

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: P1219803

Luminaire Tested: HLC4FS1E-24P-5000K

Issue Date: 12/22/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-2019
Report Number: P1219803
Test Lab: INNOVATION CENTER
Issue Date: 12/22/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLC4FS1E-24P-5000K
Description: 4" Surface Mount LED Disk Light

Light Source:
Ballast/Driver: -

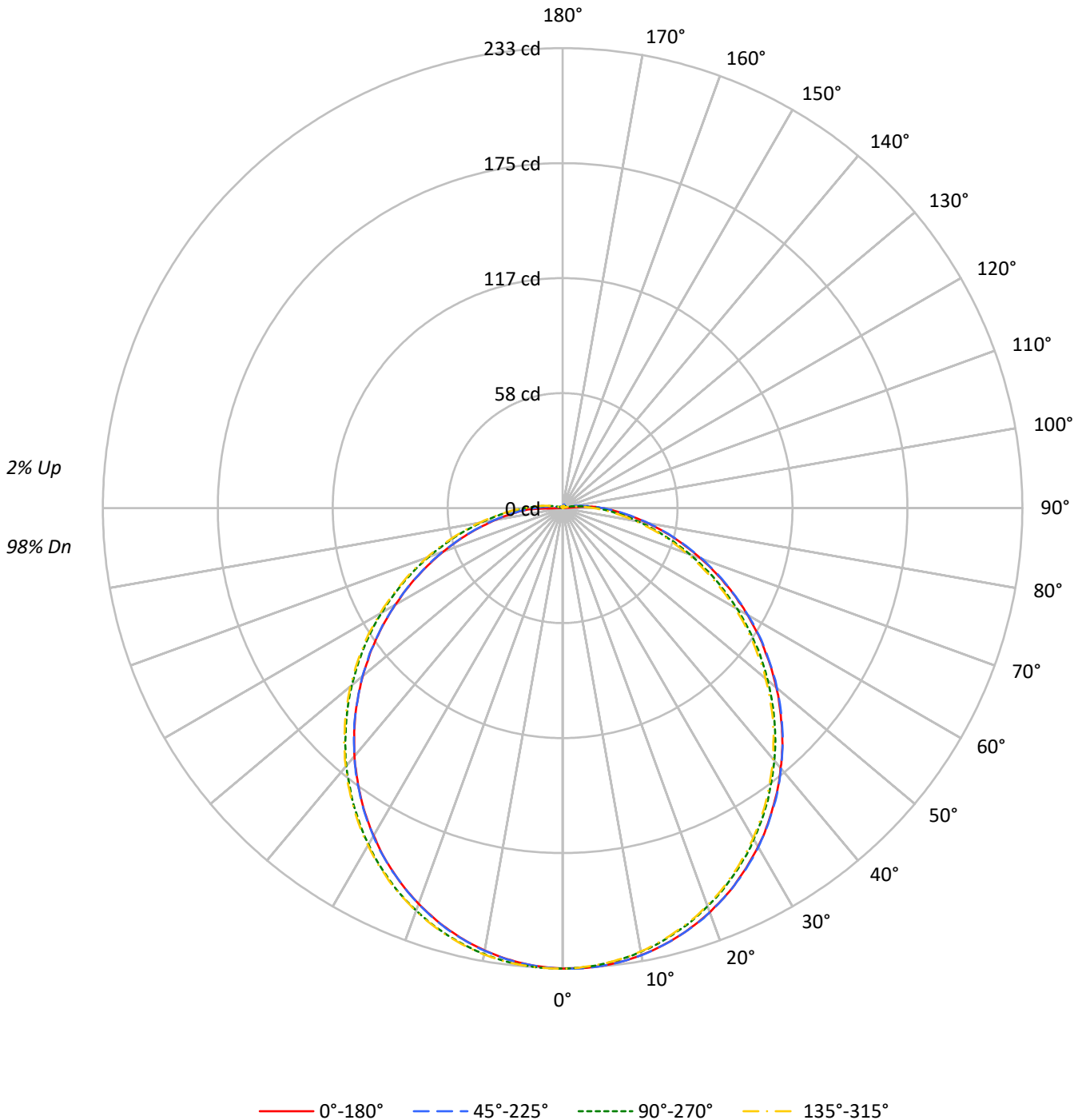
Summary

Lumens per Lamp: 660 (1 lamp)
Luminaire Lumens: 710.0 lumens
Efficiency: 107.6%
Efficacy: 74.0 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): 9.6
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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CATALOG NUMBER: HLC4FS1E-24P-5000K

Luminous Intensity Polar Plot



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CATALOG NUMBER: HLC4FS1E-24P-5000K

