

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: P775851

Luminaire Tested: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775851
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B068)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K
Description: 8 INCH ROUND NARROW LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

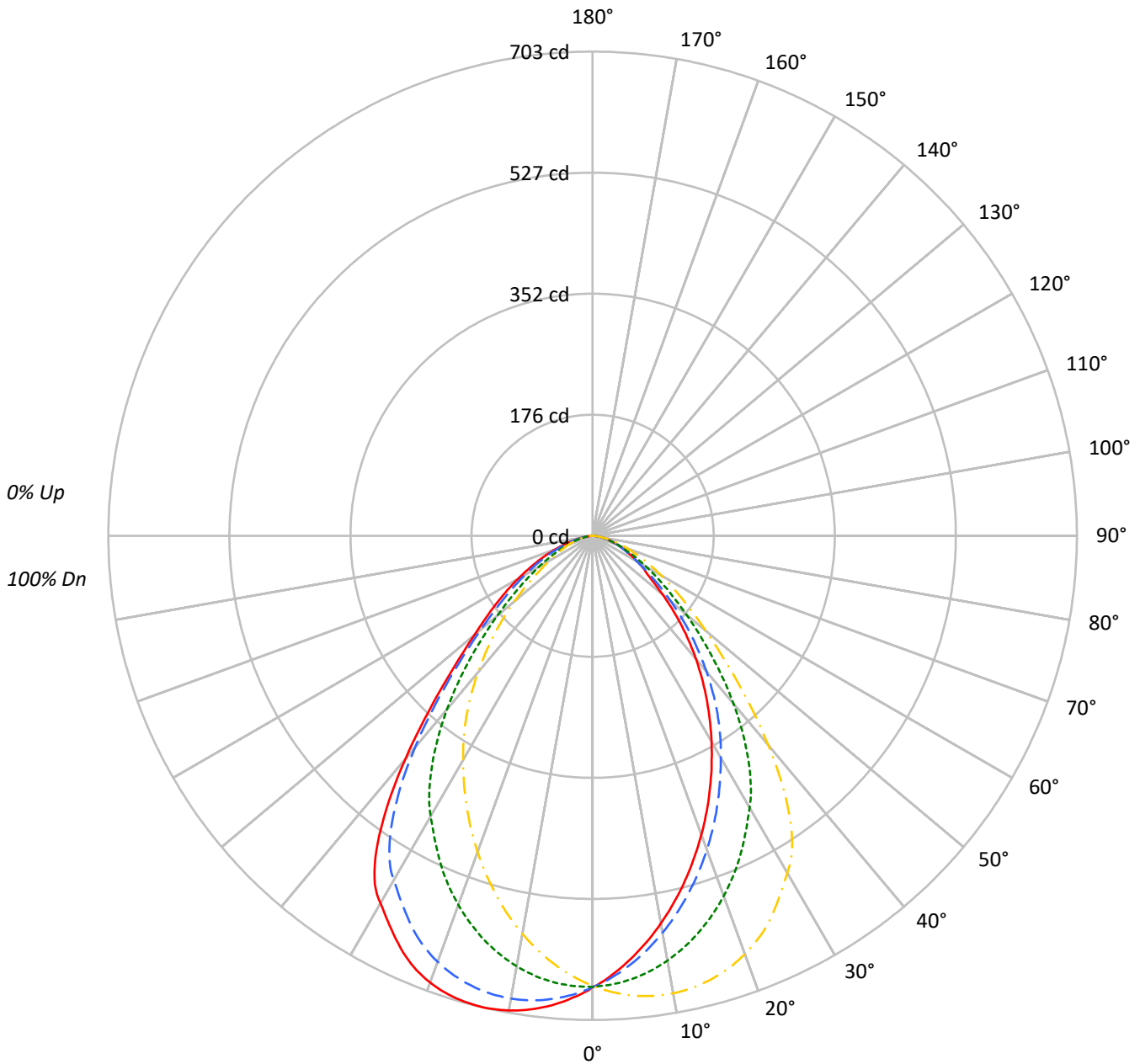
Lumens per Lamp: N/A
Luminaire Lumens: 1135.9 lumens
Efficiency: N/A
Efficacy: 113.6 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.13
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (A_{in}): 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									
RC	80									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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89																			
2	103	96	91	86	101	95	90	85	91	87	83	88	85	82	85	82	80	78																			
3	96	87	80	75	93	85	79	74	83	77	73	80	75	72	78	74	71	69																			
4	89	79	71	66	87	77	71	65	75	69	64	73	68	64	71	66	63	61																			
5	83	72	64	58	81	71	63	58	69	62	57	67	61	57	65	60	56	54																			
6	77	66	58	52	75	65	57	52	63	56	52	61	56	51	60	55	51	49																			
7	72	60	52	47	71	59	52	47	58	51	47	57	51	46	55	50	46	44																			
8	68	56	48	43	66	55	48	43	54	47	42	52	47	42	51	46	42	40																			
9	64	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	39	37																			
10	60	48	41	36	59	47	41	36	46	40	36	46	40	36	45	39	35	34																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	20003	20003	20003	20003
5°	18940	19804	20972	19942
10°	17711	19416	21695	19680
15°	16385	18835	22188	19201
20°	15004	18080	22424	18526
25°	13586	17150	22233	17628
30°	12169	16068	21716	16583
35°	10734	14655	20271	15136
40°	9302	12666	16850	13108
45°	7789	10453	13229	10798
50°	6284	8407	10663	8592
55°	5152	6781	8996	6829
60°	4592	5489	7633	5502
65°	3966	4436	6386	4414
70°	3437	3544	5159	3517
75°	2949	2819	3928	2784
80°	2444	2268	2532	2163
85°	1716	1716	736	1576

