

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P775887

Luminaire Tested: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775887
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2310613A001)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD8TRMW-1000lm-3500K
Description: 8 INCH ROUND MEDIUM MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1104.6 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.22 / 1.18
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

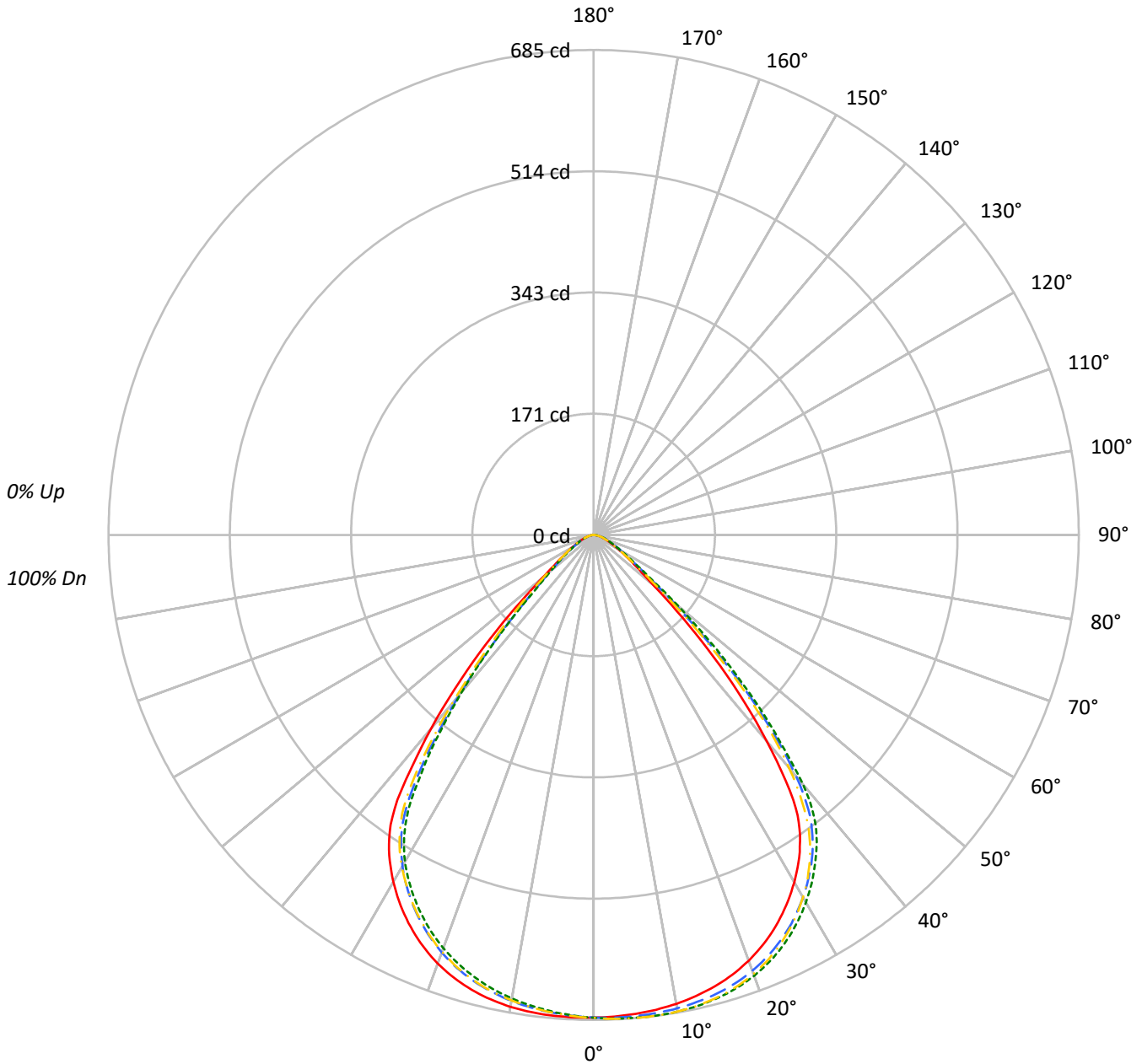
Input Watts (W): 10
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	112	109	106	103	110	107	104	102	103	100	98	99	97	95	95	94	93	91					91			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	84	82					82			
3	98	91	85	80	96	89	84	79	86	82	78	84	80	77	81	78	75	74					74			
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60					60			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55					55			
7	76	65	58	53	74	64	57	52	63	56	52	61	56	52	60	55	51	50					50			
8	71	60	53	48	70	59	53	48	58	52	48	57	51	47	56	51	47	46					46			
9	67	56	49	44	66	55	48	44	54	48	44	53	48	44	52	47	43	42					42			
10	63	52	45	41	62	51	45	41	51	45	40	50	44	40	49	44	40	39					39			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	20819	20819	20819	20819
5°	20809	20981	20883	20708
10°	20848	21192	20982	20607
15°	20870	21404	21025	20453
20°	20790	21528	20923	20173
25°	20518	21462	20593	19653
30°	19971	21127	19936	18786
35°	18885	20424	18620	16418
40°	15165	18317	14236	11530
45°	9840	12910	8804	6412
50°	5215	7333	4536	3709
55°	3401	3896	2896	2592
60°	2442	2711	2094	1948
65°	1893	2095	1633	1546
70°	1526	1732	1312	1250
75°	1262	1474	1050	991
80°	1002	1301	791	721
85°	736	1191	420	350