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	127	127	127	127	124	124	124	124	118	118	118	113	113	113	107	107	107	105				
1	115	109	104	100	112	107	102	98	102	98	94	97	94	91	93	90	88	85				
2	104	95	87	80	101	93	85	79	88	82	77	84	79	75	81	77	73	70				
3	95	83	74	66	92	81	73	66	77	70	64	74	68	63	71	66	61	59				
4	87	73	64	56	84	72	63	56	69	61	55	66	59	53	63	57	52	50				
5	80	65	56	48	77	64	55	48	62	53	47	59	52	46	57	51	46	43				
6	74	59	49	42	71	58	48	42	56	47	41	53	46	41	52	45	40	38				
7	68	53	44	37	66	52	43	37	50	42	36	49	41	36	47	40	35	33				
8	63	49	39	33	62	48	39	33	46	38	32	45	37	32	43	37	32	30				
9	59	45	36	30	58	44	35	30	42	35	29	41	34	29	40	33	29	27				
10	56	41	33	27	54	41	32	27	39	32	27	38	31	26	37	31	26	24				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	29361	29361	29361	29361
5°	29397	29296	29246	29359
10°	29379	29162	29085	29315
15°	29302	28976	28859	29211
20°	29196	28754	28580	29049
25°	28994	28480	28216	28855
30°	28788	28148	27829	28584
35°	28515	27839	27408	28315
40°	28241	27436	26959	28011
45°	27978	26999	26448	27622
50°	27704	26568	25864	27293
55°	27383	26088	25254	26922
60°	27234	25724	24616	26605
65°	27099	25371	24031	26473
70°	27413	25279	23586	26493
75°	28543	25722	23632	27376
80°	31816	28047	25004	30367
85°	44330	38409	33067	42164

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 89°

Luminance: 165854 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	22.1	3.1	3.3
10°-20°	63.0	8.9	9.5
20°-30°	95.1	13.4	14.4
30°-40°	114.1	16.1	17.3
40°-50°	118.2	16.6	17.9
50°-60°	107.8	15.2	16.3
60°-70°	85.7	12.1	13.0
70°-80°	57.4	8.1	8.7
80°-90°	30.3	4.3	4.6
90°-100°	10.6	1.5	1.6
100°-110°	2.4	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	0.0	0.1
160°-170°	0.1	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	180.1	25.4	27.3
0°-40°	294.2	41.4	44.6
0°-60°	520.1	73.3	78.8
0°-90°	693.5	97.7	105.1
90°-120°	13.9	2.0	2.1
90°-150°	16.0	2.3	2.4
90°-180°	17.0	2.4	2.6
0°-180°	710.0	100.0	107.6