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 180°
 Vertical Angle: 45°
 Luminance: 13229 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.5	5.4
10°-20°	170.3	15.0
20°-30°	240.6	21.2
30°-40°	253.0	22.3
40°-50°	190.7	16.8
50°-60°	118.2	10.4
60°-70°	66.5	5.9
70°-80°	29.3	2.6
80°-90°	5.8	0.5
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°	472.4	41.6
0°-40°	725.4	63.9
0°-60°	1034.3	91.1
0°-90°	1135.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1135.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	655	655	655	655	655	
5°	618	646	684	651	618	58
15°	518	596	702	608	518	145
25°	403	509	660	523	403	185
35°	288	393	544	406	288	180
45°	180	242	306	250	180	139
55°	97	127	169	128	97	89
65°	55	61	88	61	55	55
75°	25	24	33	24	25	27
85°	5	5	2	4	5	6
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°	655.2	655.2	655.2	655.2	655.2	655.2	655.2	655.2	655.2	655.2	655.2
0.5°	653.0	653.3	653.2	653.2	654.3	655.0	655.7	659.0	659.8	659.8	658.3
1°	649.6	650.1	650.6	651.6	653.8	655.9	657.7	661.9	662.8	662.7	660.6
1.5°	646.0	646.6	647.8	649.9	653.3	656.7	659.8	664.7	666.0	665.7	662.9
2°	642.2	643.0	644.9	647.9	652.7	657.4	661.6	667.2	668.9	668.4	665.0
2.5°	638.4	639.4	641.9	645.9	651.9	657.9	663.2	669.7	671.7	671.1	667.1
3°	634.6	635.7	638.6	643.8	651.0	658.3	664.9	671.9	674.6	673.6	668.8
3.5°	630.6	631.9	635.6	641.6	650.1	658.6	666.4	674.3	677.1	676.1	670.6
4°	626.5	627.9	632.2	639.4	648.8	658.8	667.7	676.3	679.6	678.4	672.2
4.5°	622.3	623.8	628.7	636.9	647.6	658.9	669.0	678.3	681.9	680.6	673.8
5°	618.0	619.9	625.2	634.4	646.2	658.8	670.1	680.2	684.3	682.7	675.2
5.5°	613.7	615.7	621.7	631.7	644.8	658.7	671.1	681.9	686.4	684.7	676.5
6°	609.4	611.3	617.9	628.8	643.1	658.3	672.0	683.5	688.3	686.5	677.6
6.5°	604.9	606.9	614.2	626.0	641.4	657.9	672.7	685.0	690.2	688.2	678.7
7°	600.2	602.5	610.2	623.0	639.7	657.4	673.3	686.4	692.0	689.8	679.6
7.5°	595.7	598.1	606.3	620.0	637.6	656.8	673.8	687.6	693.6	691.3	680.4
8°	590.9	593.4	602.2	616.8	635.6	655.9	674.3	688.7	695.2	692.6	681.0
8.5°	586.1	588.8	598.1	613.5	633.4	655.1	674.5	689.7	696.5	693.8	681.5
9°	581.1	584.1	593.7	610.2	631.1	654.1	674.6	690.6	697.7	694.9	682.0
9.5°	576.3	579.3	589.6	606.7	628.7	652.9	674.6	691.3	698.8	695.8	682.2
10°	571.3	574.4	585.2	603.0	626.3	651.6	674.5	691.8	699.8	696.6	682.4
10.5°	566.2	569.5	580.7	599.6	623.6	650.2	674.3	692.3	700.6	697.3	682.4
11°	561.1	564.5	576.1	595.8	620.9	648.7	673.8	692.6	701.3	697.8	682.3
11.5°	556.0	559.5	571.6	591.9	618.1	647.1	673.4	692.8	701.9	698.3	682.0
12°	550.8	554.3	566.9	587.9	615.3	645.5	672.8	692.8	702.3	698.5	681.7
12.5°	545.4	549.2	562.1	584.1	612.2	643.6	672.0	692.8	702.6	698.7	681.2
13°	540.0	543.9	557.3	579.9	609.2	641.7	671.2	692.6	702.8	698.7	680.6
13.5°	534.8	538.5	552.5	575.9	606.1	639.7	670.2	692.3	702.8	698.6	679.9
14°	529.4	533.3	547.6	571.6	602.6	637.5	669.0	691.8	702.7	698.3	678.9
14.5°	523.9	527.9	542.6	567.3	599.3	635.2	667.8	691.3	702.4	697.9	677.9
15°	518.4	522.6	537.5	562.9	595.9	632.8	666.5	690.5	702.0	697.4	676.8
15.5°	512.7	517.1	532.4	558.4	592.3	630.3	665.0	689.7	701.5	696.8	675.6
16°	507.2	511.6	527.3	554.0	588.6	627.7	663.4	688.6	700.8	696.0	674.2
16.5°	501.6	506.1	522.2	549.5	584.9	625.0	661.7	687.5	700.1	695.1	672.6
17°	496.0	500.7	517.1	544.8	581.1	622.2	659.9	686.3	699.0	693.9	671.0
17.5°	490.3	495.1	511.7	540.2	577.2	619.4	657.9	684.9	697.9	692.7	669.2
18°	484.6	489.5	506.5	535.3	573.2	616.3	655.9	683.3	696.7	691.3	667.3
18.5°	478.9	483.8	501.1	530.6	569.1	613.2	653.6	681.6	695.3	689.8	665.3
19°	473.2	478.1	495.8	525.7	565.0	610.0	651.3	679.8	693.7	688.1	663.0
19.5°	467.3	472.4	490.4	520.8	560.8	606.7	648.8	677.8	692.1	686.3	660.7
20°	461.8	466.8	484.9	515.9	556.5	603.2	646.3	675.7	690.2	684.2	658.2
20.5°	455.9	461.2	479.5	510.8	552.0	599.8	643.6	673.4	688.1	682.0	655.7
21°	450.2	455.5	474.0	505.7	547.6	596.1	640.7	671.0	685.9	679.8	652.8



