

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: P1219802

Luminaire Tested: HLC4FS1E-24P-4000K

Issue Date: 12/22/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-2019
Report Number: P1219802
Test Lab: INNOVATION CENTER
Issue Date: 12/22/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLC4FS1E-24P-4000K
Description: 4" Surface Mount LED Disk Light

Light Source:
Ballast/Driver: -

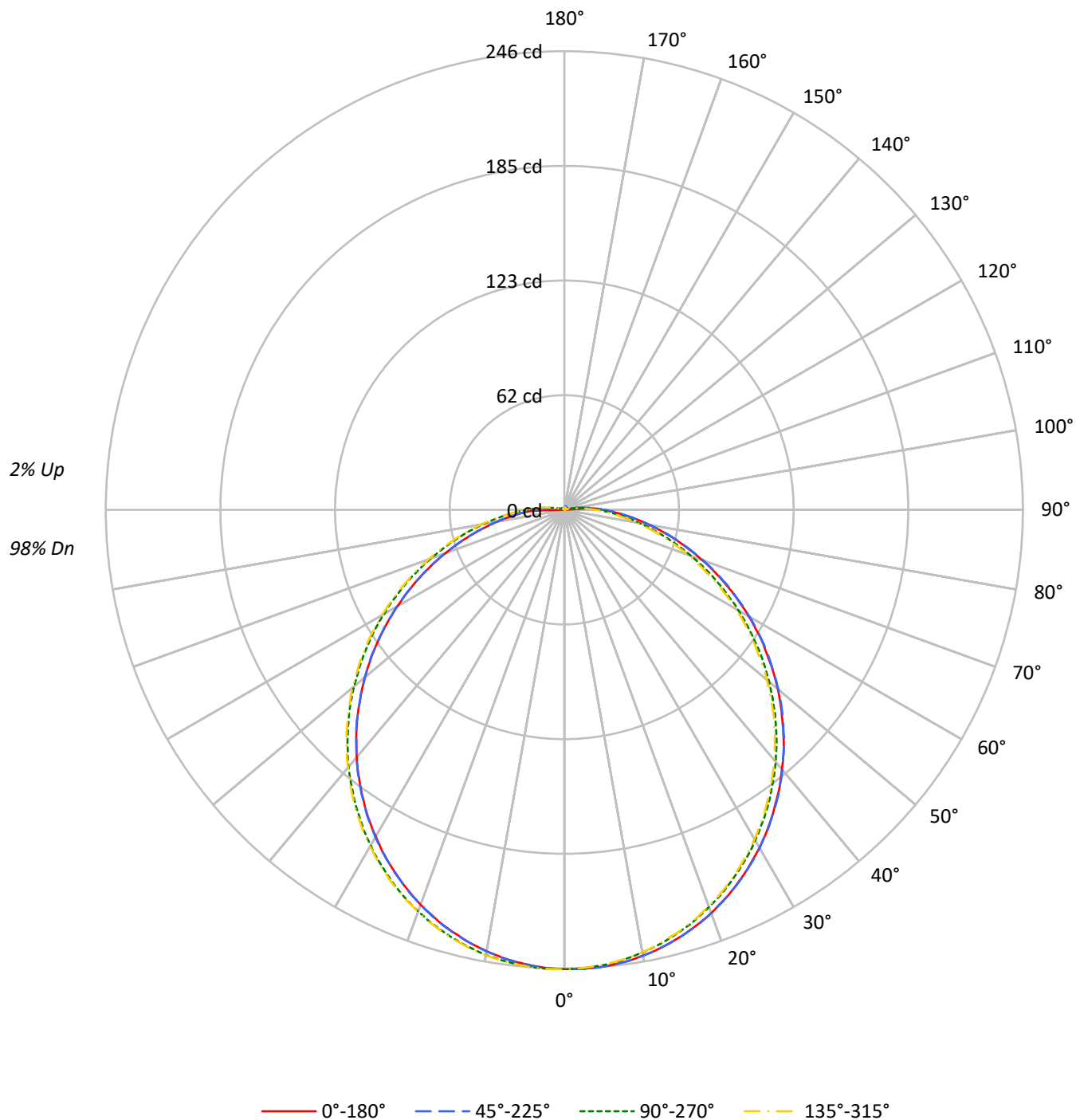
Summary

Lumens per Lamp: 660 (1 lamp)
Luminaire Lumens: 750.0 lumens
Efficiency: 113.6%
Efficacy: 75.8 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.25 / 1.36
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 9.9
Input Voltage (V): 122
Input Current (Ain): 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-4000K

