194.6
32°	198.9	198.6	199.0	199.7	194.1	195.0	193.2	191.4	191.8	191.9	192.1
33°	196.2	195.9	196.5	197.2	191.6	192.4	190.8	188.7	189.2	189.4	189.4
34°	193.6	193.4	193.7	194.7	188.9	189.6	188.1	186.1	186.4	186.5	186.5
35°	190.9	190.8	191.2	191.9	186.3	187.0	185.1	183.2	183.4	183.7	183.7
36°	188.2	188.2	188.5	189.3	183.2	184.4	182.4	180.0	180.6	180.8	180.7
37°	185.5	185.2	185.9	186.6	180.3	181.5	179.4	177.2	177.6	178.0	177.9
38°	182.8	182.5	182.9	183.9	177.6	178.5	176.3	174.4	174.7	174.9	175.0
39°	179.7	179.7	180.0	180.9	174.5	175.7	173.7	171.3	171.8	172.0	171.9
40°	176.8	176.6	177.1	178.0	171.7	172.6	170.6	168.1	168.7	168.9	168.8
41°	173.9	173.7	174.0	175.2	168.5	169.7	167.4	165.0	165.5	165.8	165.6
42°	171.0	170.7	171.1	172.3	165.6	166.6	164.2	161.8	162.2	162.6	162.5
43°	168.0	167.7	168.2	169.0	162.4	163.5	161.3	158.6	159.2	159.3	159.2
44°	164.7	164.4	165.1	166.0	159.1	160.3	157.8	155.5	156.0	156.0	156.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	161.6	161.4	161.8	163.0	156.0	157.0	154.9	152.4	152.8	152.8	152.8
46°	158.2	158.3	158.8	159.7	152.9	153.6	151.5	149.1	149.4	149.5	149.4
47°	155.1	154.8	155.7	156.6	149.4	150.5	148.1	145.5	145.9	146.3	145.9
48°	151.9	151.7	152.5	153.4	146.2	147.2	144.6	142.1	142.7	142.8	142.7
49°	148.7	148.5	149.0	150.2	142.8	143.9	141.5	138.9	139.2	139.2	139.2
50°	145.5	145.3	145.8	146.8	139.6	140.5	138.0	135.4	135.9	136.1	136.1
51°	142.0	141.7	142.6	143.5	136.2	137.0	134.9	132.1	132.5	132.5	132.4
52°	138.7	138.5	139.0	140.2	132.9	133.8	131.2	128.5	128.8	129.0	129.1
53°	135.4	135.2	135.7	136.6	129.4	130.5	127.5	125.1	125.6	126.0	125.9
54°	131.8	131.9	132.4	133.3	126.2	126.7	124.2	121.4	121.9	122.0	122.0
55°	128.3	128.1	128.9	130.0	122.3	123.6	120.8	118.0	118.3	118.7	118.6
56°	125.3	125.1	125.7	126.8	118.9	119.9	117.4	114.7	114.9	115.1	115.1
57°	121.8	121.6	122.2	123.1	115.3	116.2	113.9	111.1	111.4	111.7	111.6
58°	118.1	118.2	118.7	119.7	112.0	112.9	110.4	107.5	107.6	108.2	108.0
59°	114.7	114.5	115.3	116.3	108.5	109.6	106.8	103.9	104.2	104.2	104.2