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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°	432.6	438.1	457.3	490.3	533.9	584.5	631.4	662.5	677.9	671.5	643.4
23°	426.8	432.4	451.7	485.0	529.1	580.4	627.9	659.3	674.9	668.3	640.0
23.5°	421.0	426.5	446.0	479.7	524.2	576.2	624.3	655.9	671.5	665.0	636.3
24°	415.2	420.8	440.6	474.4	519.3	571.8	620.5	652.0	667.9	661.2	632.3
24.5°	409.3	415.0	434.8	469.0	514.3	567.2	616.4	648.0	664.0	657.3	628.1
25°	403.3	409.2	429.2	463.4	509.1	562.5	612.1	643.8	660.0	653.1	623.7
25.5°	397.5	403.2	423.4	457.9	503.6	557.5	607.6	639.7	655.8	649.1	619.3
26°	391.7	397.6	417.7	452.4	498.4	552.5	603.0	635.1	651.5	644.5	614.6
26.5°	385.9	391.8	412.0	446.9	492.9	547.3	598.2	630.5	647.1	640.1	610.0
27°	380.2	386.0	406.4	441.3	487.4	542.3	593.5	626.0	642.6	635.7	605.2
27.5°	374.3	380.2	400.7	435.6	482.1	537.2	588.7	621.6	638.1	631.1	600.5
28°	368.3	374.5	394.9	430.0	476.7	532.1	584.1	616.9	633.5	626.5	595.8
28.5°	362.4	368.6	389.2	424.4	471.4	526.9	579.1	612.4	629.2	622.1	591.2
29°	356.7	362.8	383.7	418.9	466.1	521.9	574.4	607.8	624.6	617.5	586.4
29.5°	351.0	357.0	377.9	413.3	460.9	516.9	569.6	603.4	620.2	613.0	581.8
30°	345.2	351.3	372.2	408.0	455.8	512.0	565.0	599.2	616.0	608.8	577.5
30.5°	339.3	345.6	366.6	402.5	450.5	507.1	560.5	595.1	612.0	604.9	573.2
31°	333.6	339.9	361.2	397.2	445.3	502.3	556.2	590.6	607.6	600.3	568.3
31.5°	327.8	334.2	355.7	391.6	439.6	496.8	551.1	585.1	602.4	595.0	562.7
32°	322.1	328.6	350.1	386.1	433.7	491.0	545.4	578.7	596.3	588.7	556.2
32.5°	316.2	322.7	344.6	380.2	427.3	484.4	539.0	572.0	589.4	581.7	549.3
33°	310.6	317.2	338.9	374.5	420.9	477.6	532.0	564.2	581.5	574.0	541.8
33.5°	305.1	311.7	333.4	368.3	414.1	470.3	524.4	555.9	573.0	565.6	533.6
34°	299.4	306.1	327.5	362.0	407.2	462.8	516.4	546.7	563.9	556.7	525.3
34.5°	293.8	300.6	321.7	355.8	400.3	455.1	507.8	537.3	554.2	547.2	516.5
35°	288.0	295.0	315.9	349.6	393.2	446.9	499.1	527.0	543.9	537.0	507.5
35.5°	282.4	289.4	310.1	343.1	385.9	438.9	489.7	516.5	532.9	526.8	498.0
36°	277.0	283.8	304.3	336.7	378.7	430.6	480.3	505.5	521.6	515.9	488.0
36.5°	271.4	278.3	298.5	330.2	371.1	422.0	470.7	494.5	510.0	504.6	477.8
37°	266.0	272.7	292.6	323.9	363.7	413.2	460.3	482.6	498.0	492.9	467.5
37.5°	260.4	267.1	286.6	317.3	356.1	404.6	450.1	470.8	485.9	480.9	456.8
38°	255.0	261.6	280.8	310.7	348.4	395.6	439.4	459.0	473.5	468.9	446.0
38.5°	249.5	255.9	274.9	304.0	340.8	386.8	428.8	447.5	461.1	456.7	434.9
39°	244.1	250.5	269.0	297.4	333.5	377.7	418.1	435.1	448.2	444.4	423.8
39.5°	238.8	245.0	263.2	290.9	325.7	368.6	407.3	423.1	435.5	431.7	412.5
40°	233.4	239.5	257.0	284.3	317.8	359.4	396.5	410.9	422.8	419.3	401.2
40.5°	227.9	234.0	251.2	277.4	310.2	350.3	385.5	399.3	410.1	406.9	389.8
41°	222.6	228.6	245.3	270.9	302.4	341.1	374.9	387.2	397.8	394.7	378.6
41.5°	217.2	223.2	239.6	264.4	294.9	331.8	364.3	375.3	385.2	382.4	367.3
42°	211.8	217.7	233.8	257.8	287.1	322.7	353.8	363.9	373.2	370.3	356.3
42.5°	206.6	212.4	227.9	251.5	279.5	313.7	343.5	352.6	361.3	358.5	345.4
43°	201.3	207.1	222.4	245.1	271.9	304.9	333.0	341.6	349.7	347.1	334.6
43.5°	196.1	201.8	216.8	238.8	264.3	296.0	322.9	330.8	338.2	335.6	323.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	180.4	186.2	200.2	220.0	242.1	270.2	294.1	300.1	306.4	304.1	293.9
45.5°	175.3	180.9	194.8	214.0	235.0	262.0	284.9	290.6	296.5	294.0	284.2
46°	170.3	175.9	189.4	208.1	227.9	254.1	276.0	281.3	287.0	284.6	274.8
46.5°	165.4	171.0	184.3	202.1	221.1	246.0	267.3	272.2	277.8	275.3	265.7
47°	160.4	165.9	178.9	196.0	214.3	238.2	258.9	263.9	269.2	266.5	257.2
47.5°	155.5	161.2	173.7	190.5	207.6	230.7	250.7	255.7	261.0	258.2	248.9
48°	150.7	156.4	168.6	184.7	201.3	223.7	242.8	247.8	253.0	250.3	240.8
48.5°	146.0	151.7	163.5	179.1	195.2	216.5	235.4	240.3	245.3	242.4	232.9
49°	141.2	147.2	158.6	173.6	189.0	209.5	227.9	233.2	238.3	235.3	225.7
49.5°	136.9	142.7	153.6	168.3	182.8	203.1	221.0	226.1	231.2	227.9	218.4
50°	132.3	138.3	148.8	162.8	177.0	196.6	214.2	219.5	224.5	221.3	211.5
50.5°	128.0	134.1	144.0	157.5	171.4	190.3	207.4	212.9	217.9	214.7	204.9
51°	123.8	129.7	139.4	152.4	165.9	184.2	201.1	206.8	211.7	208.4	198.6
51.5°	119.8	125.6	134.8	147.5	160.6	178.4	195.1	200.8	205.8	202.4	192.4
52°	115.8	121.4	130.2	142.7	155.4	172.6	189.1	195.2	200.0	196.5	186.5
52.5°	112.0	117.5	125.9	138.0	150.4	167.3	183.4	189.5	194.5	190.8	180.7
53°	108.6	113.7	121.6	133.3	145.5	161.9	177.7	184.2	189.1	185.4	175.2
53.5°	105.2	109.9	117.4	128.8	140.8	156.7	172.4	179.0	183.9	180.1	169.8
54°	102.1	106.2	113.4	124.4	136.2	151.6	167.2	173.9	178.9	175.0	164.8
54.5°	99.4	102.8	109.4	120.3	131.8	146.9	162.1	169.0	173.9	170.0	159.8
55°	96.8	99.5	105.6	116.1	127.4	142.1	157.3	164.2	169.0	165.2	154.9
55.5°	94.5	96.2	101.9	112.2	123.3	137.5	152.6	159.5	164.3	160.5	150.2
56°	92.3	93.3	98.4	108.3	119.1	133.2	148.0	155.0	159.6	156.0	145.6
56.5°	90.7	90.4	95.0	104.6	115.1	128.8	143.5	150.5	155.0	151.3	141.1
57°	88.8	87.8	91.6	100.9	111.1	124.5	139.1	146.1	150.5	146.9	136.8
57.5°	86.5	85.3	88.5	97.3	107.3	120.4	134.8	141.9	146.1	142.7	132.6
58°	84.3	83.3	85.4	93.9	103.7	116.5	130.6	137.6	141.7	138.6	128.6
58.5°	82.0	81.2	82.4	90.6	100.1	112.6	126.6	133.5	137.3	134.3	124.4
59°	79.8	79.2	79.6	87.3	96.6	108.9	122.5	129.4	133.2	130.1	120.5
59.5°	77.4	77.0	76.9	84.2	93.3	105.2	118.7	125.3	129.0	126.0	116.6
60°	75.2	75.0	74.3	81.1	89.9	101.6	114.9	121.4	125.0	122.1	112.9
60.5°	73.0	72.9	71.8	78.2	86.8	98.3	111.0	117.5	120.9	118.2	109.2
61°	70.8	70.7	69.4	75.2	83.8	94.8	107.3	113.8	117.0	114.4	105.5
61.5°	68.7	68.7	67.0	72.4	80.6	91.4	103.8	110.0	113.2	110.7	102.0
62°	66.6	66.6	64.9	69.7	77.5	88.4	100.4	106.3	109.4	107.1	98.6
62.5°	64.5	64.6	62.8	67.0	74.8	85.2	96.9	102.6	105.7	103.3	95.2
63°	62.5	62.7	60.7	64.5	71.9	82.1	93.6	99.2	102.0	99.8	91.9
63.5°	60.5	60.7	58.8	62.0	69.2	79.1	90.3	95.8	98.5	96.3	88.8
64°	58.7	58.8	57.0	59.7	66.5	76.0	87.1	92.3	95.0	93.0	85.6
64.5°	56.7	56.9	55.3	57.4	63.9	73.2	84.0	89.2	91.6	89.7	82.5
65°	54.9	55.2	53.7	55.2	61.4	70.4	80.8	86.0	88.4	86.5	79.4
65.5°	53.2	53.4	52.0	53.1	59.0	67.6	77.8	82.9	85.1	83.4	76.2
66°	51.3	51.6	50.4	51.0	56.5	64.9	74.9	79.7	81.9	80.2	73.4