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	0
RCR																				
0	135	135	135	135	131	131	131	131	125	125	125		119	119	119		114	114	114	111
1	122	116	110	105	118	113	108	103	107	103	100		102	99	96		98	95	93	90
2	110	100	92	85	107	98	90	84	93	87	81		89	84	79		85	81	77	74
3	100	88	78	70	97	86	77	69	82	74	68		78	72	66		75	70	65	62
4	92	78	67	59	89	76	66	59	73	64	58		70	62	57		67	61	55	53
5	84	69	59	51	82	68	58	50	65	56	50		62	55	49		60	53	48	46
6	78	62	52	44	75	61	51	44	59	50	43		56	49	43		54	48	42	40
7	72	56	46	39	70	55	46	39	53	45	38		51	44	38		50	43	37	35
8	67	51	42	35	65	51	41	35	49	40	34		47	39	34		46	39	34	31
9	63	47	38	31	61	46	37	31	45	37	31		43	36	31		42	35	30	28
10	59	44	34	28	57	43	34	28	42	34	28		40	33	28		39	32	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	31009	31009	31009	31009
5°	31052	30951	30888	31014
10°	31028	30810	30721	30977
15°	30957	30618	30475	30866
20°	30843	30375	30187	30696
25°	30632	30091	29813	30480
30°	30415	29747	29398	30197
35°	30128	29406	28945	29897
40°	29834	28980	28471	29588
45°	29544	28530	27943	29188
50°	29270	28076	27332	28820
55°	28919	27558	26681	28436
60°	28769	27184	26001	28090
65°	28647	26801	25401	27962
70°	28958	26677	24911	27965
75°	30147	27181	24944	28883
80°	33555	29642	26453	32106
85°	46784	40575	34944	44619

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 89°

Luminance: 175228 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	23.3	3.1	3.5
10°-20°	66.6	8.9	10.1
20°-30°	100.4	13.4	15.2
30°-40°	120.5	16.1	18.3
40°-50°	124.8	16.6	18.9
50°-60°	113.8	15.2	17.2
60°-70°	90.5	12.1	13.7
70°-80°	60.6	8.1	9.2
80°-90°	32.0	4.3	4.8
90°-100°	11.2	1.5	1.7
100°-110°	2.6	0.3	0.4
110°-120°	1.0	0.1	0.1
120°-130°	0.9	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°	190.3	25.4	28.8
0°-40°	310.8	41.4	47.1
0°-60°	549.4	73.3	83.2
0°-90°	732.6	97.7	111.0
90°-120°	14.7	2.0	2.2
90°-150°	16.9	2.3	2.6
90°-180°	17.0	2.3	2.6
0°-180°	750.0	100.0	113.6