60°	111.3	111.1	111.6	112.6	105.1	106.1	103.1	100.2	100.5	100.9	100.9
61°	107.8	107.6	108.1	109.5	101.5	102.3	99.8	96.9	97.0	97.2	97.3
62°	104.1	104.2	104.8	105.8	97.8	98.9	96.2	93.5	93.9	93.8	93.8
63°	100.8	100.6	101.1	102.4	94.3	95.3	92.8	89.9	90.1	90.4	90.3
64°	97.4	97.1	97.7	98.7	91.0	91.9	89.4	86.3	86.7	86.9	86.7
65°	93.6	93.7	94.3	95.3	87.6	88.6	85.7	82.8	83.0	83.4	83.1
66°	90.3	90.1	91.0	92.0	84.3	85.1	82.0	79.5	79.7	79.7	79.7
67°	86.9	86.7	87.6	88.5	80.7	81.4	78.8	75.8	76.1	76.4	76.2
68°	83.5	83.3	83.9	84.8	77.4	78.2	75.2	72.7	72.8	73.1	73.1
69°	80.0	79.8	80.7	81.6	73.9	74.5	72.3	69.1	69.5	69.5	69.8
70°	76.6	76.4	77.3	78.2	70.6	71.5	68.7	65.6	65.9	66.2	66.4
71°	73.2	73.1	73.9	74.9	67.3	68.3	65.5	62.6	62.7	62.9	63.0
72°	69.8	69.9	70.4	71.3	63.9	64.7	62.1	59.2	59.2	59.7	59.6
73°	66.5	66.7	67.2	68.1	60.9	61.6	58.8	56.0	56.1	56.3	56.6
74°	63.4	63.2	64.1	64.9	57.5	58.3	55.8	53.0	53.1	53.3	53.4
75°	60.3	60.2	60.6	61.6	54.4	55.3	52.8	49.8	49.9	50.3	50.3
76°	56.9	57.1	57.5	58.4	51.4	52.1	49.8	46.7	47.0	47.3	47.3
77°	53.8	53.8	54.5	55.4	48.4	49.2	46.7	43.8	43.9	44.2	44.2
78°	50.9	50.8	51.2	52.4	45.6	46.4	43.6	41.0	41.0	41.2	41.5
79°	47.9	47.8	48.3	49.4	42.7	43.3	41.0	38.3	38.2	38.3	38.6
80°	45.1	45.0	45.4	46.3	39.8	40.7	38.2	35.8	35.5	35.7	36.1
81°	42.1	42.0	42.7	43.5	37.4	37.8	35.7	33.0	33.0	33.2	33.5
82°	39.4	39.3	39.7	40.8	34.7	35.2	33.0	30.4	30.6	30.7	31.0
83°	36.8	36.6	37.1	37.9	32.3	32.9	30.5	28.1	28.1	28.1	28.5
84°	34.0	34.1	34.6	35.3	29.9	30.3	28.1	25.8	25.8	25.9	26.0
85°	31.6	31.4	32.1	32.9	27.3	27.9	25.9	23.6	23.6	23.8	23.9
86°	29.2	29.1	29.7	30.5	25.2	25.8	23.6	21.6	21.6	21.6	22.0
87°	27.0	26.8	27.2	28.0	23.2	23.6	21.8	19.8	19.5	19.8	20.1
88°	24.6	24.6	25.0	25.8	21.3	21.7	19.8	17.7	17.6	17.8	18.1
89°	22.6	22.4	22.9	23.7	19.4	19.8	18.0	15.9	5.1	16.0	16.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	20.6	20.4	21.0	21.8	17.6	18.0	16.2	14.4	0.0	14.4	14.6
91°	18.7	18.5	18.9	19.9	15.9	16.2	14.4	12.8	0.0	12.8	13.1
92°	17.0	16.7	17.1	17.9	14.2	14.5	13.0	11.5	0.0	11.4	11.8
93°	15.2	15.0	15.5	16.2	12.8	13.1	11.7	10.2	0.0	10.2	10.5