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	46.2	46.6	45.6	45.2	49.8	57.3	66.4	70.5	72.2	70.9	64.9
68°	44.7	45.0	44.2	43.5	47.5	54.9	63.7	67.5	69.2	68.0	62.1
68.5°	43.1	43.4	42.7	41.7	45.5	52.5	60.9	64.8	66.3	65.2	59.6
69°	41.5	41.8	41.1	40.1	43.6	50.2	58.4	61.9	63.4	62.3	56.9
69.5°	39.9	40.3	39.7	38.5	41.6	48.1	55.8	59.3	60.6	59.6	54.5
70°	38.5	38.8	38.3	36.8	39.7	45.9	53.4	56.6	57.8	56.9	52.0
70.5°	36.9	37.3	36.7	35.4	38.0	43.8	50.9	54.1	55.1	54.5	49.7
71°	35.5	35.9	35.4	34.1	36.1	41.7	48.7	51.5	52.4	51.8	47.2
71.5°	34.2	34.6	34.2	32.8	34.5	39.7	46.3	49.2	49.9	49.4	45.0
72°	32.9	33.3	32.9	31.4	32.8	37.8	44.1	46.6	47.2	46.9	42.8
72.5°	31.4	31.8	31.6	30.0	31.1	35.9	41.8	44.4	44.8	44.5	40.5
73°	30.1	30.5	30.3	28.8	29.6	34.1	39.7	42.0	42.3	42.2	38.4
73.5°	28.8	29.2	29.0	27.5	28.1	32.2	37.5	39.8	40.0	40.0	36.4
74°	27.5	27.9	27.8	26.4	26.6	30.5	35.6	37.7	37.8	37.9	34.4
74.5°	26.2	26.6	26.5	25.2	25.2	28.9	33.6	35.6	35.4	35.7	32.3
75°	25.0	25.4	25.4	24.1	23.9	27.2	31.6	33.5	33.3	33.6	30.5
75.5°	23.8	24.2	24.2	23.1	22.7	25.7	29.8	31.5	31.1	31.6	28.7
76°	22.7	23.0	23.1	21.9	21.3	24.2	28.0	29.6	29.0	29.7	26.8
76.5°	21.4	21.8	21.9	20.9	20.2	22.7	26.2	27.7	26.9	27.8	25.1
77°	20.3	20.6	20.8	19.9	19.0	21.3	24.6	25.8	25.0	25.9	23.5
77.5°	19.2	19.5	19.7	18.9	17.9	19.9	22.9	24.1	23.1	24.2	21.8
78°	18.1	18.5	18.7	17.9	16.8	18.7	21.3	22.3	21.2	22.4	20.2
78.5°	17.0	17.3	17.6	16.9	15.7	17.3	19.8	20.7	19.4	20.7	18.8
79°	15.9	16.3	16.5	15.9	14.8	16.1	18.3	19.1	17.7	19.2	17.2
79.5°	14.9	15.3	15.5	15.0	13.8	15.0	16.8	17.6	16.0	17.6	15.9
80°	13.9	14.2	14.5	14.1	12.9	13.9	15.4	16.0	14.4	16.1	14.5
80.5°	13.0	13.2	13.6	13.2	11.9	12.8	14.2	14.5	12.9	14.6	13.2
81°	11.9	12.2	12.7	12.3	11.0	11.7	12.9	13.1	11.3	13.2	11.9
81.5°	11.0	11.3	11.7	11.4	10.2	10.7	11.6	11.6	10.0	11.8	10.7
82°	10.1	10.3	10.8	10.6	9.4	9.7	10.5	10.4	8.7	10.6	9.7
82.5°	9.2	9.4	9.9	9.7	8.6	8.9	9.5	9.2	7.4	9.4	8.7
83°	8.3	8.6	9.1	8.9	7.9	8.1	8.5	8.0	6.1	8.2	7.6
83.5°	7.3	7.7	8.2	8.2	7.1	7.1	7.4	6.7	4.8	6.9	6.5
84°	6.5	6.7	7.3	7.3	6.3	6.3	6.4	5.5	3.8	5.7	5.5
84.5°	5.7	5.9	6.5	6.5	5.6	5.5	5.4	4.4	2.9	4.5	4.7
85°	4.9	5.1	5.7	5.8	4.9	4.8	4.6	3.5	2.1	3.5	3.9
85.5°	4.1	4.2	5.0	5.0	4.2	4.1	3.9	2.8	1.6	2.8	3.2
86°	3.5	3.7	4.3	4.3	3.6	3.4	3.2	2.0	1.3	2.0	2.4
86.5°	2.9	3.1	3.6	3.7	3.0	2.8	2.4	1.4	1.0	1.4	1.8
87°	2.2	2.4	3.0	3.0	2.3	2.1	1.8	0.9	0.7	0.9	1.3
87.5°	1.6	1.8	2.3	2.3	1.7	1.5	1.3	0.5	0.5	0.5	0.8
88°	1.1	1.3	1.7	1.6	1.2	1.0	0.8	0.2	0.2	0.2	0.4
88.5°	0.7	0.8	1.0	1.0	0.6	0.5	0.4	0.1	0.1	0.1	0.1



