

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: P775852

Luminaire Tested: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775852
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-3500K
Description: 8 INCH ROUND NARROW LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

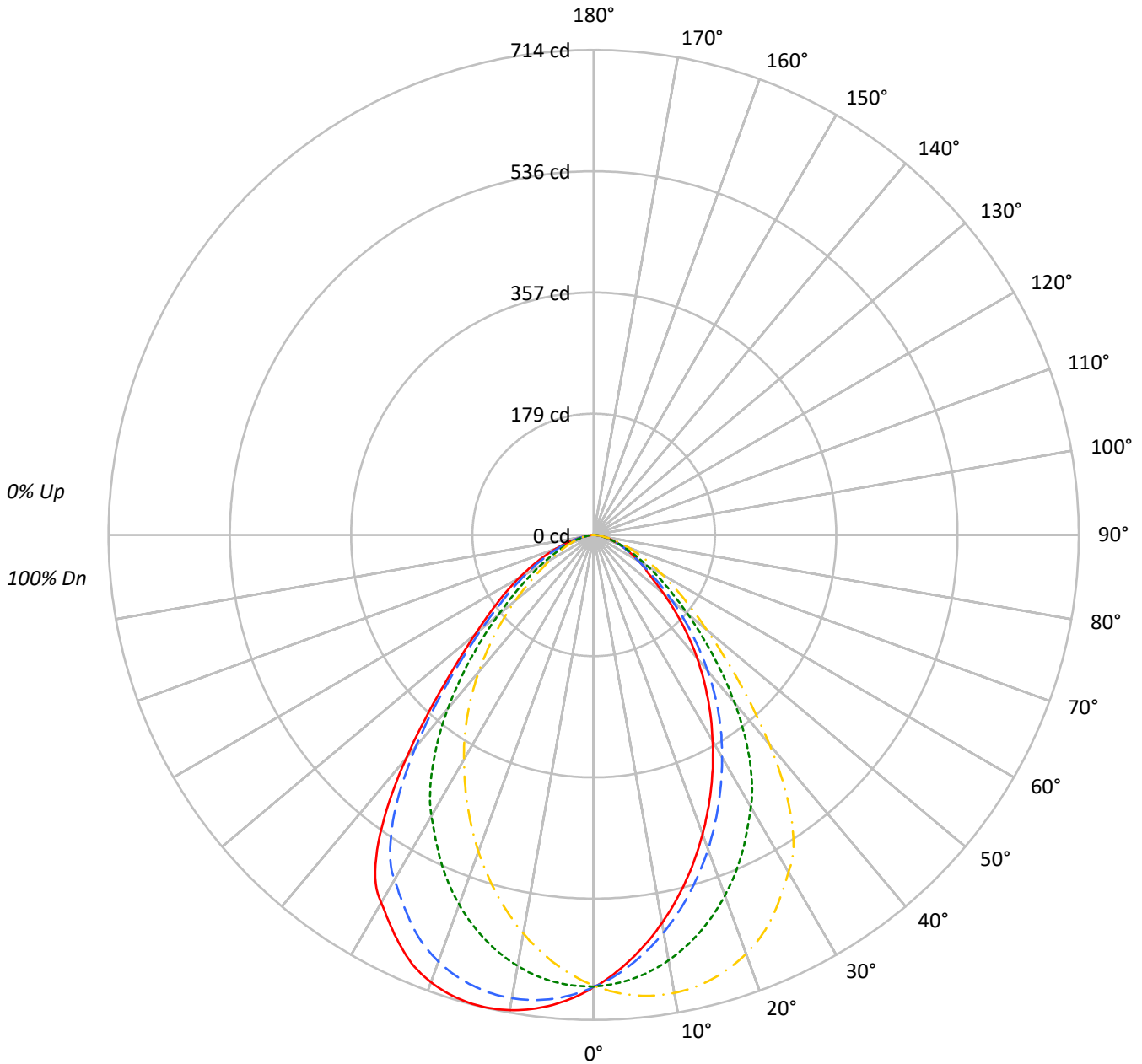
Lumens per Lamp: N/A
Luminaire Lumens: 1153.2 lumens
Efficiency: N/A
Efficacy: 115.3 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.13
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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				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	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°	20309	20309	20309	20309
5°	19231	20104	21290	20245
10°	17981	19711	22023	19977
15°	16635	19122	22527	19495
20°	15234	18357	22765	18808
25°	13795	17409	22570	17898
30°	12353	16312	22047	16837
35°	10898	14878	20577	15367
40°	9442	12861	17110	13307
45°	7906	10613	13432	10962
50°	6384	8535	10824	8725
55°	5232	6888	9129	6930
60°	4659	5575	7749	5587
65°	4024	4508	6480	4486
70°	3490	3597	5231	3571
75°	2996	2855	3987	2819
80°	2479	2303	2567	2198
85°	1751	1751	771	1611