94°	4.4	13.4	13.9	14.7	11.4	11.7	10.2	9.0	0.0	9.0	9.3
95°	0.0	11.9	12.3	13.0	10.2	10.3	9.1	7.9	0.0	7.8	8.1
96°	0.0	10.6	11.0	11.6	8.9	9.2	8.1	6.7	0.0	6.8	7.2
97°	0.0	9.4	9.7	10.3	7.9	8.1	6.9	5.8	0.0	5.9	6.2
98°	0.0	8.2	8.6	9.1	6.9	7.1	5.9	5.0	0.0	5.1	5.5
99°	0.0	7.2	7.4	8.1	6.1	6.2	5.2	4.3	0.3	4.3	4.8
100°	0.0	6.2	6.5	7.0	5.4	5.4	4.4	3.5	0.3	3.8	4.0
101°	0.0	5.4	5.7	6.1	4.6	4.6	3.7	2.9	0.2	3.1	3.4
102°	0.0	4.5	5.0	5.4	3.9	4.0	3.0	2.3	0.3	2.5	2.8
103°	0.0	3.9	4.3	4.8	3.4	3.2	2.4	1.7	0.3	1.9	2.3
104°	0.0	3.2	3.6	4.1	2.8	2.6	2.0	1.3	0.3	1.4	1.9
105°	0.2	2.6	3.1	3.6	2.3	2.2	1.5	0.9	0.3	1.0	1.7
106°	0.2	2.0	2.5	3.0	2.0	1.7	1.2	0.6	0.3	0.6	1.3
107°	0.3	1.6	2.1	2.6	1.7	1.4	0.8	0.5	0.2	0.6	1.1
108°	0.3	1.2	1.8	2.1	1.5	1.2	0.7	0.4	0.2	0.5	1.0
109°	0.2	1.0	1.5	1.8	1.3	0.8	0.5	0.4	0.2	0.5	0.9
110°	0.3	0.9	1.2	1.6	1.2	0.8	0.5	0.4	0.2	0.6	0.9
111°	0.3	0.7	1.1	1.4	1.3	0.9	0.5	0.4	0.2	0.6	1.0
112°	0.3	0.7	1.0	1.3	1.3	0.9	0.6	0.4	0.2	0.5	1.0
113°	0.3	0.7	1.0	1.2	1.4	1.0	0.6	0.4	0.2	0.6	1.1
114°	0.3	0.7	1.1	1.3	1.5	1.0	0.6	0.4	0.2	0.6	1.1
115°	0.4	0.7	1.2	1.5	1.5	1.1	0.7	0.4	0.2	0.5	1.1
116°	0.3	0.8	1.3	1.5	1.7	1.1	0.7	0.4	0.2	0.6	1.2
117°	0.3	0.9	1.3	1.6	1.8	1.3	0.7	0.5	0.2	0.6	1.3
118°	0.4	0.9	1.4	1.6	1.7	1.3	0.8	0.5	0.2	0.6	1.3
119°	0.3	1.0	1.5	1.8	1.7	1.2	0.8	0.5	0.2	0.6	1.3
120°	0.3	1.0	1.5	1.8	1.0	1.4	0.8	0.6	0.2	0.7	1.3
121°	0.3	1.1	1.5	1.9	0.8	1.4	0.9	0.6	0.2	0.7	1.3
122°	0.4	1.0	1.5	2.0	0.3	1.4	0.9	0.5	0.2	0.7	1.3
123°	0.3	1.1	1.6	2.0	0.2	1.4	0.9	0.5	0.2	0.7	1.3
124°	0.4	1.1	1.5	2.1	0.2	1.4	0.8	0.4	0.2	0.6	1.3
125°	0.4	1.1	1.5	2.1	0.3	1.4	0.8	0.6	0.2	0.6	1.3
126°	0.3	1.1	1.5	2.1	0.3	1.4	0.9	0.5	0.1	0.6	1.3
127°	0.4	1.1	1.6	2.1	0.3	1.6	0.9	0.7	0.2	0.6	1.2
128°	0.4	1.1	1.5	2.1	0.3	1.5	1.0	0.7	0.2	0.6	1.2
129°	0.4	1.0	1.6	2.1	0.3	1.6	1.1	0.6	0.2	0.6	1.2
130°	0.3	1.0	1.5	2.1	0.3	1.6	1.1	0.6	0.2	0.6	1.2
131°	0.3	1.0	1.5	2.1	0.3	1.6	1.1	0.7	0.3	0.6	1.2
132°	0.2	0.9	1.5	2.2	0.3	1.6	1.1	0.6	0.3	0.6	1.1
133°	0.2	1.0	1.5	2.1	0.3	1.7	1.1	0.5	0.3	0.6	1.2
134°	0.3	0.9	1.5	2.1	0.3	1.7	1.1	0.7	0.3	0.5	1.1