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	246	246	246	246	246	
5°	246	245	244	246	246	23
15°	238	235	234	237	238	67
25°	221	217	215	220	221	102
35°	196	191	188	195	196	123
45°	166	160	157	164	166	128
55°	132	126	122	130	132	118
65°	96	90	85	94	96	95
75°	62	56	51	59	62	65
85°	32	28	24	31	32	29
90°	21	18	0	20	21	12
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4
1°	246.5	246.5	246.5	246.5	246.3	246.3	246.3	246.2	246.2	246.3	246.3
2°	246.4	246.4	246.5	246.5	246.1	246.1	246.1	246.0	246.0	246.0	246.0
3°	246.3	246.3	246.5	246.5	245.9	245.9	245.7	245.6	245.6	245.6	245.6
4°	246.1	246.1	246.2	246.3	245.4	245.5	245.3	245.2	245.1	245.2	245.2
5°	245.8	245.8	245.9	246.0	245.0	245.1	244.8	244.6	244.5	244.7	244.7
6°	245.4	245.4	245.5	245.6	244.4	244.6	244.2	243.8	243.9	244.0	244.0
7°	244.9	244.9	245.0	245.1	243.7	243.9	243.5	243.1	243.2	243.3	243.3
8°	244.4	244.2	244.5	244.6	242.9	243.2	242.8	242.2	242.4	242.4	242.5
9°	243.7	243.6	243.7	243.8	242.1	242.4	241.9	241.3	241.4	241.5	241.5
10°	242.8	242.8	242.9	243.1	241.1	241.5	241.0	240.2	240.4	240.5	240.5
11°	242.0	241.9	242.1	242.2	240.1	240.5	239.9	239.1	239.2	239.3	239.4
12°	241.1	241.0	241.1	241.4	239.0	239.5	238.7	237.9	238.1	238.1	238.1
13°	240.0	239.9	240.0	240.4	237.8	238.2	237.4	236.5	236.8	236.9	236.9
14°	238.8	238.8	238.9	239.2	236.4	237.0	236.0	235.1	235.3	235.5	235.5
15°	237.6	237.4	237.7	238.0	235.0	235.6	234.7	233.7	233.9	234.1	234.1
16°	236.3	236.1	236.3	236.8	233.6	234.1	233.1	232.3	232.4	232.7	232.6
17°	234.8	234.7	235.0	235.3	232.2	232.6	231.6	230.5	230.9	231.0	230.9
18°	233.4	233.4	233.6	234.0	230.4	231.1	230.0	228.8	228.9	229.3	229.2
19°	231.9	231.7	232.0	232.4	228.6	229.4	228.1	227.1	227.2	227.4	227.3
20°	230.3	230.1	230.2	230.9	226.8	227.5	226.3	225.2	225.4	225.6	225.5
21°	228.3	228.4	228.5	229.0	225.0	225.7	224.5	223.1	223.4	223.6	223.5
22°	226.6	226.4	226.7	227.2	223.1	223.8	222.6	221.1	221.3	221.6	221.5
23°	224.7	224.5	224.7	225.4	221.0	221.9	220.4	218.8	219.3	219.3	219.2
24°	222.8	222.5	222.8	223.3	218.9	219.6	218.2	216.7	217.0	217.4	217.0
25°	220.6	220.5	220.8	221.3	216.7	217.5	215.9	214.4	214.7	215.0	215.0
26°	218.5	218.3	218.8	219.3	214.5	215.1	213.8	212.2	212.4	212.6	212.5
27°	216.3	216.1	216.4	217.0	212.1	212.8	211.3	209.5	210.1	210.2	210.2
28°	213.9	213.9	214.2	214.8	209.9	210.5	209.0	207.1	207.7	207.9	207.7
29°	211.6	211.5	212.0	212.5	207.4	208.2	206.5	204.5	205.0	205.3	205.3
30°	209.3	209.0	209.6	210.1	204.7	205.8	204.0	202.1	202.3	202.5	202.7
31°	206.8	206.6	206.9	207.8	202.2	203.1	201.3	199.4	199.8	199.9	199.9
32°	204.4	204.1	204.4	205.1	199.5	200.4	198.5	196.7	197.0	197.1	197.3
33°	201.6	201.3	201.9	202.6	196.9	197.7	196.0	193.9	194.4	194.6	194.6
34°	199.0	198.7	199.0	200.0	194.0	194.8	193.2	191.2	191.5	191.6	191.6
35°	196.1	196.1	196.4	197.2	191.4	192.1	190.2	188.2	188.4	188.7	188.7
36°	193.3	193.3	193.7	194.5	188.3	189.4	187.4	184.9	185.6	185.8	185.7
37°	190.6	190.3	191.0	191.7	185.3	186.4	184.3	182.0	182.5	182.9	182.8
38°	187.8	187.5	187.9	188.9	182.5	183.4	181.1	179.2	179.5	179.7	179.7
39°	184.6	184.6	185.0	185.8	179.3	180.5	178.4	176.0	176.5	176.7	176.6
40°	181.6	181.4	182.0	182.9	176.4	177.4	175.2	172.7	173.3	173.5	173.4
41°	178.7	178.4	178.8	180.0	173.1	174.4	172.0	169.5	170.0	170.4	170.1
42°	175.7	175.4	175.8	177.0	170.2	171.2	168.7	166.3	166.7	167.1	167.0
43°	172.6	172.3	172.8	173.6	166.9	168.0	165.7	162.9	163.6	163.7	163.6
44°	169.2	168.9	169.7	170.6	163.5	164.7	162.2	159.8	160.2	160.2	160.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	166.0	165.8	166.3	167.5	160.3	161.3	159.2	156.5	157.0	157.0	157.0
46°	162.6	162.6	163.2	164.0	157.1	157.8	155.7	153.2	153.5	153.6	153.5
47°	159.4	159.1	159.9	160.9	153.5	154.6	152.2	149.5	149.9	150.3	149.9
48°	156.1	155.9	156.7	157.6	150.2	151.2	148.6	146.0	146.6	146.7	146.7
49°	152.8	152.6	153.1	154.4	146.7	147.9	145.3	142.7	143.0	143.0	143.0
50°	149.5	149.3	149.8	150.8	143.4	144.4	141.8	139.1	139.6	139.8	139.8
51°	145.9	145.6	146.5	147.5	139.9	140.7	138.6	135.7	136.1	136.1	136.0
52°	142.5	142.3	142.8	144.1	136.5	137.5	134.8	132.0	132.3	132.5	132.6
53°	139.1	138.9	139.4	140.4	132.9	134.0	131.0	128.5	129.0	129.5	129.4
54°	135.4	135.5	136.0	137.0	129.6	130.1	127.6	124.7	125.3	125.4	125.3
55°	131.8	131.6	132.5	133.5	125.6	126.9	124.1	121.2	121.6	121.9	121.9
56°	128.7	128.5	129.2	130.3	122.2	123.2	120.6	117.8	118.0	118.2	118.2
57°	125.2	125.0	125.5	126.5	118.5	119.4	117.0	114.1	114.4	114.8	114.7
58°	121.3	121.5	122.0	123.0	115.1	116.0	113.5	110.5	110.6	111.1	110.9
59°	117.8	117.6	118.5	119.5	111.5	112.6	109.8	106.8	107.1	107.1	107.1
60°	114.3	114.1	114.7	115.7	108.0	109.0	105.9	103.0	103.3	103.7	103.6
61°	110.8	110.6	111.1	112.5	104.3	105.1	102.5	99.5	99.6	99.9	99.9
62°	106.9	107.1	107.6	108.7	100.5	101.7	98.9	96.1	96.4	96.4	96.4
63°	103.5	103.3	103.9	105.2	96.9	97.9	95.3	92.4	92.5	92.9	92.8
64°	100.0	99.8	100.4	101.4	93.5	94.4	91.8	88.7	89.1	89.3	89.1
65°	96.2	96.3	96.9	97.9	90.0	91.0	88.1	85.1	85.3	85.7	85.3
66°	92.8	92.6	93.4	94.5	86.6	87.4	84.3	81.6	81.8	81.9	81.9
67°	89.2	89.1	90.0	91.0	82.9	83.6	80.9	77.9	78.2	78.5	78.3
68°	85.8	85.6	86.2	87.1	79.5	80.3	77.3	74.7	74.8	75.1	75.1
69°	82.2	82.0	82.9	83.8	75.9	76.6	74.2	71.0	71.4	71.4	71.7
70°	78.7	78.5	79.4	80.3	72.5	73.4	70.6	67.4	67.7	68.0	68.2
71°	75.2	75.1	75.9	76.9	69.2	70.2	67.3	64.3	64.4	64.6	64.7
72°	71.7	71.8	72.3	73.3	65.6	66.5	63.8	60.9	60.9	61.3	61.2
73°	68.3	68.5	69.0	70.0	62.6	63.3	60.4	57.5	57.7	57.9	58.1
74°	65.1	64.9	65.8	66.7	59.1	59.9	57.4	54.5	54.5	54.7	54.8
75°	62.0	61.9	62.3	63.3	55.9	56.8	54.2	51.2	51.3	51.7	51.7
76°	58.5	58.6	59.1	60.0	52.8	53.5	51.1	48.0	48.2	48.6	48.6
77°	55.3	55.2	56.0	56.9	49.8	50.6	48.0	45.0	45.1	45.4	45.5
78°	52.3	52.1	52.6	53.8	46.9	47.6	44.8	42.1	42.1	42.3	42.7
79°	49.2	49.1	49.6	50.8	43.9	44.4	42.1	39.4	39.3	39.3	39.7
80°	46.3	46.2	46.7	47.5	40.9	41.8	39.2	36.7	36.5	36.7	37.0
81°	43.3	43.1	43.8	44.7	38.4	38.9	36.7	34.0	33.9	34.1	34.5
82°	40.5	40.4	40.8	42.0	35.7	36.1	33.9	31.3	31.5	31.6	31.9
83°	37.8	37.6	38.1	38.9	33.2	33.8	31.3	28.9	28.9	28.8	29.2
84°	34.9	35.0	35.5	36.3	30.7	31.2	28.9	26.5	26.5	26.6	26.7
85°	32.4	32.2	32.9	33.8	28.1	28.6	26.6	24.2	24.2	24.4	24.6
86°	30.0	29.9	30.5	31.3	25.9	26.6	24.3	22.2	22.2	22.2	22.6
87°	27.7	27.6	28.0	28.8	23.8	24.2	22.4	20.3	20.0	20.3	20.6
88°	25.3	25.3	25.7	26.5	21.9	22.3	20.4	18.2	18.1	18.3	18.6
89°	23.2	23.0	23.6	24.3	20.0	20.3	18.5	16.4	5.2	16.4	16.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	21.2	20.9	21.5	22.4	18.1	18.5	16.7	14.8	0.0	14.8	15.0
91°	19.2	19.0	19.4	20.4	16.3	16.6	14.8	13.2	0.0	13.1	13.5
92°	17.5	17.2	17.6	18.4	14.6	14.9	13.4	11.8	0.0	11.7	12.1
93°	15.6	15.4	15.9	16.7	13.1	13.4	12.0	10.5	0.0	10.5	10.8
94°	4.5	13.8	14.3	15.1	11.7	12.0	10.5	9.2	0.0	9.2	9.5
95°	0.0	12.3	12.6	13.3	10.4	10.6	9.4	8.1	0.0	8.0	8.3
96°	0.0	10.9	11.3	11.9	9.2	9.5	8.3	6.9	0.0	7.0	7.4
97°	0.0	9.7	9.9	10.6	8.1	8.3	7.1	5.9	0.0	6.0	6.4
98°	0.0	8.4	8.8	9.4	7.1	7.3	6.1	5.1	0.0	5.3	5.6
99°	0.0	7.4	7.6	8.3	6.3	6.3	5.3	4.4	0.3	4.4	4.9
100°	0.0	6.4	6.7	7.2	5.6	5.6	4.5	3.6	0.3	3.9	4.1
101°	0.0	5.5	5.8	6.3	4.7	4.8	3.8	3.0	0.2	3.2	3.5
102°	0.0	4.7	5.1	5.6	4.1	4.1	3.1	2.3	0.3	2.6	2.9
103°	0.0	4.0	4.4	4.9	3.4	3.3	2.5	1.8	0.4	2.0	2.3
104°	0.0	3.3	3.6	4.2	2.9	2.7	2.1	1.4	0.3	1.5	2.0
105°	0.2	2.7	3.2	3.7	2.4	2.3	1.6	0.9	0.3	1.0	1.7
106°	0.2	2.0	2.6	3.1	2.1	1.8	1.3	0.6	0.3	0.7	1.3
107°	0.3	1.6	2.2	2.7	1.7	1.5	0.8	0.5	0.2	0.6	1.1
108°	0.3	1.3	1.8	2.2	1.5	1.2	0.7	0.4	0.2	0.5	1.1
109°	0.2	1.1	1.6	1.9	1.3	0.9	0.5	0.4	0.2	0.5	0.9
110°	0.3	0.9	1.3	1.6	1.3	0.8	0.5	0.4	0.2	0.6	0.9
111°	0.3	0.7	1.1	1.5	1.4	0.9	0.5	0.4	0.2	0.6	1.1
112°	0.3	0.7	1.1	1.3	1.4	1.0	0.6	0.4	0.2	0.5	1.1
113°	0.3	0.7	1.0	1.2	1.5	1.0	0.6	0.4	0.2	0.6	1.1
114°	0.3	0.7	1.1	1.4	1.5	1.0	0.6	0.4	0.2	0.6	1.2
115°	0.4	0.8	1.2	1.5	1.6	1.1	0.7	0.5	0.2	0.5	1.2
116°	0.4	0.8	1.3	1.6	1.7	1.2	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	1.8	1.3	0.9	0.5	0.2	0.6	1.3
119°	0.3	1.0	1.5	1.8	1.7	1.3	0.8	0.5	0.2	0.6	1.3
120°	0.3	1.1	1.6	1.9	1.1	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	1.1	1.6	2.0	0.3	1.4	0.9	0.6	0.2	0.7	1.4
123°	0.3	1.1	1.6	2.1	0.2	1.5	0.9	0.6	0.2	0.7	1.4
124°	0.4	1.1	1.5	2.1	0.2	1.5	0.8	0.4	0.2	0.6	1.4
125°	0.4	1.1	1.6	2.1	0.3	1.5	0.8	0.6	0.2	0.6	1.4
126°	0.3	1.1	1.6	2.1	0.3	1.5	0.9	0.5	0.1	0.6	1.4
127°	0.4	1.1	1.6	2.1	0.3	1.6	1.0	0.7	0.2	0.6	1.2
128°	0.4	1.1	1.6	2.2	0.3	1.5	1.0	0.7	0.2	0.6	1.3
129°	0.4	1.0	1.6	2.2	0.3	1.6	1.1	0.6	0.2	0.6	1.2
130°	0.3	1.0	1.6	2.2	0.3	1.7	1.1	0.6	0.2	0.6	1.2
131°	0.3	1.0	1.6	2.2	0.3	1.7	1.1	0.7	0.3	0.6	1.2
132°	0.2	0.9	1.6	2.2	0.3	1.7	1.1	0.6	0.3	0.6	1.2
133°	0.2	1.0	1.5	2.2	0.4	1.7	1.1	0.5	0.3	0.6	1.2
134°	0.3	1.0	1.6	2.1	0.3	1.7	1.1	0.7	0.3	0.5	1.2