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	655.2	655.2	655.2	655.2	655.2	655.2
0.5°	656.2	654.8	652.8	651.1	653.1	653.0
1°	657.4	654.8	651.5	648.7	650.0	649.6
1.5°	658.5	654.8	650.1	646.2	646.7	646.0
2°	659.7	654.5	648.5	643.4	643.3	642.2
2.5°	660.6	654.2	646.8	640.6	639.9	638.4
3°	661.4	653.6	645.1	637.8	636.3	634.6
3.5°	662.0	653.0	643.1	634.9	632.7	630.6
4°	662.6	652.4	641.2	631.8	628.9	626.5
4.5°	663.0	651.6	639.1	628.5	625.1	622.3
5°	663.2	650.7	636.9	625.2	621.2	618.0
5.5°	663.4	649.7	634.5	621.8	617.1	613.7
6°	663.5	648.4	632.1	618.3	613.0	609.4
6.5°	663.4	647.1	629.6	614.7	608.8	604.9
7°	663.2	645.8	626.8	611.1	604.5	600.2
7.5°	662.9	644.2	624.1	607.1	600.2	595.7
8°	662.5	642.5	621.2	603.3	595.7	590.9
8.5°	662.0	640.8	618.1	599.3	591.2	586.1
9°	661.3	638.8	615.0	595.3	586.5	581.1
9.5°	660.5	636.8	611.7	591.0	581.8	576.3
10°	659.6	634.8	608.4	586.9	577.1	571.3
10.5°	658.5	632.5	605.1	582.5	572.3	566.2
11°	657.3	630.1	601.6	578.2	567.4	561.1
11.5°	656.1	627.6	597.9	573.6	562.4	556.0
12°	654.6	625.1	594.3	569.2	557.4	550.8
12.5°	653.1	622.4	590.5	564.6	552.3	545.4
13°	651.4	619.7	586.7	559.9	547.2	540.0
13.5°	649.7	616.8	582.7	555.2	542.1	534.8
14°	647.7	613.8	578.6	550.3	536.8	529.4
14.5°	645.8	610.8	574.5	545.4	531.6	523.9
15°	643.6	607.5	570.4	540.6	526.2	518.4
15.5°	641.4	604.3	566.0	535.4	520.8	512.7
16°	639.1	600.8	561.7	530.4	515.4	507.2
16.5°	636.6	597.4	557.3	525.2	509.9	501.6
17°	633.9	593.7	552.7	520.2	504.5	496.0
17.5°	631.3	590.1	548.2	515.1	499.0	490.3
18°	628.4	586.3	543.5	509.7	493.4	484.6
18.5°	625.6	582.4	538.9	504.4	487.8	478.9
19°	622.4	578.4	534.1	499.2	482.1	473.2
19.5°	619.3	574.5	529.3	493.9	476.5	467.3
20°	616.0	570.2	524.4	488.4	470.9	461.8
20.5°	612.5	566.1	519.5	482.9	465.3	455.9
21°	609.1	561.7	514.4	477.5	459.6	450.2