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
135°	0.2	0.9	1.5	2.2	0.3	1.7	1.2	0.7	0.3	0.5	1.1
136°	0.3	0.9	1.5	2.1	0.3	1.8	1.2	0.7	0.2	0.5	1.2
137°	0.2	0.8	1.5	2.1	0.3	1.9	1.2	0.8	0.3	0.5	1.3
138°	0.3	0.7	1.5	2.1	0.3	1.9	1.2	0.8	0.3	0.5	1.2
139°	0.2	0.7	1.6	2.0	0.3	1.9	1.2	0.8	0.3	0.5	1.1
140°	0.2	0.7	1.7	2.1	0.3	2.0	1.3	0.8	0.3	0.4	1.0
141°	0.2	0.8	1.7	2.1	0.4	2.1	1.2	0.7	0.2	0.4	0.8
142°	0.2	0.8	1.6	2.1	0.3	2.7	1.1	0.8	0.2	0.4	0.8
143°	0.2	0.7	1.6	2.1	0.3	2.7	1.2	0.8	0.3	0.4	0.8
144°	0.2	0.8	1.6	2.1	0.3	2.4	1.3	0.8	0.2	0.3	0.8
145°	0.2	0.8	1.5	2.1	0.3	3.2	1.3	0.6	0.2	0.4	0.8
146°	0.3	0.8	1.5	2.0	0.3	2.9	1.2	0.8	0.1	0.4	0.8
147°	0.2	0.8	1.5	2.0	0.3	2.7	1.2	0.8	0.2	0.5	0.7
148°	0.2	0.8	1.4	2.0	0.3	2.8	1.3	0.7	0.3	0.4	0.8
149°	0.2	0.8	1.4	2.0	0.4	2.8	1.3	0.5	0.3	0.2	1.0
150°	0.2	0.8	1.4	2.1	0.3	2.4	1.3	0.6	0.4	0.3	0.9
151°	0.3	0.7	1.4	2.2	0.3	2.3	1.3	0.6	0.3	0.4	0.8
152°	0.2	0.8	1.5	3.1	0.4	2.2	1.2	0.5	0.4	0.3	0.7
153°	0.3	0.8	1.5	2.9	0.3	2.1	1.3	0.4	0.4	0.3	0.9
154°	0.3	0.8	2.0	2.1	0.3	2.0	1.2	0.4	0.4	0.2	1.0
155°	0.3	0.8	2.1	2.1	0.3	1.6	1.1	0.3	0.4	0.3	0.8
156°	0.3	0.8	1.8	2.4	0.4	1.5	1.2	0.3	0.4	0.2	0.6
157°	0.3	0.7	1.5	2.5	0.3	1.4	1.1	0.4	0.3	0.3	0.6
158°	0.3	0.8	1.7	2.4	0.3	1.4	1.1	0.4	0.3	0.3	0.6
159°	0.3	0.8	1.9	2.3	0.2	1.6	1.0	0.4	0.3	0.2	0.5
160°	0.3	0.7	1.9	2.2	0.3	1.9	0.8	0.4	0.4	0.2	0.5
161°	0.3	0.8	1.9	2.1	0.4	1.6	0.8	0.4	0.4	0.2	0.4
162°	0.3	0.6	1.8	2.1	0.3	0.8	0.5	0.5	0.4	0.2	0.5
163°	0.3	0.8	1.8	2.1	0.3	0.8	0.4	0.4	0.3	0.2	0.4
164°	0.3	0.6	1.7	2.0	0.3	0.6	0.2	0.5	0.2	0.2	0.4
165°	0.3	0.7	1.5	1.8	0.3	0.4	0.2	0.5	0.1	0.2	0.4
166°	0.3	0.8	1.3	1.5	0.3	0.2	0.2	0.5	0.2	0.2	0.3
167°	0.3	0.8	1.1	1.0	0.2	0.1	0.2	0.4	0.2	0.2	0.2
168°	0.3	0.7	1.0	0.8	0.2	0.3	0.4	0.3	0.2	0.2	0.2
169°	0.3	0.7	0.9	0.5	0.2	0.2	0.3	0.3	0.1	0.1	0.1
170°	0.3	0.6	0.7	0.4	0.2	0.2	0.4	0.2	0.2	0.1	0.2
171°	0.3	0.6	0.5	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.2
172°	0.2	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
173°	0.3	0.3	0.2	0.3	0.1	0.2	0.2	0.1	0.2	0.1	0.2