TEST NUMBER: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
135°	0.2	0.9	1.6	2.2	0.3	1.7	1.2	0.7	0.3	0.5	1.1
136°	0.3	0.9	1.6	2.1	0.3	1.8	1.2	0.7	0.2	0.5	1.2
137°	0.2	0.9	1.5	2.2	0.3	1.9	1.2	0.8	0.3	0.5	1.4
138°	0.3	0.7	1.6	2.1	0.3	1.9	1.2	0.8	0.3	0.5	1.3
139°	0.2	0.7	1.7	2.1	0.3	2.0	1.2	0.8	0.3	0.5	1.1
140°	0.2	0.7	1.7	2.2	0.3	2.1	1.3	0.8	0.3	0.4	1.0
141°	0.2	0.8	1.8	2.2	0.4	2.2	1.2	0.7	0.2	0.4	0.9
142°	0.2	0.8	1.7	2.2	0.3	2.8	1.2	0.8	0.2	0.4	0.9
143°	0.2	0.7	1.6	2.2	0.3	2.8	1.2	0.8	0.3	0.4	0.8
144°	0.2	0.8	1.6	2.1	0.3	2.5	1.3	0.8	0.2	0.4	0.8
145°	0.2	0.8	1.6	2.1	0.3	3.2	1.3	0.6	0.2	0.4	0.8
146°	0.3	0.8	1.6	2.0	0.3	3.0	1.3	0.8	0.1	0.4	0.9
147°	0.2	0.8	1.5	2.1	0.3	2.8	1.2	0.8	0.2	0.5	0.7
148°	0.2	0.8	1.5	2.0	0.3	2.9	1.3	0.7	0.3	0.4	0.8
149°	0.2	0.8	1.4	2.1	0.4	2.9	1.3	0.6	0.3	0.2	1.0
150°	0.2	0.8	1.4	2.1	0.3	2.5	1.3	0.6	0.4	0.4	0.9
151°	0.3	0.7	1.4	2.2	0.3	2.4	1.3	0.6	0.4	0.4	0.8
152°	0.2	0.8	1.5	3.2	0.4	2.3	1.2	0.5	0.4	0.3	0.8
153°	0.3	0.8	1.5	3.0	0.3	2.2	1.3	0.4	0.4	0.3	0.9
154°	0.3	0.8	2.1	2.2	0.4	2.1	1.2	0.4	0.4	0.2	1.0
155°	0.3	0.8	2.1	2.1	0.3	1.7	1.1	0.3	0.4	0.3	0.8
156°	0.3	0.8	1.8	2.5	0.4	1.5	1.2	0.4	0.4	0.2	0.6
157°	0.3	0.7	1.6	2.6	0.3	1.5	1.1	0.4	0.3	0.3	0.6
158°	0.3	0.8	1.8	2.5	0.3	1.4	1.1	0.4	0.3	0.3	0.6
159°	0.3	0.8	2.0	2.4	0.2	1.6	1.0	0.4	0.3	0.2	0.5
160°	0.4	0.7	2.0	2.2	0.3	1.9	0.8	0.4	0.4	0.2	0.6
161°	0.3	0.8	2.0	2.2	0.4	1.6	0.8	0.4	0.4	0.2	0.4
162°	0.3	0.6	1.9	2.2	0.3	0.8	0.5	0.5	0.4	0.2	0.5
163°	0.3	0.8	1.9	2.2	0.3	0.8	0.4	0.4	0.4	0.2	0.4
164°	0.3	0.7	1.8	2.1	0.3	0.6	0.2	0.5	0.2	0.2	0.4
165°	0.3	0.8	1.5	1.9	0.3	0.4	0.2	0.5	0.1	0.2	0.5
166°	0.3	0.8	1.3	1.5	0.3	0.2	0.2	0.5	0.2	0.2	0.3
167°	0.4	0.8	1.2	1.0	0.2	0.1	0.2	0.4	0.2	0.2	0.2
168°	0.3	0.7	1.1	0.8	0.2	0.3	0.4	0.3	0.2	0.2	0.2
169°	0.3	0.7	1.0	0.5	0.2	0.2	0.3	0.3	0.1	0.1	0.1
170°	0.3	0.7	0.7	0.4	0.2	0.2	0.4	0.2	0.2	0.1	0.2
171°	0.3	0.6	0.6	0.3	0.2	0.3	0.4	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: P1219802
CATALOG NUMBER: HLC4FS1E-24P-4000K