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 180°
 Vertical Angle: 45°
 Luminance: 13432 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.4	5.4
10°-20°	172.9	15.0
20°-30°	244.3	21.2
30°-40°	256.8	22.3
40°-50°	193.6	16.8
50°-60°	120.0	10.4
60°-70°	67.5	5.9
70°-80°	29.8	2.6
80°-90°	5.9	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°	479.6	41.6
0°-40°	736.4	63.9
0°-60°	1050.1	91.1
0°-90°	1153.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1153.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	665	665	665	665	665	
5°	628	656	695	661	628	58
15°	526	605	713	617	526	147
25°	410	517	670	531	410	188
35°	292	399	552	412	292	183
45°	183	246	311	254	183	141
55°	98	129	172	130	98	90
65°	56	62	90	62	56	56
75°	25	24	34	24	25	27
85°	5	5	2	5	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°	665.2	665.2	665.2	665.2	665.2	665.2	665.2	665.2	665.2	665.2	665.2
0.5°	663.0	663.3	663.2	663.2	664.2	665.0	665.7	669.1	669.8	669.8	668.4
1°	659.5	660.0	660.5	661.5	663.8	665.9	667.7	672.0	672.9	672.8	670.7
1.5°	655.8	656.5	657.7	659.8	663.3	666.7	669.8	674.8	676.1	675.8	673.0
2°	652.0	652.8	654.7	657.8	662.7	667.4	671.7	677.4	679.1	678.6	675.1
2.5°	648.2	649.1	651.7	655.7	661.8	668.0	673.3	679.9	681.9	681.3	677.3
3°	644.2	645.4	648.4	653.7	660.9	668.4	675.0	682.1	684.8	683.9	679.0
3.5°	640.2	641.5	645.3	651.4	660.0	668.7	676.6	684.5	687.4	686.4	680.8
4°	636.1	637.5	641.9	649.1	658.7	668.9	677.9	686.6	689.9	688.8	682.5
4.5°	631.8	633.4	638.3	646.6	657.5	669.0	679.2	688.7	692.3	691.0	684.1
5°	627.5	629.3	634.7	644.0	656.0	668.9	680.3	690.5	694.7	693.1	685.5
5.5°	623.1	625.1	631.2	641.3	654.6	668.8	681.3	692.3	696.9	695.1	686.8
6°	618.6	620.6	627.3	638.4	652.9	668.4	682.3	694.0	698.8	697.0	688.0
6.5°	614.1	616.2	623.5	635.5	651.2	668.0	683.0	695.4	700.7	698.7	689.1
7°	609.3	611.7	619.5	632.5	649.4	667.4	683.6	696.9	702.6	700.3	689.9
7.5°	604.8	607.3	615.5	629.4	647.3	666.8	684.1	698.1	704.2	701.8	690.7
8°	599.9	602.5	611.4	626.2	645.3	665.9	684.5	699.2	705.8	703.2	691.4
8.5°	595.0	597.8	607.3	622.9	643.1	665.1	684.7	700.2	707.1	704.4	691.9
9°	590.0	593.0	602.8	619.5	640.7	664.0	684.8	701.1	708.4	705.5	692.4
9.5°	585.1	588.1	598.6	616.0	638.3	662.9	684.8	701.8	709.5	706.4	692.6
10°	580.0	583.1	594.1	612.2	635.8	661.5	684.7	702.3	710.4	707.2	692.8
10.5°	574.8	578.1	589.5	608.7	633.2	660.1	684.5	702.9	711.3	707.9	692.8
11°	569.6	573.1	584.9	604.9	630.4	658.6	684.1	703.2	712.0	708.5	692.7
11.5°	564.5	568.0	580.3	600.9	627.6	657.0	683.7	703.4	712.6	709.0	692.4
12°	559.2	562.7	575.6	596.9	624.7	655.3	683.1	703.4	713.0	709.2	692.1
12.5°	553.7	557.5	570.7	593.0	621.5	653.5	682.3	703.4	713.3	709.4	691.6
13°	548.2	552.1	565.8	588.7	618.4	651.5	681.4	703.2	713.5	709.4	691.0
13.5°	542.9	546.8	560.9	584.7	615.3	649.4	680.4	702.9	713.5	709.3	690.2
14°	537.4	541.5	556.0	580.3	611.8	647.2	679.2	702.3	713.4	709.0	689.3
14.5°	531.8	536.0	550.9	576.0	608.4	644.9	678.0	701.8	713.1	708.6	688.3
15°	526.3	530.6	545.7	571.5	605.0	642.5	676.7	701.0	712.7	708.0	687.1
15.5°	520.5	525.0	540.5	567.0	601.3	639.9	675.1	700.2	712.2	707.4	685.9
16°	515.0	519.4	535.4	562.4	597.6	637.3	673.6	699.1	711.5	706.6	684.4
16.5°	509.3	513.8	530.2	557.8	593.8	634.5	671.8	698.0	710.7	705.7	682.9
17°	503.6	508.3	525.0	553.1	590.0	631.7	669.9	696.8	709.7	704.5	681.2
17.5°	497.8	502.6	519.5	548.4	586.0	628.8	668.0	695.3	708.6	703.3	679.4
18°	492.0	496.9	514.2	543.4	582.0	625.7	665.9	693.8	707.3	701.8	677.5
18.5°	486.2	491.1	508.7	538.7	577.7	622.6	663.6	692.0	705.9	700.3	675.4
19°	480.5	485.4	503.4	533.7	573.6	619.3	661.2	690.1	704.3	698.6	673.1
19.5°	474.4	479.6	497.9	528.7	569.3	616.0	658.7	688.2	702.7	696.8	670.8
20°	468.9	473.9	492.3	523.8	565.0	612.4	656.1	686.0	700.7	694.6	668.3
20.5°	462.8	468.2	486.8	518.6	560.4	608.9	653.5	683.7	698.6	692.4	665.7
21°	457.0	462.4	481.2	513.4	556.0	605.2	650.4	681.2	696.3	690.1	662.8