174°	0.3	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.2	0.2	0.2
175°	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
176°	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.1
177°	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
178°	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
179°	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



TEST NUMBER: P1219801
CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
180°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	239.9	239.9	239.9	239.9	239.9	239.9
1°	239.7	239.9	239.8	239.9	240.1	239.9
2°	239.4	239.8	239.6	239.8	240.0	239.9
3°	239.0	239.6	239.5	239.6	239.9	239.7
4°	238.6	239.3	239.2	239.4	239.7	239.5
5°	238.1	239.0	238.9	239.1	239.4	239.2
6°	237.4	238.6	238.3	238.7	239.0	238.9
7°	236.7	238.0	237.8	238.2	238.6	238.4
8°	235.8	237.4	237.1	237.5	238.1	237.9
9°	234.9	236.7	236.4	236.9	237.4	237.2
10°	233.9	235.9	235.6	236.1	236.6	236.4
11°	232.9	235.0	234.6	235.2	235.9	235.5
12°	231.7	234.0	233.7	234.3	235.0	234.7
13°	230.4	232.9	232.5	233.2	233.9	233.6
14°	229.0	231.8	231.3	232.0	232.8	232.4
15°	227.6	230.6	230.1	230.8	231.6	231.3
16°	226.2	229.2	228.6	229.5	230.4	230.0
17°	224.5	227.8	227.2	228.1	229.0	228.6
18°	222.8	226.4	225.8	226.6	227.6	227.1
19°	221.0	224.7	224.2	225.1	226.2	225.7
20°	219.2	223.1	222.3	223.4	224.6	224.1
21°	217.4	221.4	220.6	221.6	222.9	222.2
22°	215.2	219.6	218.8	219.9	221.1	220.5
23°	213.2	217.8	216.9	218.0	219.4	218.7
24°	211.0	215.7	214.8	216.1	217.3	216.9
25°	208.9	213.6	212.8	214.2	215.3	214.7
26°	206.6	211.4	210.7	211.9	213.3	212.7
27°	204.3	209.3	208.4	209.8	211.1	210.6
28°	201.9	207.1	206.1	207.7	208.9	208.2
29°	199.5	204.8	203.9	205.2	206.7	205.9
30°	196.9	202.2	201.5	202.9	204.4	203.7
31°	194.3	199.9	198.8	200.5	202.1	201.3
32°	191.6	197.4	196.4	198.1	199.4	198.9
33°	189.0	194.7	193.8	195.3	197.0	196.2
34°	186.0	192.1	191.2	192.8	194.1	193.6
35°	183.4	189.4	188.4	190.1	191.6	190.9
36°	180.5	186.8	185.7	187.3	189.0	188.2
37°	177.4	183.7	183.0	184.5	186.3	185.5
38°	174.6	181.0	179.9	181.8	183.6	182.8