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: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	246.4	246.4	246.4	246.4	246.4	246.4
1°	246.2	246.4	246.4	246.4	246.6	246.5
2°	246.0	246.4	246.2	246.4	246.6	246.4
3°	245.6	246.2	246.0	246.2	246.5	246.3
4°	245.1	245.9	245.7	246.0	246.3	246.1
5°	244.6	245.5	245.4	245.6	246.0	245.8
6°	243.9	245.1	244.8	245.2	245.6	245.4
7°	243.1	244.5	244.3	244.7	245.1	244.9
8°	242.3	243.9	243.6	244.1	244.6	244.4
9°	241.3	243.2	242.9	243.4	243.9	243.7
10°	240.3	242.4	242.0	242.6	243.1	242.8
11°	239.2	241.5	241.1	241.7	242.4	242.0
12°	238.0	240.4	240.1	240.7	241.4	241.1
13°	236.7	239.3	238.8	239.6	240.4	240.0
14°	235.3	238.1	237.6	238.4	239.2	238.8
15°	233.9	236.9	236.4	237.1	238.0	237.6
16°	232.4	235.4	234.9	235.8	236.8	236.3
17°	230.7	234.0	233.4	234.3	235.2	234.8
18°	228.9	232.6	232.0	232.9	233.8	233.4
19°	227.1	230.9	230.3	231.3	232.4	231.9
20°	225.2	229.2	228.4	229.5	230.8	230.3
21°	223.4	227.5	226.6	227.6	229.0	228.3
22°	221.1	225.6	224.8	225.9	227.2	226.6
23°	219.0	223.7	222.8	224.0	225.4	224.7
24°	216.7	221.6	220.7	222.0	223.2	222.8
25°	214.7	219.5	218.6	220.0	221.2	220.6
26°	212.2	217.2	216.5	217.7	219.2	218.5
27°	209.9	215.0	214.1	215.6	216.8	216.3
28°	207.4	212.7	211.8	213.4	214.7	213.9
29°	204.9	210.4	209.5	210.8	212.4	211.6
30°	202.3	207.8	207.0	208.4	210.0	209.3
31°	199.6	205.4	204.3	206.0	207.6	206.8
32°	196.8	202.8	201.8	203.5	204.8	204.4
33°	194.2	200.0	199.1	200.7	202.4	201.6
34°	191.1	197.3	196.5	198.1	199.4	199.0
35°	188.4	194.6	193.6	195.4	196.9	196.1
36°	185.4	191.9	190.8	192.4	194.2	193.3
37°	182.3	188.7	188.0	189.5	191.4	190.6
38°	179.4	185.9	184.8	186.8	188.7	187.8
39°	176.3	183.1	182.0	183.5	185.6	184.6
40°	172.9	180.1	178.9	180.5	182.6	181.6
41°	169.9	177.0	175.9	177.6	179.4	178.7
42°	166.5	173.6	172.5	174.5	176.3	175.7
43°	163.4	170.6	169.4	171.5	173.3	172.6
44°	160.0	167.2	166.3	168.1	170.2	169.2