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	597.7	548.2	499.1	461.0	442.4	432.6
23°	593.6	543.4	493.8	455.4	436.5	426.8
23.5°	589.3	538.6	488.4	449.9	430.9	421.0
24°	584.9	533.7	483.0	444.1	425.2	415.2
24.5°	580.2	528.6	477.6	438.7	419.3	409.3
25°	575.3	523.3	472.1	432.8	413.4	403.3
25.5°	570.4	518.1	466.6	427.1	407.7	397.5
26°	565.3	512.8	461.0	421.5	401.9	391.7
26.5°	560.3	507.3	455.4	415.9	396.1	385.9
27°	555.3	501.8	449.7	410.1	390.4	380.2
27.5°	550.2	496.5	444.1	404.3	384.5	374.3
28°	545.1	491.2	438.4	398.6	378.8	368.3
28.5°	540.1	485.8	433.0	393.0	372.8	362.4
29°	535.2	480.6	427.5	387.3	367.2	356.7
29.5°	530.4	475.5	422.2	381.8	361.4	351.0
30°	525.7	470.4	416.8	376.1	355.7	345.2
30.5°	520.8	465.3	411.3	370.6	350.0	339.3
31°	515.3	459.8	405.7	365.1	344.4	333.6
31.5°	509.5	454.1	400.2	359.5	338.7	327.8
32°	502.9	447.7	394.3	353.9	332.9	322.1
32.5°	496.0	441.2	388.2	348.1	327.2	316.2
33°	488.6	434.7	382.1	342.4	321.7	310.6
33.5°	481.1	427.6	375.9	336.7	316.1	305.1
34°	473.2	420.6	369.5	330.9	310.5	299.4
34.5°	465.3	413.4	362.9	325.0	304.9	293.8
35°	457.1	406.1	356.4	319.1	299.4	288.0
35.5°	448.7	398.8	349.9	313.0	293.7	282.4
36°	440.1	391.2	343.2	307.2	288.1	277.0
36.5°	431.2	383.8	336.6	301.2	282.5	271.4
37°	422.2	376.0	329.8	295.1	276.9	266.0
37.5°	413.1	368.3	323.1	289.1	271.3	260.4
38°	404.0	360.4	316.3	283.0	265.7	255.0
38.5°	394.8	352.6	309.6	277.0	260.1	249.5
39°	385.5	344.7	302.9	271.1	254.5	244.1
39.5°	376.1	336.8	296.0	265.1	249.0	238.8
40°	366.3	328.9	289.3	259.1	243.5	233.4
40.5°	356.7	320.8	282.5	253.2	237.8	227.9
41°	347.3	312.7	275.8	247.2	232.3	222.6
41.5°	337.7	304.8	269.1	241.2	226.7	217.2
42°	328.2	296.9	262.4	235.5	221.3	211.8
42.5°	318.6	288.8	255.9	229.8	215.9	206.6
43°	309.2	281.0	249.3	223.9	210.6	201.3
43.5°	299.9	273.2	242.5	218.1	205.3	196.1