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 13177 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	64.8	5.9
10°-20°	186.9	16.9
20°-30°	280.4	25.4
30°-40°	303.5	27.5
40°-50°	172.9	15.6
50°-60°	57.4	5.2
60°-70°	25.3	2.3
70°-80°	11.0	1.0
80°-90°	2.4	0.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	532.1	48.2
0°-40°	835.5	75.6
0°-60°	1065.8	96.5
0°-90°	1104.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1104.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	682	682	682	682	682	
5°	679	685	681	676	679	65
15°	660	677	665	647	660	186
25°	609	637	611	583	609	280
35°	507	548	500	440	507	308
45°	228	299	204	148	228	177
55°	64	73	54	49	64	60
65°	26	29	23	21	26	27
75°	11	12	9	8	11	11
85°	2	3	1	1	2	2
90°	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°	681.9	681.9	681.9	681.9	681.9	681.9	681.9	681.9	681.9	681.9	681.9
0.5°	681.6	681.8	681.8	681.9	682.4	682.7	683.0	682.6	681.9	681.6	681.3
1°	681.5	681.8	681.9	682.1	682.8	683.1	683.3	682.8	682.0	681.5	681.0
1.5°	681.3	681.7	682.1	682.5	683.1	683.5	683.6	683.0	682.0	681.4	680.7
2°	681.1	681.7	682.3	682.8	683.4	683.9	683.9	683.2	682.0	681.2	680.3
2.5°	680.9	681.6	682.4	683.0	683.7	684.1	684.1	683.3	682.0	681.0	679.9
3°	680.6	681.5	682.4	683.2	684.0	684.5	684.3	683.4	682.0	680.7	679.5
3.5°	680.2	681.4	682.4	683.4	684.2	684.7	684.6	683.4	681.8	680.5	678.9
4°	679.9	681.2	682.4	683.5	684.4	684.9	684.7	683.5	681.7	680.2	678.4
4.5°	679.6	680.9	682.3	683.6	684.5	685.2	684.8	683.5	681.6	679.8	677.9
5°	679.0	680.6	682.1	683.6	684.6	685.3	684.9	683.4	681.4	679.4	677.3
5.5°	678.6	680.4	682.0	683.7	684.6	685.4	684.9	683.3	681.2	678.9	676.7
6°	678.1	680.0	681.8	683.7	684.7	685.5	685.0	683.2	680.9	678.4	675.9
6.5°	677.6	679.7	681.6	683.6	684.7	685.5	685.0	683.0	680.6	677.9	675.2
7°	677.1	679.1	681.4	683.5	684.7	685.5	684.9	682.8	680.2	677.3	674.4
7.5°	676.5	678.7	681.1	683.4	684.6	685.5	684.8	682.6	679.8	676.7	673.6
8°	675.7	678.2	680.8	683.2	684.5	685.4	684.6	682.3	679.2	676.0	672.6
8.5°	675.0	677.7	680.4	683.0	684.3	685.3	684.4	681.8	678.7	675.2	671.7
9°	674.3	677.1	680.0	682.7	684.1	685.2	684.2	681.4	678.1	674.5	670.7
9.5°	673.4	676.3	679.6	682.5	683.9	684.8	683.9	680.9	677.5	673.6	669.5
10°	672.5	675.6	678.9	682.0	683.6	684.6	683.5	680.4	676.8	672.6	668.3
10.5°	671.6	674.9	678.4	681.7	683.2	684.2	683.1	679.8	675.9	671.6	667.1
11°	670.7	674.1	677.8	681.2	682.8	683.8	682.6	679.1	675.0	670.4	665.9
11.5°	669.5	673.1	677.2	680.8	682.4	683.4	682.0	678.4	674.1	669.4	664.5
12°	668.4	672.2	676.5	680.3	681.8	682.9	681.4	677.6	673.0	668.2	663.0
12.5°	667.2	671.3	675.6	679.7	681.2	682.4	680.7	676.7	671.9	666.8	661.5
13°	665.9	670.1	674.8	678.9	680.6	681.7	680.0	675.6	670.8	665.4	659.9
13.5°	664.6	669.0	673.9	678.3	679.8	681.0	679.0	674.6	669.5	663.9	658.2
14°	663.3	667.8	672.9	677.5	679.0	680.2	678.1	673.4	668.2	662.4	656.4
14.5°	661.8	666.5	671.9	676.7	678.1	679.4	677.2	672.2	666.7	660.7	654.6
15°	660.3	665.3	670.9	675.7	677.2	678.4	676.1	670.9	665.2	658.8	652.6
15.5°	658.6	663.8	669.6	674.7	676.0	677.4	675.0	669.5	663.5	657.0	650.6
16°	656.9	662.4	668.4	673.6	675.0	676.2	673.8	668.0	661.7	655.0	648.4
16.5°	655.1	660.8	667.0	672.4	673.8	675.1	672.3	666.3	659.9	652.9	646.2
17°	653.2	659.2	665.7	671.2	672.4	673.9	670.9	664.5	658.0	650.8	643.7
17.5°	651.3	657.4	664.1	669.8	671.1	672.5	669.3	662.7	655.9	648.6	641.3
18°	649.2	655.6	662.6	668.3	669.6	671.1	667.6	660.7	653.8	646.1	638.8
18.5°	647.0	653.7	660.8	666.8	668.0	669.4	665.8	658.7	651.5	643.6	636.2
19°	644.7	651.7	659.1	665.2	666.2	667.6	663.9	656.6	649.2	641.0	633.4
19.5°	642.3	649.6	657.2	663.4	664.4	666.0	662.1	654.3	646.6	638.3	630.4
20°	639.9	647.4	655.0	661.5	662.6	664.0	660.0	651.8	644.0	635.4	627.4
20.5°	637.3	645.1	653.0	659.6	660.5	662.0	657.7	649.3	641.3	632.5	624.4
21°	634.6	642.7	650.9	657.6	658.4	659.8	655.3	646.6	638.4	629.4	620.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	625.9	634.7	643.5	650.7	651.3	652.7	647.6	638.0	629.2	619.6	610.6
23°	622.8	631.9	640.9	648.2	648.8	650.0	644.8	634.8	625.9	616.0	606.8
23.5°	619.5	629.0	638.1	645.6	646.1	647.5	641.7	631.6	622.3	612.2	602.9
24°	616.2	625.9	635.1	642.8	643.2	644.6	638.7	628.2	618.8	608.4	599.0
24.5°	612.7	622.8	632.3	639.9	640.2	641.6	635.4	624.7	615.1	604.6	594.8
25°	609.1	619.4	629.1	636.9	637.1	638.4	632.1	621.0	611.3	600.4	590.6
25.5°	605.4	616.0	625.9	633.8	633.9	635.2	628.6	617.2	607.3	596.1	586.3
26°	601.5	612.5	622.4	630.6	630.7	631.9	625.0	613.3	603.0	591.7	581.7
26.5°	597.5	608.7	619.1	627.2	627.1	628.4	621.2	609.1	598.9	587.5	577.2
27°	593.5	605.0	615.5	623.7	623.5	624.7	617.3	605.0	594.5	582.8	572.4
27.5°	589.4	601.0	611.6	620.1	619.8	620.9	613.3	600.6	590.1	578.2	567.5
28°	585.1	597.0	607.9	616.4	616.0	617.0	609.1	596.3	585.4	573.5	562.4
28.5°	580.6	592.8	603.8	612.5	611.9	613.1	604.8	591.6	580.7	568.4	557.4
29°	576.0	588.5	599.7	608.5	607.9	608.8	600.2	586.9	575.8	563.4	551.9