TEST NUMBER: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	156.8	164.0	162.8	164.9	167.1	166.0
46°	153.1	160.7	159.6	161.7	163.6	162.6
47°	149.7	157.5	156.3	158.2	160.4	159.4
48°	146.0	154.2	153.0	154.9	157.2	156.1
49°	142.7	150.6	149.4	151.7	153.9	152.8
50°	139.2	147.2	146.1	148.3	150.2	149.5
51°	135.9	143.5	142.7	144.6	146.9	145.9
52°	132.2	140.1	139.3	141.2	143.6	142.5
53°	128.7	136.7	135.5	137.9	139.9	139.1
54°	125.2	133.2	132.0	134.4	136.4	135.4
55°	121.3	129.6	129.0	130.5	132.9	131.8
56°	118.0	126.1	124.9	127.4	129.7	128.7
57°	114.2	122.6	121.3	123.8	125.9	125.2
58°	110.7	119.1	117.9	119.9	122.4	121.3
59°	107.0	115.5	114.3	116.4	118.9	117.8
60°	103.2	111.6	110.8	112.9	115.1	114.3
61°	99.8	108.2	107.1	109.4	111.5	110.8
62°	96.2	104.7	103.5	105.6	108.1	106.9
63°	92.7	100.8	100.1	102.1	104.6	103.5
64°	88.8	97.4	96.2	98.6	100.7	100.0
65°	85.3	93.9	92.7	94.8	97.2	96.2
66°	81.6	90.4	89.2	91.4	93.8	92.8
67°	78.3	86.7	85.6	87.9	90.3	89.2
68°	74.7	83.2	82.1	84.5	86.5	85.8
69°	71.5	79.7	78.6	80.7	83.2	82.2
70°	68.1	76.0	75.4	77.3	79.7	78.7
71°	64.5	72.7	72.0	74.0	76.3	75.2
72°	61.4	69.4	68.4	70.6	72.7	71.7
73°	57.9	65.9	65.3	67.1	69.3	68.3
74°	55.0	62.7	61.7	64.0	66.1	65.1
75°	51.6	59.4	58.5	60.7	62.6	62.0
76°	48.6	56.3	55.4	57.6	59.4	58.5
77°	45.6	53.2	52.4	54.2	56.2	55.3
78°	42.6	49.9	49.4	51.1	53.2	52.3
79°	40.0	47.0	46.3	48.2	49.9	49.2
80°	37.2	44.3	43.5	45.4	47.0	46.3
81°	34.6	41.2	40.7	42.4	44.2	43.3
82°	32.1	38.5	38.1	39.6	41.1	40.5
83°	29.6	35.9	35.3	37.0	38.4	37.8
84°	27.2	33.4	32.8	34.4	35.8	34.9
85°	25.0	30.9	30.5	31.8	33.2	32.4
86°	22.8	28.5	28.2	29.4	30.9	30.0
87°	21.0	26.2	25.8	27.2	28.3	27.7
88°	18.9	24.2	23.7	25.0	26.0	25.3
89°	17.2	22.1	21.7	22.8	23.9	23.2