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	233	233	233	233	233	
5°	233	232	232	232	233	22
15°	225	222	222	224	225	63
25°	209	205	203	208	209	96
35°	186	181	178	184	186	116
45°	157	152	149	155	157	121
55°	125	119	115	123	125	112
65°	91	85	81	89	91	90
75°	59	53	49	56	59	62
85°	31	27	23	29	31	28
90°	20	17	0	19	20	11
95°	0	10	0	11	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°	233.3	233.3	233.3	233.3	233.3	233.3	233.3	233.3	233.3	233.3	233.3
1°	233.3	233.4	233.4	233.4	233.2	233.2	233.2	233.1	233.1	233.1	233.2
2°	233.3	233.3	233.4	233.4	233.0	233.0	233.0	232.9	232.8	232.9	232.9
3°	233.2	233.2	233.3	233.3	232.7	232.7	232.6	232.5	232.5	232.5	232.5
4°	233.0	233.0	233.1	233.2	232.4	232.4	232.2	232.1	232.0	232.1	232.1
5°	232.7	232.7	232.8	232.8	231.9	232.1	231.8	231.5	231.5	231.6	231.6
6°	232.3	232.3	232.4	232.5	231.3	231.5	231.2	230.8	230.9	231.0	231.0
7°	231.8	231.8	232.0	232.0	230.7	230.9	230.5	230.1	230.2	230.3	230.3
8°	231.4	231.2	231.4	231.6	230.0	230.3	229.8	229.3	229.4	229.5	229.5
9°	230.7	230.6	230.7	230.8	229.2	229.5	229.0	228.4	228.5	228.6	228.6
10°	229.9	229.9	230.0	230.1	228.2	228.6	228.1	227.4	227.6	227.6	227.7
11°	229.1	229.0	229.2	229.3	227.3	227.7	227.1	226.4	226.5	226.6	226.7
12°	228.2	228.1	228.2	228.5	226.3	226.7	225.9	225.2	225.4	225.4	225.4
13°	227.2	227.1	227.2	227.6	225.1	225.5	224.7	223.9	224.2	224.3	224.3
14°	226.1	226.0	226.2	226.4	223.8	224.3	223.5	222.6	222.8	223.0	222.9
15°	224.9	224.8	225.0	225.3	222.4	223.1	222.1	221.3	221.5	221.6	221.7
16°	223.7	223.5	223.7	224.2	221.1	221.7	220.7	219.9	220.0	220.2	220.2
17°	222.3	222.2	222.4	222.8	219.8	220.2	219.2	218.2	218.5	218.7	218.6
18°	220.9	220.9	221.1	221.5	218.1	218.7	217.8	216.6	216.7	217.1	217.0
19°	219.5	219.3	219.7	220.0	216.4	217.2	216.0	215.0	215.1	215.3	215.2
20°	218.0	217.8	217.9	218.6	214.7	215.4	214.2	213.2	213.4	213.5	213.5
21°	216.1	216.2	216.3	216.8	213.0	213.7	212.5	211.2	211.5	211.7	211.6
22°	214.5	214.3	214.6	215.1	211.2	211.9	210.7	209.3	209.5	209.8	209.7
23°	212.7	212.5	212.8	213.4	209.3	210.0	208.7	207.1	207.6	207.6	207.6
24°	211.0	210.7	210.9	211.4	207.2	207.8	206.5	205.1	205.5	205.8	205.4
25°	208.8	208.8	209.0	209.5	205.1	205.9	204.4	203.0	203.2	203.6	203.5
26°	206.8	206.7	207.1	207.6	203.0	203.6	202.4	200.9	201.1	201.3	201.2
27°	204.8	204.6	204.9	205.4	200.8	201.5	200.0	198.3	198.9	199.0	199.0
28°	202.5	202.5	202.8	203.3	198.7	199.3	197.9	196.1	196.6	196.8	196.7
29°	200.3	200.2	200.7	201.2	196.4	197.1	195.5	193.6	194.0	194.3	194.3
30°	198.1	197.9	198.4	198.9	193.7	194.8	193.1	191.3	191.5	191.7	191.9
31°	195.8	195.6	195.9	196.7	191.4	192.3	190.6	188.8	189.2	189.3	189.2
32°	193.5	193.2	193.5	194.2	188.8	189.7	188.0	186.2	186.5	186.6	186.8
33°	190.8	190.6	191.2	191.8	186.4	187.2	185.5	183.5	184.0	184.2	184.2
34°	188.3	188.1	188.4	189.3	183.7	184.4	182.9	181.0	181.3	181.4	181.4
35°	185.6	185.6	186.0	186.7	181.2	181.9	180.1	178.2	178.4	178.7	178.7
36°	183.0	183.0	183.4	184.1	178.2	179.3	177.4	175.1	175.7	175.9	175.8
37°	180.4	180.1	180.8	181.5	175.4	176.5	174.5	172.3	172.7	173.1	173.0
38°	177.8	177.5	177.9	178.8	172.7	173.6	171.5	169.6	169.9	170.1	170.2
39°	174.8	174.8	175.1	175.9	169.7	170.9	168.9	166.6	167.1	167.3	167.2
40°	171.9	171.7	172.2	173.2	167.0	167.9	165.9	163.5	164.1	164.2	164.1
41°	169.2	168.9	169.3	170.4	163.9	165.1	162.8	160.5	161.0	161.3	161.0
42°	166.3	166.0	166.4	167.6	161.1	162.1	159.7	157.4	157.8	158.2	158.1
43°	163.4	163.1	163.5	164.4	158.0	159.0	156.8	154.2	154.9	155.0	154.9
44°	160.2	159.9	160.6	161.5	154.8	155.9	153.5	151.3	151.7	151.7	152.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	157.2	156.9	157.4	158.5	151.7	152.7	150.7	148.2	148.6	148.7	148.6
46°	153.9	153.9	154.5	155.3	148.7	149.4	147.4	145.0	145.3	145.5	145.3
47°	150.9	150.6	151.4	152.3	145.3	146.4	144.0	141.5	141.9	142.3	141.9
48°	147.8	147.6	148.3	149.2	142.2	143.2	140.7	138.2	138.8	138.9	138.8
49°	144.7	144.4	144.9	146.1	138.9	140.0	137.6	135.1	135.4	135.4	135.4
50°	141.5	141.3	141.8	142.7	135.7	136.7	134.2	131.7	132.1	132.4	132.4
51°	138.1	137.8	138.7	139.6	132.4	133.2	131.2	128.4	128.8	128.8	128.8
52°	134.9	134.7	135.2	136.4	129.2	130.2	127.6	125.0	125.2	125.4	125.5
53°	131.7	131.5	132.0	132.9	125.8	126.9	124.0	121.7	122.1	122.6	122.5
54°	128.1	128.3	128.7	129.7	122.7	123.2	120.8	118.1	118.6	118.7	118.6
55°	124.8	124.6	125.4	126.4	118.9	120.2	117.5	114.7	115.1	115.4	115.4