29.5°	571.2	584.0	595.4	604.5	603.6	604.5	595.7	581.9	570.7	558.1	546.1
30°	566.5	579.5	591.1	600.1	599.3	600.0	590.9	576.9	565.5	552.8	540.1
30.5°	561.3	574.9	586.5	595.9	594.7	595.5	586.1	571.9	560.1	547.0	533.7
31°	556.2	570.0	581.9	591.3	590.1	590.8	581.1	566.4	554.8	541.1	527.3
31.5°	551.0	564.7	577.1	586.7	585.2	585.8	575.9	560.7	548.9	535.1	520.5
32°	545.7	559.8	572.2	581.8	580.7	581.0	570.4	554.8	543.0	528.9	513.3
32.5°	540.0	554.5	567.1	577.0	575.5	575.8	564.6	548.7	536.9	522.0	505.7
33°	534.1	549.0	562.0	572.1	570.3	570.4	558.6	542.4	530.5	514.8	497.4
33.5°	527.6	543.4	556.7	566.9	564.9	564.9	552.6	535.7	523.6	506.9	488.2
34°	521.2	537.4	551.1	561.7	559.5	559.1	546.0	528.8	516.3	498.5	477.8
34.5°	514.2	530.8	545.1	556.2	553.8	553.0	539.4	521.4	508.5	488.2	466.4
35°	506.7	524.2	539.1	550.6	548.0	546.8	532.4	513.6	499.6	477.3	453.9
35.5°	498.3	517.0	532.5	544.7	542.0	540.4	525.0	504.5	489.3	465.5	440.1
36°	489.7	509.3	525.8	538.6	535.9	533.7	516.9	494.6	478.3	452.0	425.5
36.5°	479.9	501.2	518.4	532.4	529.2	526.4	508.2	484.1	465.8	437.4	410.5
37°	468.5	491.8	510.8	525.6	522.1	518.4	498.8	473.3	451.4	422.1	395.2
37.5°	455.0	481.3	502.3	518.0	514.1	509.6	488.6	460.9	435.5	406.1	379.0
38°	440.5	469.5	492.5	509.6	505.4	500.4	477.8	448.4	419.0	389.3	362.6
38.5°	425.4	456.2	481.8	500.4	495.6	490.1	466.8	434.8	402.4	372.3	345.8
39°	410.3	441.6	470.4	490.0	485.2	479.5	454.8	421.2	387.1	355.3	329.1
39.5°	395.4	426.9	457.9	479.3	473.2	467.3	442.3	406.0	372.2	338.8	312.4
40°	380.5	412.6	444.6	467.1	459.6	454.9	428.6	390.8	357.2	322.8	295.7
40.5°	364.8	398.8	430.1	453.9	443.3	441.3	415.0	374.7	341.5	306.6	279.2
41°	349.3	384.3	414.9	439.7	426.7	427.7	400.8	358.6	325.3	290.1	262.9
41.5°	333.7	369.5	399.3	424.6	409.6	413.0	386.4	342.5	309.2	273.6	247.3
42°	318.0	354.0	383.7	408.3	393.5	397.5	371.5	327.0	293.3	258.3	231.4
42.5°	302.5	337.6	367.6	391.5	378.7	381.3	355.4	310.8	277.7	243.0	216.0
43°	287.5	321.3	351.0	374.0	363.7	365.4	338.6	294.8	262.8	228.5	201.8
43.5°	272.6	305.3	334.7	357.0	348.0	349.1	322.1	278.8	248.2	214.5	187.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	227.9	258.2	284.7	305.2	299.0	301.5	271.3	232.3	203.9	175.2	151.5
45.5°	213.6	242.6	267.8	289.1	283.1	285.7	254.1	217.2	189.9	162.7	140.7
46°	199.6	227.2	250.8	272.5	267.9	269.8	238.8	202.4	176.4	151.2	131.2
46.5°	186.0	212.1	234.8	257.0	252.9	253.8	222.5	187.9	163.6	139.6	122.2
47°	172.7	197.4	218.8	241.7	237.9	238.2	207.6	174.2	151.7	129.3	114.0
47.5°	159.5	182.9	204.5	227.1	222.7	222.7	193.2	160.8	140.0	119.9	106.5
48°	147.8	169.4	190.4	212.9	207.6	207.7	179.7	148.3	129.0	111.3	99.7
48.5°	136.6	156.6	177.0	199.6	193.2	193.1	165.9	136.3	118.8	103.2	94.5
49°	126.4	144.5	164.7	186.0	179.6	178.6	153.4	125.4	109.5	97.4	89.3
49.5°	117.2	133.9	153.1	173.3	166.7	164.9	141.7	115.6	101.2	91.7	84.0
50°	109.8	123.9	142.4	160.7	154.4	151.4	130.8	106.8	95.5	85.9	78.7
50.5°	103.0	115.2	132.1	148.7	142.5	139.3	120.1	99.0	89.8	80.1	73.4
51°	96.9	107.4	122.9	137.6	130.6	127.8	110.9	93.1	84.1	74.4	70.1
51.5°	91.3	100.9	114.4	127.4	120.4	118.0	102.4	87.1	78.4	70.8	67.0
52°	86.5	94.8	106.7	117.9	110.7	108.7	96.4	81.1	72.8	67.7	64.0
52.5°	81.8	89.5	99.8	109.3	102.0	100.6	90.4	75.2	69.5	64.7	60.9
53°	77.4	84.5	93.3	101.6	96.2	94.3	84.5	71.4	66.4	61.6	58.0
53.5°	73.3	79.9	87.5	94.7	90.5	88.2	78.5	68.1	63.3	58.6	55.2
54°	70.2	75.6	82.0	88.1	84.7	82.0	72.6	65.0	60.3	55.7	52.6
54.5°	67.1	72.1	77.3	82.5	78.9	75.9	69.2	61.8	57.3	53.0	50.1
55°	63.9	68.8	73.1	77.4	73.2	72.1	66.0	58.7	54.4	50.4	47.7
55.5°	60.9	65.7	69.8	73.1	69.7	68.9	62.8	55.8	51.7	48.1	45.7
56°	58.0	62.5	66.5	69.7	66.6	65.6	59.5	52.9	49.3	45.9	43.6
56.5°	55.2	59.5	63.5	66.5	63.3	62.3	56.5	50.3	47.0	43.8	41.7
57°	52.5	56.6	60.3	63.3	60.1	59.2	53.7	47.9	44.7	41.9	40.0
57.5°	50.1	53.9	57.4	60.2	57.1	56.1	51.1	45.8	42.8	40.2	38.3
58°	47.7	51.3	54.5	57.1	54.2	53.3	48.6	43.6	40.9	38.4	36.8
58.5°	45.7	48.9	51.9	54.3	51.5	50.7	46.3	41.6	39.1	36.9	35.2
59°	43.6	46.7	49.4	51.6	49.0	48.3	44.1	39.8	37.5	35.3	33.8
59.5°	41.8	44.6	47.1	49.1	46.6	46.0	42.0	38.1	35.8	33.9	32.4
60°	40.0	42.7	44.9	46.8	44.4	43.8	40.2	36.6	34.3	32.5	31.2
60.5°	38.2	40.8	43.0	44.6	42.5	41.8	38.5	35.0	32.9	31.2	29.9
61°	36.8	39.1	41.1	42.6	40.6	40.0	36.9	33.6	31.5	29.9	28.8
61.5°	35.3	37.4	39.4	40.7	38.8	38.3	35.3	32.2	30.1	28.8	27.7
62°	33.9	36.0	37.7	38.9	37.2	36.6	33.9	30.9	28.9	27.5	26.6
62.5°	32.4	34.6	36.3	37.2	35.6	35.1	32.4	29.6	27.8	26.5	25.6
63°	31.0	33.2	34.9	35.8	34.1	33.6	31.2	28.5	26.6	25.5	24.5
63.5°	29.7	31.8	33.6	34.4	32.7	32.2	29.9	27.3	25.6	24.4	23.6
64°	28.5	30.4	32.1	33.0	31.4	31.0	28.7	26.2	24.4	23.4	22.7
64.5°	27.3	29.2	30.7	31.7	30.1	29.7	27.7	25.2	23.5	22.6	21.7
65°	26.2	28.0	29.5	30.3	29.0	28.6	26.5	24.1	22.6	21.5	20.9
65.5°	25.1	26.9	28.3	29.2	27.8	27.4	25.5	23.2	21.6	20.7	20.1
66°	24.1	25.8	27.2	28.1	26.7	26.4	24.4	22.3	20.7	19.9	19.3