TEST NUMBER: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	15.5	20.1	19.9	20.8	21.9	21.2
91°	13.7	18.4	17.9	19.0	20.0	19.2
92°	12.3	16.6	16.2	17.2	18.0	17.5
93°	11.1	14.9	14.7	15.5	16.3	15.6
94°	9.8	13.3	13.2	14.0	14.7	4.5
95°	8.6	11.9	11.8	12.5	13.1	0.0
96°	7.5	10.6	10.4	11.1	11.7	0.0
97°	6.7	9.5	9.2	10.0	10.4	0.0
98°	5.9	8.2	8.1	8.7	9.2	0.0
99°	5.1	7.2	7.2	7.7	8.0	0.0
100°	4.4	6.4	6.2	6.7	7.1	0.0
101°	3.8	5.6	5.5	5.8	6.2	0.0
102°	3.3	5.0	4.8	5.1	5.4	0.0
103°	2.7	4.2	4.2	4.3	4.6	0.0
104°	2.3	3.8	3.5	3.7	3.9	0.0
105°	2.0	3.2	3.0	3.2	3.1	0.2
106°	1.7	2.7	2.5	2.6	2.5	0.2
107°	1.5	2.3	2.1	2.1	1.9	0.3
108°	1.3	1.9	1.8	1.9	1.4	0.3
109°	1.3	1.7	1.6	1.5	1.1	0.2
110°	1.2	1.6	1.3	1.2	0.7	0.3
111°	1.4	1.5	1.2	1.0	0.7	0.3
112°	1.5	1.4	1.0	0.8	0.5	0.3
113°	1.7	1.4	1.1	0.7	0.4	0.3
114°	1.7	1.5	1.2	0.6	0.3	0.3
115°	1.8	1.6	1.2	0.7	0.3	0.4
116°	1.8	1.6	1.4	0.7	0.3	0.4
117°	1.9	1.7	1.4	0.7	0.3	0.3
118°	1.9	1.7	1.5	0.7	0.1	0.4
119°	2.0	1.8	1.4	0.9	0.3	0.3
120°	1.9	1.8	1.5	0.9	0.3	0.3
121°	2.0	0.4	1.5	0.9	0.3	0.3
122°	1.9	0.4	1.5	0.9	0.3	0.4
123°	1.9	0.1	1.6	0.9	0.2	0.3
124°	1.8	0.2	1.5	0.9	0.3	0.4
125°	1.7	0.1	1.5	0.9	0.3	0.4
126°	1.6	0.2	1.5	0.9	0.2	0.3
127°	1.7	0.1	1.5	0.9	0.3	0.4
128°	1.6	0.1	1.4	0.9	0.2	0.4
129°	1.6	0.1	1.4	0.9	0.2	0.4
130°	1.6	0.1	1.4	1.0	0.2	0.3
131°	1.4	0.1	1.4	1.0	0.2	0.3
132°	1.3	0.2	1.3	0.8	0.2	0.2
133°	1.4	0.2	1.3	0.9	0.2	0.2
134°	1.4	0.1	1.4	0.8	0.2	0.3