39°	171.6	178.2	177.1	178.6	180.6	179.7
40°	168.3	175.3	174.1	175.7	177.7	176.8
41°	165.3	172.3	171.2	172.9	174.6	173.9
42°	162.0	169.0	167.9	169.9	171.6	171.0
43°	159.0	166.0	164.9	166.9	168.7	168.0
44°	155.7	162.7	161.9	163.6	165.7	164.7

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	152.6	159.6	158.5	160.5	162.7	161.6
46°	149.0	156.4	155.3	157.4	159.3	158.2
47°	145.7	153.3	152.1	154.0	156.1	155.1
48°	142.2	150.1	148.9	150.8	153.0	151.9
49°	138.9	146.6	145.4	147.6	149.8	148.7
50°	135.5	143.3	142.2	144.4	146.2	145.5
51°	132.3	139.7	138.9	140.7	143.0	142.0
52°	128.7	136.4	135.6	137.5	139.7	138.7
53°	125.3	133.1	131.9	134.2	136.1	135.4
54°	121.8	129.7	128.5	130.8	132.8	131.8
55°	118.1	126.2	125.6	127.0	129.4	128.3
56°	114.9	122.7	121.6	124.0	126.3	125.3
57°	111.2	119.3	118.1	120.5	122.6	121.8
58°	107.7	115.9	114.8	116.7	119.1	118.1
59°	104.2	112.4	111.3	113.3	115.7	114.7
60°	100.4	108.7	107.9	109.9	112.0	111.3
61°	97.1	105.3	104.2	106.5	108.5	107.8
62°	93.6	101.9	100.8	102.8	105.2	104.1
63°	90.3	98.1	97.4	99.4	101.8	100.8
64°	86.4	94.8	93.7	96.0	98.1	97.4
65°	83.1	91.4	90.3	92.3	94.7	93.6
66°	79.4	88.0	86.9	88.9	91.3	90.3
67°	76.2	84.4	83.3	85.5	87.9	86.9
68°	72.8	81.0	79.9	82.3	84.2	83.5
69°	69.6	77.5	76.5	78.6	81.0	80.0
70°	66.3	74.0	73.3	75.2	77.6	76.6
71°	62.7	70.8	70.1	72.0	74.2	73.2
72°	59.7	67.6	66.6	68.8	70.7	69.8
73°	56.3	64.1	63.6	65.3	67.5	66.5
74°	53.5	61.0	60.1	62.2	64.4	63.4
75°	50.3	57.8	57.0	59.1	61.0	60.3
76°	47.3	54.8	53.9	56.0	57.8	56.9
77°	44.4	51.8	51.0	52.7	54.7	53.8
78°	41.5	48.6	48.1	49.8	51.8	50.9
79°	38.9	45.8	45.1	47.0	48.5	47.9
80°	36.2	43.1	42.3	44.2	45.7	45.1
81°	33.6	40.1	39.7	41.2	43.0	42.1
82°	31.2	37.5	37.1	38.6	40.0	39.4
83°	28.8	35.0	34.4	36.0	37.4	36.8
84°	26.4	32.5	32.0	33.5	34.8	34.0
85°	24.3	30.0	29.7	30.9	32.4	31.6
86°	22.2	27.7	27.5	28.6	30.1	29.2
87°	20.4	25.5	25.1	26.5	27.6	27.0
88°	18.4	23.5	23.1	24.3	25.4	24.6
89°	16.8	21.5	21.1	22.2	23.3	22.6

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	15.1	19.5	19.3	20.3	21.3	20.6
91°	13.4	17.9	17.5	18.5	19.5	18.7