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	21.2	22.8	24.1	24.9	23.7	23.4	21.7	19.7	18.2	17.5	17.0
68°	20.3	21.9	23.2	23.9	22.8	22.5	20.9	18.8	17.5	16.8	16.3
68.5°	19.5	20.9	22.3	23.0	21.9	21.5	20.0	18.0	16.8	16.1	15.6
69°	18.6	20.1	21.3	22.1	21.0	20.7	19.3	17.3	16.1	15.3	14.9
69.5°	17.9	19.3	20.5	21.1	20.2	19.9	18.4	16.6	15.3	14.7	14.3
70°	17.1	18.4	19.7	20.3	19.4	19.1	17.7	15.8	14.7	14.0	13.7
70.5°	16.4	17.7	18.8	19.5	18.5	18.3	17.0	15.1	14.0	13.4	13.0
71°	15.6	16.9	18.1	18.7	17.8	17.6	16.3	14.5	13.4	12.7	12.4
71.5°	14.9	16.2	17.4	17.9	17.1	16.9	15.6	13.9	12.7	12.1	11.8
72°	14.3	15.5	16.7	17.2	16.4	16.2	14.9	13.3	12.1	11.5	11.3
72.5°	13.7	14.8	15.9	16.5	15.7	15.4	14.3	12.6	11.6	11.0	10.7
73°	13.0	14.2	15.2	15.8	15.0	14.8	13.7	12.0	11.0	10.5	10.1
73.5°	12.4	13.5	14.6	15.1	14.4	14.2	13.0	11.5	10.5	9.8	9.6
74°	11.8	12.8	14.0	14.5	13.8	13.6	12.4	10.9	9.9	9.3	9.1
74.5°	11.2	12.2	13.3	13.9	13.2	12.9	11.9	10.4	9.4	8.8	8.7
75°	10.7	11.7	12.7	13.3	12.5	12.3	11.3	9.8	8.9	8.4	8.2
75.5°	10.0	11.1	12.1	12.6	12.0	11.8	10.8	9.3	8.4	7.9	7.7
76°	9.5	10.5	11.5	12.1	11.4	11.3	10.3	8.8	7.9	7.4	7.2
76.5°	9.0	9.9	11.0	11.5	10.9	10.7	9.7	8.3	7.5	6.9	6.7
77°	8.5	9.4	10.4	11.0	10.4	10.1	9.2	7.9	6.9	6.4	6.3
77.5°	8.0	8.9	9.8	10.4	9.8	9.6	8.7	7.4	6.5	6.0	5.8
78°	7.6	8.4	9.3	9.8	9.3	9.1	8.2	6.8	6.0	5.6	5.4
78.5°	7.0	7.9	8.8	9.4	8.8	8.7	7.8	6.4	5.6	5.2	5.0
79°	6.6	7.5	8.4	8.9	8.3	8.2	7.2	6.0	5.2	4.8	4.7
79.5°	6.1	6.9	7.9	8.4	7.9	7.8	6.7	5.6	4.9	4.3	4.2
80°	5.7	6.5	7.4	7.9	7.4	7.2	6.3	5.2	4.5	3.9	3.8
80.5°	5.3	6.0	6.9	7.5	6.9	6.7	5.9	4.8	4.0	3.6	3.5
81°	4.9	5.6	6.4	6.9	6.5	6.4	5.5	4.3	3.7	3.2	3.1
81.5°	4.5	5.2	6.0	6.5	6.0	5.9	5.1	3.9	3.3	2.9	2.8
82°	4.1	4.8	5.6	6.1	5.6	5.5	4.8	3.6	3.0	2.6	2.5
82.5°	3.7	4.3	5.2	5.7	5.3	5.2	4.3	3.2	2.7	2.3	2.2
83°	3.4	4.0	4.8	5.3	4.9	4.8	3.9	2.9	2.4	2.0	1.9
83.5°	3.0	3.6	4.5	4.9	4.5	4.3	3.6	2.6	2.1	1.7	1.7
84°	2.7	3.3	4.0	4.6	4.1	4.0	3.3	2.3	1.8	1.3	1.3
84.5°	2.4	2.9	3.7	4.1	3.7	3.6	3.0	2.0	1.4	1.0	1.1
85°	2.1	2.6	3.3	3.8	3.4	3.3	2.6	1.7	1.2	0.8	0.8
85.5°	1.8	2.3	3.0	3.5	3.1	3.0	2.3	1.3	0.9	0.6	0.6
86°	1.4	2.0	2.6	3.1	2.8	2.7	2.1	1.1	0.7	0.5	0.4
86.5°	1.1	1.7	2.3	2.8	2.5	2.4	1.8	0.9	0.5	0.3	0.2
87°	0.9	1.3	2.1	2.5	2.2	2.1	1.4	0.7	0.4	0.2	0.0
87.5°	0.7	1.0	1.8	2.2	1.9	1.8	1.2	0.5	0.2	0.1	0.0
88°	0.5	0.8	1.4	1.9	1.6	1.6	1.0	0.4	0.1	0.0	0.0
88.5°	0.3	0.6	1.2	1.6	1.3	1.2	0.7	0.2	0.0	0.0	0.0