56°	121.9	121.7	122.3	123.3	115.7	116.6	114.2	111.6	111.7	111.9	111.9
57°	118.5	118.3	118.8	119.8	112.2	113.0	110.8	108.0	108.3	108.7	108.6
58°	114.8	115.0	115.5	116.5	108.9	109.8	107.4	104.6	104.7	105.2	105.0
59°	111.5	111.3	112.1	113.1	105.6	106.6	103.9	101.1	101.4	101.4	101.4
60°	108.2	108.0	108.5	109.5	102.2	103.2	100.3	97.5	97.8	98.1	98.1
61°	104.9	104.7	105.2	106.5	98.7	99.5	97.0	94.2	94.3	94.5	94.6
62°	101.2	101.4	101.9	102.9	95.2	96.2	93.6	91.0	91.3	91.2	91.2
63°	98.0	97.8	98.3	99.6	91.8	92.7	90.2	87.4	87.6	88.0	87.8
64°	94.7	94.5	95.0	96.0	88.5	89.3	86.9	83.9	84.3	84.5	84.3
65°	91.0	91.2	91.7	92.7	85.2	86.1	83.4	80.5	80.7	81.1	80.8
66°	87.8	87.6	88.5	89.4	82.0	82.8	79.8	77.3	77.5	77.5	77.6
67°	84.5	84.3	85.2	86.1	78.5	79.1	76.6	73.7	74.0	74.3	74.1
68°	81.2	81.0	81.6	82.5	75.3	76.0	73.2	70.7	70.8	71.1	71.1
69°	77.8	77.6	78.4	79.4	71.9	72.5	70.3	67.2	67.6	67.6	67.9
70°	74.5	74.3	75.2	76.0	68.7	69.5	66.8	63.8	64.1	64.4	64.6
71°	71.2	71.1	71.9	72.8	65.5	66.4	63.7	60.9	61.0	61.1	61.2
72°	67.9	68.0	68.4	69.4	62.1	63.0	60.4	57.6	57.6	58.1	57.9
73°	64.7	64.9	65.4	66.2	59.2	59.9	57.2	54.4	54.6	54.8	55.0
74°	61.6	61.5	62.3	63.2	55.9	56.7	54.3	51.6	51.6	51.8	51.9
75°	58.7	58.6	59.0	59.9	52.9	53.8	51.4	48.4	48.6	48.9	49.0
76°	55.4	55.5	56.0	56.8	50.0	50.7	48.4	45.5	45.7	46.0	46.0
77°	52.4	52.3	53.0	53.9	47.1	47.9	45.4	42.6	42.7	43.0	43.0
78°	49.5	49.4	49.8	50.9	44.4	45.1	42.4	39.8	39.8	40.1	40.4
79°	46.6	46.5	47.0	48.1	41.5	42.1	39.9	37.3	37.2	37.2	37.6
80°	43.9	43.7	44.2	45.0	38.7	39.6	37.1	34.8	34.5	34.7	35.1
81°	41.0	40.8	41.5	42.3	36.4	36.8	34.7	32.1	32.1	32.3	32.6
82°	38.3	38.2	38.6	39.7	33.8	34.2	32.1	29.6	29.8	29.9	30.2
83°	35.8	35.6	36.1	36.9	31.4	32.0	29.7	27.4	27.3	27.3	27.7
84°	33.1	33.2	33.6	34.4	29.1	29.5	27.4	25.1	25.1	25.2	25.3
85°	30.7	30.5	31.2	32.0	26.6	27.1	25.2	22.9	22.9	23.1	23.3
86°	28.4	28.3	28.9	29.7	24.5	25.1	23.0	21.0	21.0	21.0	21.4
87°	26.3	26.1	26.5	27.3	22.5	22.9	21.2	19.2	18.9	19.2	19.5
88°	24.0	24.0	24.3	25.1	20.7	21.1	19.3	17.2	17.1	17.4	17.6
89°	21.9	21.8	22.3	23.0	18.9	19.2	17.5	15.5	5.0	15.5	15.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	20.0	19.8	20.4	21.2	17.1	17.5	15.8	14.0	0.0	14.0	14.2
91°	18.2	18.0	18.4	19.3	15.4	15.7	14.0	12.5	0.0	12.4	12.8
92°	16.6	16.3	16.6	17.4	13.8	14.1	12.6	11.2	0.0	11.1	11.5
93°	14.8	14.6	15.1	15.8	12.4	12.7	11.4	9.9	0.0	9.9	10.2
94°	4.3	13.0	13.5	14.3	11.1	11.3	9.9	8.7	0.0	8.7	9.0
95°	0.0	11.6	11.9	12.6	9.9	10.0	8.9	7.6	0.0	7.6	7.9
96°	0.0	10.3	10.7	11.3	8.7	9.0	7.9	6.6	0.0	6.6	7.0
97°	0.0	9.2	9.4	10.0	7.6	7.9	6.7	5.6	0.0	5.7	6.0
98°	0.0	7.9	8.4	8.9	6.7	6.9	5.8	4.9	0.0	5.0	5.3
99°	0.0	7.0	7.2	7.9	5.9	6.0	5.0	4.2	0.2	4.2	4.7
100°	0.0	6.1	6.3	6.8	5.3	5.3	4.3	3.4	0.3	3.7	3.9
101°	0.0	5.2	5.5	6.0	4.5	4.5	3.6	2.8	0.2	3.0	3.3
102°	0.0	4.4	4.9	5.3	3.8	3.9	2.9	2.2	0.3	2.5	2.7
103°	0.0	3.8	4.1	4.6	3.3	3.2	2.4	1.7	0.3	1.9	2.2
104°	0.0	3.1	3.5	4.0	2.7	2.5	2.0	1.3	0.3	1.4	1.9
105°	0.2	2.6	3.0	3.5	2.3	2.2	1.5	0.8	0.2	0.9	1.6
106°	0.2	1.9	2.4	2.9	2.0	1.7	1.2	0.6	0.3	0.6	1.2
107°	0.2	1.5	2.1	2.5	1.6	1.4	0.8	0.5	0.2	0.6	1.1
108°	0.2	1.2	1.7	2.1	1.4	1.1	0.6	0.4	0.2	0.5	1.0
109°	0.2	1.0	1.5	1.8	1.2	0.8	0.5	0.4	0.2	0.5	0.8
110°	0.3	0.8	1.2	1.5	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	0.6	1.0	1.2	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	0.3	0.2	0.6	1.0
114°	0.3	0.6	1.1	1.3	1.4	1.0	0.6	0.4	0.2	0.6	1.1
115°	0.4	0.7	1.1	1.5	1.5	1.1	0.6	0.4	0.2	0.5	1.1
116°	0.3	0.8	1.2	1.5	1.6	1.1	0.6	0.4	0.2	0.6	1.1
117°	0.3	0.8	1.2	1.5	1.7	1.2	0.7	0.5	0.2	0.6	1.2
118°	0.4	0.9	1.3	1.6	1.7	1.3	0.8	0.5	0.2	0.6	1.3
119°	0.3	0.9	1.4	1.7	1.6	1.2	0.8	0.5	0.2	0.6	1.3
120°	0.3	1.0	1.5	1.8	1.0	1.3	0.8	0.5	0.2	0.6	1.2
121°	0.3	1.1	1.4	1.8	0.8	1.3	0.8	0.6	0.2	0.7	1.2
122°	0.4	1.0	1.5	1.9	0.3	1.3	0.8	0.5	0.2	0.6	1.3
123°	0.3	1.1	1.5	2.0	0.2	1.4	0.9	0.5	0.2	0.7	1.3
124°	0.3	1.0	1.4	2.0	0.2	1.4	0.8	0.4	0.2	0.6	1.3
125°	0.4	1.0	1.5	2.0	0.3	1.4	0.8	0.5	0.2	0.6	1.3
126°	0.3	1.1	1.5	2.0	0.3	1.4	0.9	0.5	0.1	0.6	1.3
127°	0.4	1.0	1.5	2.0	0.3	1.5	0.9	0.6	0.2	0.6	1.2
128°	0.3	1.1	1.5	2.0	0.2	1.5	1.0	0.6	0.2	0.6	1.2
129°	0.3	1.0	1.5	2.1	0.3	1.5	1.0	0.6	0.2	0.6	1.2
130°	0.3	0.9	1.5	2.1	0.3	1.6	1.0	0.6	0.2	0.5	1.2
131°	0.3	1.0	1.5	2.1	0.2	1.6	1.0	0.7	0.3	0.6	1.1
132°	0.2	0.9	1.5	2.1	0.3	1.6	1.1	0.6	0.2	0.5	1.1
133°	0.2	1.0	1.5	2.1	0.3	1.6	1.0	0.5	0.2	0.6	1.2
134°	0.3	0.9	1.5	2.0	0.2	1.7	1.1	0.7	0.3	0.5	1.1

TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
135°	0.2	0.8	1.5	2.1	0.3	1.6	1.1	0.7	0.3	0.5	1.1
136°	0.3	0.8	1.5	2.0	0.3	1.7	1.2	0.7	0.2	0.5	1.2
137°	0.2	0.8	1.4	2.1	0.3	1.8	1.2	0.7	0.3	0.5	1.3
138°	0.3	0.7	1.5	2.0	0.3	1.8	1.1	0.7	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	0.4	1.1
140°	0.2	0.7	1.6	2.1	0.3	2.0	1.2	0.7	0.3	0.3	1.0
141°	0.2	0.7	1.7	2.1	0.3	2.1	1.1	0.7	0.2	0.4	0.8
142°	0.2	0.8	1.6	2.1	0.3	2.6	1.1	0.8	0.2	0.4	0.8
143°	0.2	0.7	1.5	2.0	0.3	2.6	1.2	0.8	0.2	0.4	0.8
144°	0.2	0.8	1.5	2.0	0.3	2.4	1.2	0.7	0.2	0.3	0.8
145°	0.2	0.7	1.5	2.0	0.3	3.1	1.2	0.6	0.2	0.4	0.7
146°	0.3	0.8	1.5	1.9	0.3	2.9	1.2	0.8	0.1	0.4	0.8
147°	0.2	0.8	1.4	2.0	0.3	2.6	1.2	0.8	0.2	0.4	0.7
148°	0.2	0.8	1.4	1.9	0.3	2.7	1.2	0.7	0.3	0.4	0.8
149°	0.2	0.7	1.3	2.0	0.4	2.7	1.2	0.5	0.3	0.2	0.9
150°	0.2	0.8	1.4	2.0	0.3	2.4	1.2	0.6	0.4	0.3	0.9
151°	0.3	0.7	1.3	2.1	0.3	2.2	1.2	0.5	0.3	0.3	0.8
152°	0.2	0.8	1.4	3.0	0.4	2.1	1.2	0.4	0.3	0.3	0.7
153°	0.3	0.7	1.5	2.9	0.3	2.1	1.2	0.4	0.4	0.3	0.9
154°	0.3	0.8	2.0	2.1	0.3	2.0	1.1	0.4	0.4	0.2	0.9
155°	0.3	0.7	2.0	2.0	0.3	1.6	1.0	0.3	0.4	0.2	0.8
156°	0.3	0.7	1.7	2.3	0.3	1.4	1.2	0.3	0.4	0.2	0.6
157°	0.3	0.7	1.5	2.4	0.3	1.4	1.1	0.4	0.3	0.2	0.6
158°	0.3	0.8	1.7	2.3	0.3	1.3	1.0	0.4	0.3	0.2	0.5
159°	0.3	0.8	1.9	2.2	0.2	1.6	0.9	0.4	0.3	0.2	0.5
160°	0.3	0.7	1.9	2.1	0.3	1.8	0.8	0.4	0.4	0.2	0.5
161°	0.3	0.8	1.9	2.0	0.4	1.5	0.7	0.4	0.3	0.2	0.4
162°	0.3	0.6	1.8	2.1	0.3	0.7	0.5	0.5	0.3	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°	0.2	0.6	1.7	1.9	0.3	0.6	0.2	0.5	0.2	0.2	0.4
165°	0.3	0.7	1.4	1.8	0.3	0.4	0.2	0.5	0.1	0.2	0.4
166°	0.3	0.7	1.3	1.4	0.3	0.2	0.2	0.5	0.2	0.2	0.3
167°	0.3	0.7	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°	0.2	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°	0.2	0.2	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