TEST NUMBER: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

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	0.9	0.2	0.3
137°	1.2	0.2	1.4	0.9	0.2	0.2
138°	1.2	0.1	1.4	0.9	0.2	0.3
139°	1.2	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	1.4	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	1.0	0.2	0.2
145°	1.0	0.2	2.2	0.9	0.2	0.2
146°	1.0	0.2	2.5	0.8	0.2	0.3
147°	1.0	0.2	1.6	0.8	0.2	0.2
148°	0.9	0.1	1.3	0.6	0.2	0.2
149°	0.8	0.2	1.3	0.3	0.2	0.2
150°	0.7	0.2	1.3	0.3	0.2	0.2
151°	0.8	0.1	1.3	0.2	0.2	0.3
152°	0.8	0.2	1.4	0.3	0.2	0.2
153°	0.7	0.2	1.3	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	0.4
161°	0.5	0.2	0.1	0.4	0.1	0.3
162°	0.4	0.2	0.1	0.4	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	0.4
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: P1219802
CATALOG NUMBER: HLC4FS1E-24P-4000K

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: P1219802

CATALOG NUMBER: HLC4FS1E-24P-4000K

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	23.7	25.4	24.1	25.7	26.1	23.6	25.2	24.0	25.5	25.9
	3H	25.8	27.3	26.2	27.7	28.1	25.5	27.0	26.0	27.4	27.8
	4H	26.7	28.1	27.2	28.5	29.0	26.4	27.8	26.8	28.2	28.6
	6H	27.6	28.9	28.0	29.3	29.8	27.2	28.5	27.6	28.9	29.4
	8H	28.0	29.3	28.5	29.7	30.1	27.6	28.8	28.0	29.2	29.7
	12H	28.4	29.6	28.9	30.1	30.5	27.9	29.1	28.4	29.6	30.1
4H	2H	24.4	25.8	24.8	26.2	26.6	24.2	25.6	24.7	26.0	26.4
	3H	26.8	27.9	27.2	28.4	28.8	26.5	27.7	26.9	28.1	28.6
	4H	27.8	28.9	28.3	29.4	29.9	27.5	28.6	28.0	29.1	29.6
	6H	28.9	29.8	29.4	30.3	30.8	28.5	29.5	29.0	30.0	30.5
	8H	29.4	30.3	29.9	30.8	31.3	29.0	29.9	29.5	30.4	30.9
	12H	29.9	30.7	30.4	31.2	31.8	29.5	30.3	30.0	30.8	31.3
8H	4H	28.3	29.2	28.8	29.7	30.2	28.0	28.9	28.5	29.3	29.9
	6H	29.5	30.3	30.1	30.8	31.3	29.2	29.9	29.7	30.4	31.0
	8H	30.2	30.9	30.7	31.4	31.9	29.8	30.5	30.3	31.0	31.5
	12H	30.9	31.5	31.4	32.0	32.6	30.5	31.1	31.0	31.6	32.2
12H	4H	28.4	29.2	28.9	29.7	30.2	28.0	28.9	28.6	29.4	29.9
	6H	29.7	30.4	30.2	30.9	31.5	29.3	30.0	29.9	30.5	31.1
	8H	30.4	31.0	31.0	31.6	32.2	30.0	30.6	30.6	31.2	31.8

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