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.1	0.5	0.8	0.5	0.5	0.1	0.0	0.0	0.0	0.0



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	681.9	681.9	681.9	681.9	681.9	681.9
0.5°	681.1	681.6	681.7	682.1	682.0	681.6
1°	680.7	681.1	681.2	681.7	681.7	681.5
1.5°	680.2	680.5	680.7	681.2	681.3	681.3
2°	679.7	680.0	680.1	680.7	681.0	681.1
2.5°	679.0	679.4	679.5	680.2	680.6	680.9
3°	678.5	678.7	678.8	679.6	680.1	680.6
3.5°	677.8	678.0	678.1	679.0	679.7	680.2
4°	677.2	677.3	677.5	678.4	679.2	679.9
4.5°	676.5	676.6	676.7	677.8	678.7	679.6
5°	675.6	675.7	675.8	677.1	678.2	679.0
5.5°	674.8	674.9	675.0	676.5	677.6	678.6
6°	673.9	673.9	674.1	675.6	677.0	678.1
6.5°	672.9	673.0	673.1	674.8	676.2	677.6
7°	671.9	672.0	672.2	674.0	675.6	677.1
7.5°	670.9	671.0	671.1	673.1	674.9	676.5
8°	669.8	669.7	670.0	672.1	674.1	675.7
8.5°	668.6	668.6	668.9	671.2	673.2	675.0
9°	667.4	667.3	667.6	670.1	672.4	674.3
9.5°	666.1	666.2	666.3	668.9	671.5	673.4
10°	664.7	664.7	665.1	667.8	670.4	672.5
10.5°	663.4	663.3	663.6	666.5	669.4	671.6
11°	661.8	661.8	662.2	665.3	668.3	670.7
11.5°	660.3	660.3	660.5	663.9	667.1	669.5
12°	658.6	658.6	658.9	662.5	665.9	668.4
12.5°	657.0	656.9	657.2	660.9	664.4	667.2
13°	655.2	655.1	655.3	659.3	663.1	665.9
13.5°	653.4	653.3	653.6	657.6	661.6	664.6
14°	651.4	651.3	651.6	655.8	660.1	663.3
14.5°	649.3	649.3	649.5	654.0	658.4	661.8
15°	647.2	647.1	647.5	652.0	656.7	660.3
15.5°	645.1	644.9	645.2	649.8	654.9	658.6
16°	642.7	642.7	642.8	647.7	652.9	656.9
16.5°	640.3	640.3	640.4	645.4	651.0	655.1
17°	637.7	637.8	637.9	643.0	648.8	653.2
17.5°	635.2	635.2	635.2	640.6	646.6	651.3
18°	632.4	632.6	632.5	637.9	644.2	649.2
18.5°	629.6	629.7	629.6	635.2	641.9	647.0
19°	626.7	626.8	626.7	632.3	639.3	644.7
19.5°	623.6	624.0	623.7	629.5	636.6	642.3
20°	620.5	620.9	620.4	626.3	633.8	639.9
20.5°	617.3	617.6	617.2	623.3	631.0	637.3
21°	613.9	614.3	613.8	620.0	628.1	634.6