92°	12.0	16.1	15.8	16.8	17.6	17.0
93°	10.8	14.5	14.3	15.1	15.9	15.2
94°	9.5	13.0	12.8	13.6	14.3	4.4
95°	8.4	11.6	11.4	12.2	12.7	0.0
96°	7.3	10.3	10.1	10.9	11.4	0.0
97°	6.5	9.2	9.0	9.7	10.1	0.0
98°	5.7	8.0	7.9	8.5	9.0	0.0
99°	5.0	7.0	7.0	7.5	7.8	0.0
100°	4.3	6.2	6.1	6.5	6.9	0.0
101°	3.7	5.5	5.4	5.7	6.1	0.0
102°	3.2	4.8	4.7	4.9	5.3	0.0
103°	2.6	4.1	4.0	4.2	4.5	0.0
104°	2.2	3.7	3.4	3.6	3.8	0.0
105°	2.0	3.1	2.9	3.1	3.0	0.2
106°	1.7	2.6	2.4	2.5	2.5	0.2
107°	1.5	2.3	2.0	2.1	1.8	0.3
108°	1.3	1.9	1.8	1.8	1.4	0.3
109°	1.3	1.7	1.6	1.4	1.0	0.2
110°	1.2	1.6	1.2	1.2	0.7	0.3
111°	1.3	1.4	1.2	1.0	0.7	0.3
112°	1.5	1.3	1.0	0.8	0.5	0.3
113°	1.6	1.4	1.1	0.7	0.4	0.3
114°	1.7	1.5	1.2	0.6	0.3	0.3
115°	1.7	1.5	1.2	0.7	0.3	0.4
116°	1.8	1.6	1.3	0.7	0.3	0.3
117°	1.8	1.7	1.4	0.7	0.3	0.3
118°	1.9	1.7	1.4	0.7	0.1	0.4
119°	1.9	1.7	1.4	0.8	0.3	0.3
120°	1.9	1.8	1.4	0.9	0.3	0.3
121°	1.9	0.4	1.4	0.9	0.3	0.3
122°	1.9	0.4	1.4	0.8	0.3	0.4
123°	1.9	0.1	1.5	0.9	0.2	0.3
124°	1.8	0.2	1.4	0.9	0.3	0.4
125°	1.7	0.1	1.5	0.9	0.3	0.4
126°	1.6	0.2	1.4	0.9	0.2	0.3
127°	1.6	0.1	1.4	0.9	0.3	0.4
128°	1.5	0.1	1.4	0.9	0.2	0.4
129°	1.5	0.1	1.4	0.8	0.2	0.4
130°	1.5	0.1	1.4	0.9	0.2	0.3
131°	1.4	0.1	1.3	1.0	0.2	0.3
132°	1.3	0.2	1.2	0.8	0.2	0.2
133°	1.3	0.2	1.3	0.9	0.2	0.2
134°	1.3	0.1	1.3	0.8	0.2	0.3

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
135°	1.3	0.2	1.3	0.9	0.2	0.2
136°	1.2	0.2	1.3	0.8	0.2	0.3
137°	1.2	0.2	1.3	0.9	0.2	0.2
138°	1.1	0.1	1.3	0.9	0.2	0.3
139°	1.1	0.2	1.3	0.9	0.2	0.2
140°	1.1	0.2	1.4	0.9	0.1	0.2
141°	1.2	0.2	1.3	0.9	0.2	0.2
142°	1.1	0.2	1.4	0.9	0.2	0.2
143°	1.0	0.2	1.4	0.9	0.1	0.2
144°	1.0	0.2	1.5	0.9	0.2	0.2
145°	1.0	0.2	2.1	0.9	0.2	0.2
146°	1.0	0.2	2.4	0.8	0.2	0.3
147°	1.0	0.2	1.5	0.8	0.2	0.2
148°	0.9	0.1	1.3	0.6	0.2	0.2
149°	0.8	0.2	1.2	0.3	0.2	0.2
150°	0.7	0.2	1.3	0.3	0.2	0.2
151°	0.8	0.1	1.2	0.2	0.2	0.3
152°	0.8	0.2	1.4	0.3	0.2	0.2
153°	0.7	0.2	1.2	0.5	0.2	0.3
154°	0.7	0.1	0.9	0.5	0.2	0.3
155°	0.5	0.2	0.8	0.5	0.2	0.3
156°	0.4	0.2	0.8	0.5	0.2	0.3
157°	0.5	0.1	0.9	0.5	0.1	0.3
158°	0.6	0.2	0.7	0.5	0.2	0.3
159°	0.6	0.2	0.5	0.5	0.2	0.3