NVLAP Lab Code: 200050-0



TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

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: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	233.3	233.3	233.3	233.3	233.3	233.3
1°	233.1	233.3	233.2	233.3	233.5	233.3
2°	232.8	233.2	233.1	233.2	233.4	233.3
3°	232.5	233.1	232.9	233.1	233.3	233.2
4°	232.1	232.7	232.6	232.8	233.1	233.0
5°	231.5	232.4	232.3	232.5	232.9	232.7
6°	230.9	232.0	231.8	232.1	232.5	232.3
7°	230.2	231.5	231.3	231.7	232.0	231.8
8°	229.4	230.9	230.7	231.0	231.6	231.4
9°	228.4	230.2	229.9	230.4	230.9	230.7
10°	227.5	229.4	229.1	229.6	230.2	229.9
11°	226.5	228.6	228.2	228.8	229.4	229.1
12°	225.3	227.5	227.3	227.8	228.5	228.2
13°	224.1	226.5	226.1	226.8	227.5	227.2
14°	222.7	225.4	224.9	225.6	226.4	226.1
15°	221.4	224.2	223.8	224.5	225.3	224.9
16°	220.0	222.9	222.3	223.3	224.1	223.7
17°	218.4	221.6	221.0	221.8	222.7	222.3
18°	216.7	220.2	219.6	220.4	221.3	220.9
19°	215.0	218.6	218.0	218.9	220.0	219.5
20°	213.2	216.9	216.2	217.3	218.5	218.0
21°	211.4	215.3	214.6	215.5	216.8	216.1
22°	209.3	213.6	212.8	213.8	215.1	214.5
23°	207.3	211.8	210.9	212.0	213.4	212.7
24°	205.2	209.8	208.9	210.2	211.3	211.0
25°	203.2	207.8	207.0	208.3	209.4	208.8
26°	200.9	205.6	204.9	206.1	207.5	206.8
27°	198.7	203.6	202.7	204.1	205.3	204.8
28°	196.3	201.4	200.5	202.0	203.2	202.5
29°	194.0	199.2	198.3	199.6	201.1	200.3
30°	191.5	196.7	196.0	197.3	198.8	198.1
31°	189.0	194.4	193.4	195.0	196.6	195.8
32°	186.3	192.0	191.0	192.7	193.9	193.5
33°	183.8	189.3	188.5	190.0	191.6	190.8
34°	181.0	186.8	186.0	187.5	188.8	188.3
35°	178.4	184.3	183.3	184.9	186.4	185.6
36°	175.5	181.7	180.6	182.1	183.8	183.0
37°	172.6	178.7	178.0	179.4	181.2	180.4
38°	169.8	176.0	174.9	176.8	178.6	177.8
39°	166.9	173.3	172.3	173.8	175.7	174.8
40°	163.7	170.5	169.4	170.9	172.8	171.9
41°	160.8	167.6	166.5	168.2	169.8	169.2
42°	157.6	164.4	163.3	165.2	166.9	166.3
43°	154.6	161.5	160.4	162.4	164.0	163.4
44°	151.5	158.2	157.4	159.1	161.1	160.2

TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	148.4	155.2	154.1	156.1	158.2	157.2
46°	144.9	152.1	151.1	153.1	154.9	153.9
47°	141.7	149.1	148.0	149.8	151.9	150.9
48°	138.3	146.0	144.8	146.7	148.8	147.8
49°	135.1	142.6	141.5	143.6	145.7	144.7
50°	131.8	139.4	138.3	140.4	142.2	141.5
51°	128.6	135.9	135.1	136.9	139.1	138.1
52°	125.2	132.7	131.9	133.7	135.9	134.9
53°	121.8	129.4	128.3	130.5	132.4	131.7
54°	118.5	126.1	125.0	127.2	129.2	128.1
55°	114.8	122.7	122.1	123.5	125.8	124.8
56°	111.7	119.4	118.2	120.6	122.8	121.9
57°	108.2	116.0	114.9	117.2	119.2	118.5
58°	104.8	112.7	111.6	113.5	115.9	114.8
59°	101.3	109.4	108.2	110.2	112.6	111.5
60°	97.7	105.7	104.9	106.9	109.0	108.2
61°	94.5	102.4	101.4	103.6	105.6	104.9
62°	91.0	99.1	98.0	100.0	102.3	101.2
63°	87.8	95.5	94.7	96.7	99.0	98.0
64°	84.1	92.2	91.1	93.3	95.4	94.7
65°	80.8	88.9	87.8	89.7	92.1	91.0
66°	77.2	85.6	84.5	86.5	88.8	87.8
67°	74.1	82.1	81.0	83.2	85.5	84.5
68°	70.8	78.8	77.7	80.0	81.9	81.2
69°	67.7	75.4	74.4	76.4	78.8	77.8
70°	64.4	72.0	71.3	73.1	75.5	74.5
71°	61.0	68.9	68.2	70.0	72.2	71.2
72°	58.1	65.7	64.8	66.9	68.8	67.9
73°	54.8	62.4	61.8	63.5	65.6	64.7
74°	52.0	59.3	58.4	60.5	62.6	61.6
75°	48.9	56.3	55.4	57.5	59.3	58.7
76°	46.0	53.3	52.5	54.5	56.3	55.4
77°	43.2	50.4	49.6	51.3	53.2	52.4
78°	40.4	47.3	46.8	48.4	50.3	49.5
79°	37.9	44.5	43.9	45.7	47.2	46.6
80°	35.2	41.9	41.2	43.0	44.5	43.9
81°	32.7	39.0	38.6	40.1	41.8	41.0
82°	30.4	36.4	36.0	37.5	38.9	38.3
83°	28.0	34.0	33.4	35.0	36.4	35.8
84°	25.7	31.6	31.1	32.6	33.9	33.1
85°	23.7	29.2	28.9	30.1	31.5	30.7
86°	21.6	27.0	26.7	27.9	29.2	28.4
87°	19.8	24.8	24.4	25.8	26.8	26.3
88°	17.9	22.9	22.4	23.7	24.7	24.0
89°	16.3	21.0	20.5	21.6	22.7	21.9

TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	14.7	19.0	18.8	19.7	20.7	20.0
91°	13.0	17.4	17.0	18.0	18.9	18.2
92°	11.7	15.7	15.3	16.3	17.1	16.6
93°	10.5	14.1	13.9	14.7	15.5	14.8
94°	9.3	12.6	12.5	13.2	13.9	4.3
95°	8.1	11.3	11.1	11.9	12.4	0.0
96°	7.1	10.1	9.8	10.6	11.1	0.0
97°	6.3	9.0	8.7	9.4	9.8	0.0
98°	5.6	7.8	7.7	8.3	8.7	0.0
99°	4.8	6.8	6.8	7.3	7.6	0.0
100°	4.2	6.0	5.9	6.4	6.7	0.0
101°	3.6	5.3	5.2	5.5	5.9	0.0
102°	3.1	4.7	4.5	4.8	5.1	0.0
103°	2.6	4.0	3.9	4.1	4.4	0.0
104°	2.2	3.6	3.3	3.5	3.7	0.0
105°	1.9	3.0	2.8	3.0	3.0	0.2
106°	1.6	2.5	2.3	2.4	2.4	0.2
107°	1.5	2.2	2.0	2.0	1.8	0.2
108°	1.2	1.8	1.7	1.8	1.3	0.2
109°	1.3	1.6	1.5	1.4	1.0	0.2
110°	1.2	1.5	1.2	1.2	0.7	0.3
111°	1.3	1.4	1.2	1.0	0.6	0.3
112°	1.5	1.3	1.0	0.8	0.4	0.3
113°	1.6	1.3	1.0	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°	1.7	1.6	1.3	0.6	0.2	0.3
117°	1.8	1.6	1.3	0.7	0.3	0.3
118°	1.8	1.6	1.4	0.7	0.1	0.4
119°	1.9	1.7	1.4	0.8	0.3	0.3
120°	1.8	1.7	1.4	0.8	0.3	0.3
121°	1.9	0.4	1.4	0.8	0.3	0.3
122°	1.8	0.4	1.4	0.8	0.3	0.4
123°	1.8	0.1	1.5	0.9	0.2	0.3
124°	1.7	0.2	1.4	0.8	0.3	0.3
125°	1.6	0.1	1.5	0.9	0.3	0.4
126°	1.5	0.2	1.4	0.9	0.2	0.3
127°	1.6	0.1	1.4	0.8	0.3	0.4
128°	1.5	0.1	1.4	0.9	0.2	0.3
129°	1.5	0.1	1.3	0.8	0.2	0.3
130°	1.5	0.1	1.3	0.9	0.2	0.3
131°	1.3	0.1	1.3	0.9	0.2	0.3
132°	1.3	0.2	1.2	0.8	0.2	0.2
133°	1.3	0.2	1.2	0.9	0.2	0.2
134°	1.3	0.1	1.3	0.7	0.2	0.3

TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

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	1.2	0.9	0.2	0.2
140°	1.1	0.2	1.3	0.9	0.1	0.2
141°	1.2	0.2	1.3	0.8	0.2	0.2
142°	1.1	0.2	1.3	0.8	0.2	0.2
143°	0.9	0.2	1.4	0.9	0.1	0.2
144°	0.9	0.2	1.4	0.9	0.2	0.2
145°	0.9	0.2	2.1	0.9	0.2	0.2
146°	1.0	0.2	2.3	0.8	0.2	0.3
147°	1.0	0.2	1.5	0.7	0.2	0.2
148°	0.8	0.1	1.2	0.6	0.2	0.2
149°	0.7	0.2	1.2	0.3	0.2	0.2
150°	0.7	0.2	1.2	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	0.4	0.2	0.3
154°	0.6	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	0.7	0.5	0.2	0.3
157°	0.5	0.1	0.9	0.5	0.1	0.3
158°	0.5	0.2	0.6	0.5	0.2	0.3
159°	0.5	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°	0.3	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	0.2
165°	0.3	0.2	0.3	0.2	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	0.2
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	0.2
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

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



NVLAP Lab Code: 200050-0



TEST NUMBER: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

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: P1219803

CATALOG NUMBER: HLC4FS1E-24P-5000K

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	23.5	25.2	23.9	25.5	25.9	23.4	25.0	23.8	25.3	25.7
	3H	25.6	27.1	26.0	27.5	27.9	25.4	26.8	25.8	27.2	27.6
	4H	26.5	27.9	27.0	28.3	28.8	26.2	27.6	26.6	28.0	28.4
	6H	27.4	28.7	27.9	29.1	29.6	27.0	28.3	27.5	28.7	29.2
	8H	27.8	29.1	28.3	29.5	29.9	27.4	28.6	27.8	29.1	29.5
	12H	28.2	29.4	28.7	29.9	30.4	27.8	29.0	28.2	29.4	29.9
4H	2H	24.2	25.6	24.7	26.0	26.4	24.0	25.4	24.5	25.8	26.3
	3H	26.6	27.7	27.0	28.2	28.6	26.3	27.5	26.8	27.9	28.4
	4H	27.6	28.7	28.1	29.2	29.7	27.3	28.4	27.8	28.9	29.4
	6H	28.7	29.6	29.2	30.1	30.6	28.3	29.3	28.8	29.8	30.3
	8H	29.2	30.1	29.7	30.6	31.1	28.8	29.7	29.3	30.2	30.7
	12H	29.7	30.5	30.2	31.1	31.6	29.3	30.1	29.8	30.6	31.1
8H	4H	28.1	29.0	28.6	29.5	30.0	27.8	28.7	28.3	29.2	29.7
	6H	29.3	30.1	29.9	30.6	31.1	29.0	29.7	29.5	30.3	30.8
	8H	30.0	30.7	30.5	31.2	31.7	29.6	30.3	30.1	30.8	31.4
	12H	30.7	31.3	31.2	31.8	32.4	30.3	30.9	30.8	31.4	32.0
12H	4H	28.2	29.0	28.7	29.5	30.0	27.9	28.7	28.4	29.2	29.7
	6H	29.5	30.2	30.0	30.7	31.3	29.1	29.8	29.7	30.3	30.9
	8H	30.2	30.8	30.8	31.4	32.0	29.8	30.4	30.4	31.0	31.6

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(END OF REPORT)