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	603.1	603.5	602.9	609.4	618.5	625.9
23°	599.2	599.8	599.0	605.8	614.9	622.8
23.5°	595.2	595.9	595.2	601.9	611.4	619.5
24°	591.0	591.8	591.0	598.0	607.7	616.2
24.5°	586.9	587.7	586.8	594.0	604.0	612.7
25°	582.4	583.4	582.4	589.7	600.0	609.1
25.5°	578.0	579.0	578.0	585.4	596.1	605.4
26°	573.2	574.4	573.5	581.0	591.9	601.5
26.5°	568.6	569.9	568.7	576.5	587.8	597.5
27°	563.7	565.0	563.9	571.9	583.4	593.5
27.5°	558.7	560.1	559.0	567.1	578.9	589.4
28°	553.5	555.0	553.8	562.1	574.3	585.1
28.5°	548.0	549.9	548.8	557.2	569.7	580.6
29°	542.0	544.4	543.4	552.1	564.8	576.0
29.5°	535.8	538.8	537.8	546.9	559.7	571.2
30°	529.5	532.9	531.8	541.6	554.8	566.5
30.5°	522.8	526.5	525.5	536.0	549.6	561.3
31°	515.7	519.9	518.6	530.0	544.3	556.2
31.5°	508.3	512.6	511.8	523.8	538.8	551.0
32°	500.2	505.0	504.5	517.1	532.8	545.7
32.5°	491.7	496.8	497.0	510.1	526.7	540.0
33°	482.5	487.9	488.9	502.7	520.2	534.1
33.5°	471.7	478.4	479.9	494.9	513.3	527.6
34°	459.5	467.5	469.8	486.4	506.2	521.2
34.5°	445.8	454.8	457.5	477.0	498.4	514.2
35°	431.6	440.5	443.4	466.1	490.3	506.7
35.5°	416.9	425.7	428.3	453.8	481.1	498.3
36°	401.8	411.5	412.3	440.4	470.5	489.7
36.5°	387.3	397.9	396.0	425.9	458.5	479.9
37°	372.8	383.6	380.1	411.0	445.0	468.5
37.5°	358.1	367.8	364.7	394.9	430.2	455.0
38°	343.0	351.5	349.8	378.2	414.9	440.5
38.5°	326.6	334.9	334.0	361.7	399.1	425.4
39°	310.5	319.1	318.3	345.2	383.3	410.3
39.5°	293.9	304.1	302.5	328.8	366.7	395.4
40°	278.0	289.3	287.1	311.7	350.5	380.5
40.5°	261.7	274.8	271.6	295.0	334.3	364.8
41°	246.0	259.7	257.0	278.7	318.4	349.3
41.5°	230.6	244.5	242.5	263.8	303.1	333.7
42°	215.3	229.4	227.9	248.5	287.6	318.0
42.5°	200.1	215.0	214.0	234.1	271.3	302.5
43°	185.5	201.3	200.5	220.3	256.1	287.5
43.5°	172.1	187.5	187.2	207.0	241.3	272.6