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	272.9	250.1	223.3	201.1	189.3	180.4
45.5°	264.1	242.4	216.8	195.5	184.2	175.3
46°	255.8	235.1	210.6	190.1	179.0	170.3
46.5°	247.2	227.7	204.4	184.7	174.0	165.4
47°	239.2	220.7	198.3	179.2	169.0	160.4
47.5°	231.3	213.6	192.1	173.8	164.1	155.5
48°	223.9	206.7	186.3	168.6	159.3	150.7
48.5°	216.3	200.0	180.4	163.3	154.4	146.0
49°	209.1	193.6	174.7	158.3	149.8	141.2
49.5°	202.2	187.2	169.0	153.2	145.2	136.9
50°	195.6	180.9	163.5	148.2	140.6	132.3
50.5°	189.0	174.8	158.0	143.2	136.2	128.0
51°	182.8	169.0	152.7	138.5	131.6	123.8
51.5°	176.9	163.4	147.5	133.7	127.4	119.8
52°	171.1	157.8	142.5	129.3	123.3	115.8
52.5°	165.4	152.5	137.6	124.7	119.1	112.0
53°	160.0	147.3	132.9	120.3	115.0	108.6
53.5°	154.7	142.3	128.3	116.0	111.0	105.2
54°	149.8	137.5	123.7	111.9	107.1	102.1
54.5°	144.9	133.0	119.4	107.9	103.5	99.4
55°	140.1	128.3	115.2	104.0	100.0	96.8
55.5°	135.6	124.0	111.1	100.2	96.6	94.5
56°	131.1	119.8	107.1	96.6	93.4	92.3
56.5°	126.8	115.6	103.3	93.2	90.3	90.7
57°	122.6	111.5	99.6	89.7	87.5	88.8
57.5°	118.6	107.7	96.0	86.5	84.8	86.5
58°	114.7	104.1	92.5	83.5	82.3	84.3
58.5°	110.8	100.4	89.2	80.5	80.1	82.0
59°	107.0	96.7	85.9	77.6	78.1	79.8
59.5°	103.5	93.5	82.8	74.8	76.1	77.4
60°	99.9	90.1	79.7	72.2	74.1	75.2
60.5°	96.4	86.8	76.7	69.7	72.0	73.0
61°	93.1	83.5	73.9	67.2	70.0	70.8
61.5°	89.9	80.5	71.0	64.9	68.0	68.7
62°	86.7	77.5	68.3	62.8	66.0	66.6
62.5°	83.7	74.7	65.7	60.5	64.0	64.5
63°	80.5	71.7	63.2	58.5	62.0	62.5
63.5°	77.4	69.0	60.7	56.5	60.2	60.5
64°	74.5	66.3	58.3	54.6	58.3	58.7
64.5°	71.7	63.7	56.0	52.8	56.5	56.7
65°	68.8	61.1	53.8	51.1	54.7	54.9
65.5°	66.1	58.7	51.6	49.5	53.0	53.2
66°	63.5	56.2	49.6	48.0	51.2	51.3