160°	0.5	0.2	0.3	0.5	0.1	0.3
161°	0.4	0.2	0.1	0.4	0.1	0.3
162°	0.4	0.2	0.1	0.3	0.2	0.3
163°	0.3	0.1	0.2	0.3	0.2	0.3
164°	0.3	0.1	0.2	0.4	0.2	0.3
165°	0.3	0.2	0.3	0.3	0.2	0.3
166°	0.3	0.1	0.3	0.2	0.2	0.3
167°	0.2	0.2	0.3	0.1	0.2	0.3
168°	0.2	0.2	0.3	0.2	0.2	0.3
169°	0.2	0.2	0.2	0.2	0.2	0.3
170°	0.1	0.1	0.1	0.2	0.2	0.3
171°	0.2	0.1	0.1	0.2	0.2	0.3
172°	0.2	0.1	0.2	0.2	0.2	0.2
173°	0.2	0.2	0.2	0.1	0.1	0.3
174°	0.1	0.0	0.1	0.2	0.1	0.3
175°	0.2	0.1	0.1	0.1	0.2	0.2
176°	0.2	0.1	0.1	0.1	0.2	0.1
177°	0.0	0.1	0.1	0.1	0.1	0.1
178°	0.1	0.1	0.1	0.1	0.1	0.2
179°	0.1	0.2	0.2	0.1	0.1	0.1

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TEST NUMBER: P1219801
CATALOG NUMBER: HLC4FS1E-24P-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
180°	0.1	0.1	0.1	0.1	0.1	0.1

TEST NUMBER: P1219801

CATALOG NUMBER: HLC4FS1E-24P-3500K

CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room Dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	23.6	25.3	24.0	25.6	26.0	23.5	25.1	23.9	25.4	25.8
	3H	25.7	27.2	26.1	27.6	28.0	25.5	26.9	25.9	27.3	27.7
	4H	26.6	28.0	27.1	28.4	28.9	26.3	27.7	26.7	28.1	28.5
	6H	27.5	28.8	28.0	29.2	29.7	27.1	28.4	27.6	28.8	29.3
	8H	27.9	29.2	28.4	29.6	30.0	27.5	28.7	27.9	29.2	29.6
	12H	28.3	29.5	28.8	30.0	30.4	27.9	29.0	28.3	29.5	30.0
4H	2H	24.3	25.7	24.8	26.1	26.5	24.1	25.5	24.6	25.9	26.3
	3H	26.7	27.8	27.1	28.3	28.7	26.4	27.6	26.8	28.0	28.5
	4H	27.7	28.8	28.2	29.3	29.8	27.4	28.5	27.9	29.0	29.5
	6H	28.8	29.7	29.3	30.2	30.7	28.4	29.4	28.9	29.9	30.4
	8H	29.3	30.2	29.8	30.7	31.2	28.9	29.8	29.4	30.3	30.8
	12H	29.8	30.6	30.3	31.1	31.7	29.4	30.2	29.9	30.7	31.2
8H	4H	28.2	29.1	28.7	29.6	30.1	27.9	28.8	28.4	29.3	29.8
	6H	29.4	30.2	30.0	30.7	31.2	29.1	29.8	29.6	30.4	30.9
	8H	30.1	30.8	30.6	31.3	31.8	29.7	30.4	30.2	30.9	31.5
	12H	30.8	31.4	31.3	31.9	32.5	30.4	31.0	30.9	31.5	32.1
12H	4H	28.3	29.1	28.8	29.6	30.1	28.0	28.8	28.5	29.3	29.8
	6H	29.6	30.3	30.1	30.8	31.4	29.2	29.9	29.8	30.4	31.0
	8H	30.3	30.9	30.9	31.5	32.1	29.9	30.5	30.5	31.1	31.7

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