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	137.4	148.5	152.0	171.0	199.5	227.9
45.5°	127.7	136.8	141.7	160.3	186.8	213.6
46°	118.8	126.3	132.0	150.3	174.7	199.6
46.5°	111.0	117.4	123.1	140.8	163.6	186.0
47°	104.2	109.8	115.0	131.9	152.8	172.7
47.5°	97.9	103.0	107.6	123.4	142.8	159.5
48°	93.0	97.2	101.0	115.6	133.4	147.8
48.5°	88.2	92.1	95.1	108.4	124.9	136.6
49°	83.4	87.3	89.5	101.7	116.8	126.4
49.5°	78.5	82.5	84.4	95.5	109.3	117.2
50°	73.7	78.1	79.6	89.5	102.4	109.8
50.5°	70.5	74.1	75.4	84.1	96.1	103.0
51°	67.4	70.8	71.8	79.1	90.3	96.9
51.5°	64.4	67.8	68.7	74.7	84.8	91.3
52°	61.4	64.8	65.7	71.1	79.8	86.5
52.5°	58.5	61.8	62.7	68.1	75.5	81.8
53°	55.7	58.8	59.7	65.0	71.9	77.4
53.5°	53.0	56.1	56.8	61.9	68.8	73.3
54°	50.6	53.4	54.1	58.9	65.6	70.2
54.5°	48.4	51.0	51.7	56.1	62.4	67.1
55°	46.2	48.7	49.3	53.4	59.4	63.9
55.5°	44.2	46.5	47.1	51.1	56.6	60.9
56°	42.3	44.4	44.9	48.7	54.0	58.0
56.5°	40.5	42.6	43.1	46.5	51.5	55.2
57°	38.8	40.7	41.2	44.5	49.1	52.5
57.5°	37.3	39.0	39.5	42.6	46.9	50.1
58°	35.6	37.4	37.9	40.8	44.8	47.7
58.5°	34.3	35.9	36.6	39.0	42.9	45.7
59°	32.8	34.6	35.1	37.4	41.0	43.6
59.5°	31.6	33.2	33.8	36.0	39.4	41.8
60°	30.3	31.9	32.4	34.7	37.7	40.0
60.5°	29.1	30.7	31.0	33.3	36.3	38.2
61°	28.0	29.4	29.7	32.0	35.0	36.8
61.5°	26.9	28.3	28.6	30.7	33.6	35.3
62°	25.9	27.2	27.5	29.5	32.2	33.9
62.5°	24.9	26.1	26.4	28.4	30.9	32.4
63°	23.8	25.1	25.4	27.2	29.6	31.0
63.5°	22.9	24.1	24.4	26.1	28.5	29.7
64°	22.1	23.2	23.4	25.2	27.2	28.5
64.5°	21.1	22.3	22.6	24.1	26.2	27.3
65°	20.3	21.4	21.6	23.2	25.2	26.2
65.5°	19.5	20.5	20.8	22.3	24.1	25.1
66°	18.7	19.7	19.9	21.4	23.2	24.1