TEST NUMBER: P775851

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	55.9	49.5	43.8	43.4	46.1	46.2
68°	53.6	47.3	41.9	41.9	44.6	44.7
68.5°	51.2	45.2	40.2	40.5	43.0	43.1
69°	49.0	43.3	38.6	39.0	41.5	41.5
69.5°	46.7	41.3	36.9	37.7	40.0	39.9
70°	44.6	39.4	35.5	36.3	38.5	38.5
70.5°	42.4	37.5	34.1	35.0	37.0	36.9
71°	40.4	35.9	32.7	33.8	35.7	35.5
71.5°	38.5	34.3	31.2	32.4	34.3	34.2
72°	36.5	32.7	29.7	31.1	33.0	32.9
72.5°	34.7	31.0	28.5	29.8	31.6	31.4
73°	32.9	29.3	27.1	28.6	30.3	30.1
73.5°	31.1	27.9	25.9	27.3	29.0	28.8
74°	29.4	26.3	24.8	26.2	27.7	27.5
74.5°	27.8	24.9	23.6	25.0	26.4	26.2
75°	26.1	23.6	22.4	23.8	25.2	25.0
75.5°	24.6	22.2	21.4	22.7	24.0	23.8
76°	23.1	21.0	20.3	21.5	22.8	22.7
76.5°	21.6	19.8	19.3	20.5	21.6	21.4
77°	20.3	18.6	18.3	19.4	20.5	20.3
77.5°	19.0	17.4	17.3	18.4	19.3	19.2
78°	17.7	16.3	16.4	17.3	18.3	18.1
78.5°	16.4	15.3	15.4	16.3	17.1	17.0
79°	15.2	14.3	14.6	15.3	16.1	15.9
79.5°	14.1	13.3	13.7	14.4	15.1	14.9
80°	12.9	12.3	12.8	13.4	14.1	13.9
80.5°	11.8	11.4	11.9	12.4	13.1	13.0
81°	10.8	10.5	11.1	11.5	12.1	11.9
81.5°	9.8	9.7	10.2	10.6	11.1	11.0
82°	9.0	8.9	9.4	9.8	10.2	10.1
82.5°	8.1	8.1	8.6	8.9	9.3	9.2
83°	7.2	7.2	7.9	8.1	8.4	8.3
83.5°	6.3	6.5	7.0	7.2	7.6	7.3
84°	5.5	5.8	6.3	6.4	6.6	6.5
84.5°	4.7	5.1	5.6	5.7	5.8	5.7
85°	4.0	4.5	4.9	5.0	5.0	4.9
85.5°	3.3	3.8	4.2	4.3	4.2	4.1
86°	2.7	3.2	3.5	3.6	3.6	3.5
86.5°	2.0	2.6	2.9	3.0	3.1	2.9
87°	1.5	1.9	2.2	2.3	2.4	2.2
87.5°	0.9	1.4	1.6	1.6	1.8	1.6
88°	0.5	0.8	0.9	1.0	1.3	1.1
88.5°	0.1	0.3	0.4	0.5	0.8	0.7



TEST NUMBER: P775851
CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.1	0.0



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

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21.5°	444.3	449.7	468.2	500.6	543.1	592.3	637.7	668.3	683.4	677.1	649.8
22°	438.4	443.9	462.8	495.5	538.5	588.4	634.7	665.5	680.8	674.5	646.7



44°	190.8	196.5	211.3	232.2	256.8	287.2	313.1	320.2	327.1	324.8	313.5
44.5°	185.6	191.3	205.7	226.3	249.5	278.6	303.6	310.0	316.6	314.0	303.5



66.5°	49.6	49.9	48.8	49.0	54.2	62.2	72.0	76.5	78.7	77.0	70.5
67°	48.0	48.3	47.2	47.0	51.9	59.8	69.2	73.5	75.4	73.9	67.6



89°	0.3	0.4	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0
89.5°	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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21.5°	605.3	557.3	509.4	472.0	453.9	444.3
22°	601.5	552.6	504.2	466.5	448.1	438.4



44°	290.7	265.3	236.1	212.4	199.8	190.8
44.5°	281.8	257.5	229.7	206.7	194.6	185.6

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66.5°	60.9	54.0	47.5	46.4	49.5	49.6
67°	58.4	51.7	45.6	44.9	47.9	48.0

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89°	0.0	0.1	0.1	0.1	0.4	0.3
89.5°	0.0	0.0	0.0	0.0	0.1	0.1

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(END OF REPORT)