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	16.5	17.4	17.6	19.0	20.4	21.2
68°	15.8	16.7	16.9	18.1	19.6	20.3
68.5°	15.1	15.9	16.2	17.4	18.7	19.5
69°	14.5	15.3	15.5	16.7	17.9	18.6
69.5°	13.9	14.6	14.8	15.9	17.2	17.9
70°	13.3	14.0	14.2	15.3	16.5	17.1
70.5°	12.6	13.4	13.6	14.6	15.7	16.4
71°	12.0	12.7	12.9	14.0	15.0	15.6
71.5°	11.5	12.2	12.3	13.4	14.4	14.9
72°	11.0	11.6	11.7	12.7	13.7	14.3
72.5°	10.4	11.1	11.2	12.1	13.0	13.7
73°	9.8	10.5	10.7	11.6	12.4	13.0
73.5°	9.4	9.9	10.0	11.0	11.8	12.4
74°	8.8	9.4	9.5	10.5	11.3	11.8
74.5°	8.4	8.9	9.0	9.8	10.7	11.2
75°	7.9	8.4	8.6	9.3	10.1	10.7
75.5°	7.5	8.0	8.1	8.8	9.5	10.0
76°	6.9	7.5	7.6	8.4	9.1	9.5
76.5°	6.5	7.0	7.1	7.9	8.6	9.0
77°	6.1	6.5	6.6	7.4	8.1	8.5
77.5°	5.6	6.1	6.2	6.9	7.6	8.0
78°	5.3	5.7	5.8	6.4	7.0	7.6
78.5°	4.9	5.3	5.4	6.0	6.6	7.0
79°	4.5	4.9	5.0	5.6	6.1	6.6
79.5°	4.1	4.6	4.6	5.2	5.7	6.1
80°	3.7	4.1	4.2	4.8	5.3	5.7
80.5°	3.4	3.8	3.8	4.3	4.9	5.3
81°	3.0	3.4	3.5	4.0	4.5	4.9
81.5°	2.7	3.1	3.2	3.6	4.0	4.5
82°	2.4	2.8	2.9	3.3	3.7	4.1
82.5°	2.1	2.5	2.6	3.0	3.3	3.7
83°	1.8	2.2	2.2	2.6	3.0	3.4
83.5°	1.6	1.9	1.9	2.3	2.6	3.0
84°	1.2	1.6	1.7	2.0	2.3	2.7
84.5°	0.9	1.2	1.3	1.8	2.0	2.4
85°	0.7	1.0	1.0	1.4	1.7	2.1
85.5°	0.4	0.7	0.8	1.1	1.3	1.8
86°	0.2	0.5	0.5	0.9	1.1	1.4
86.5°	0.0	0.2	0.2	0.6	0.9	1.1
87°	0.0	0.0	0.0	0.4	0.7	0.9
87.5°	0.0	0.0	0.0	0.2	0.5	0.7
88°	0.0	0.0	0.0	0.0	0.3	0.5
88.5°	0.0	0.0	0.0	0.0	0.2	0.3



TEST NUMBER: P775887

CATALOG NUMBER: HCDJBL510CSD-HCD8TRMW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°

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21.5°	631.8	640.1	648.5	655.4	656.2	657.5	652.8	643.9	635.4	626.3	617.6
22°	628.8	637.5	646.0	653.2	653.8	655.2	650.3	640.9	632.4	622.9	614.2



44°	257.7	289.4	318.3	339.5	331.7	333.4	305.4	263.5	233.5	201.5	175.0
44.5°	242.5	273.8	301.8	322.9	315.1	317.7	288.3	247.6	218.7	187.9	162.9



66.5°	23.1	24.8	26.2	26.9	25.7	25.3	23.5	21.3	19.9	19.1	18.5
67°	22.2	23.7	25.1	25.9	24.6	24.3	22.6	20.5	19.1	18.2	17.7



89°	0.1	0.5	0.9	1.3	1.0	1.0	0.5	0.1	0.0	0.0	0.0
89.5°	0.0	0.3	0.7	1.0	0.8	0.7	0.3	0.0	0.0	0.0	0.0

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21.5°	610.5	610.8	610.3	616.5	625.0	631.8
22°	606.8	607.3	606.7	613.2	621.7	628.8



44°	159.9	174.2	174.8	194.2	226.6	257.7
44.5°	148.2	160.9	162.8	182.5	212.7	242.5



66.5°	17.9	19.0	19.2	20.5	22.2	23.1
67°	17.2	18.1	18.3	19.8	21.3	22.2

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89°	0.0	0.0	0.0	0.0	0.0	0.1
89.5°	0.0	0.0	0.0	0.0	0.0	0.0

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(END OF REPORT)