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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°	439.2	444.8	464.3	497.8	542.0	593.4	641.0	672.6	688.3	681.7	653.2
23°	433.3	439.0	458.6	492.4	537.1	589.2	637.5	669.3	685.2	678.5	649.7
23.5°	427.4	433.0	452.8	487.0	532.1	585.0	633.8	665.9	681.7	675.1	646.0
24°	421.5	427.2	447.3	481.6	527.2	580.5	629.9	661.9	678.1	671.3	642.0
24.5°	415.5	421.3	441.4	476.1	522.1	575.9	625.8	657.9	674.2	667.3	637.7
25°	409.5	415.4	435.7	470.5	516.8	571.1	621.4	653.7	670.0	663.1	633.3
25.5°	403.6	409.4	429.9	464.9	511.3	566.0	616.9	649.4	665.8	658.9	628.7
26°	397.7	403.7	424.1	459.3	506.0	560.9	612.2	644.8	661.4	654.3	623.9
26.5°	391.8	397.8	418.3	453.7	500.4	555.7	607.4	640.1	657.0	649.8	619.3
27°	386.0	391.9	412.6	448.0	494.9	550.6	602.6	635.5	652.4	645.4	614.4
27.5°	380.0	386.0	406.8	442.2	489.5	545.4	597.7	631.1	647.9	640.7	609.6
28°	374.0	380.2	400.9	436.5	484.0	540.2	593.0	626.3	643.2	636.1	604.9
28.5°	368.0	374.2	395.1	430.8	478.6	534.9	587.9	621.8	638.7	631.6	600.2
29°	362.2	368.4	389.5	425.2	473.2	529.9	583.1	617.1	634.1	626.9	595.3
29.5°	356.4	362.5	383.7	419.6	467.9	524.8	578.2	612.6	629.6	622.4	590.7
30°	350.4	356.7	377.9	414.3	462.7	519.8	573.6	608.3	625.4	618.1	586.3
30.5°	344.4	350.9	372.2	408.7	457.4	514.8	569.0	604.1	621.3	614.1	582.0
31°	338.6	345.1	366.7	403.3	452.1	510.0	564.7	599.6	616.9	609.4	577.0
31.5°	332.8	339.3	361.1	397.6	446.3	504.4	559.5	594.0	611.6	604.0	571.3
32°	327.0	333.6	355.4	392.0	440.3	498.5	553.7	587.6	605.4	597.7	564.7
32.5°	321.0	327.7	349.8	386.0	433.8	491.7	547.2	580.7	598.3	590.6	557.6
33°	315.3	322.1	344.0	380.2	427.3	484.9	540.1	572.8	590.4	582.7	550.1
33.5°	309.7	316.5	338.4	374.0	420.4	477.5	532.4	564.4	581.8	574.2	541.8
34°	303.9	310.8	332.5	367.5	413.4	469.9	524.3	555.0	572.4	565.2	533.3
34.5°	298.2	305.2	326.6	361.2	406.4	462.0	515.6	545.5	562.6	555.6	524.4
35°	292.4	299.5	320.7	354.9	399.2	453.7	506.7	535.0	552.1	545.2	515.3
35.5°	286.7	293.8	314.8	348.4	391.8	445.5	497.1	524.4	541.1	534.8	505.6
36°	281.3	288.1	308.9	341.9	384.4	437.2	487.6	513.2	529.6	523.8	495.5
36.5°	275.6	282.5	303.0	335.2	376.8	428.5	477.9	502.0	517.7	512.3	485.1
37°	270.1	276.9	297.1	328.8	369.2	419.5	467.3	490.0	505.6	500.4	474.7
37.5°	264.4	271.2	291.0	322.2	361.5	410.7	456.9	478.0	493.3	488.2	463.8
38°	258.9	265.6	285.1	315.4	353.7	401.6	446.1	466.0	480.8	476.0	452.8
38.5°	253.3	259.8	279.1	308.6	346.0	392.7	435.3	454.4	468.1	463.7	441.5
39°	247.8	254.3	273.1	302.0	338.5	383.5	424.5	441.7	455.1	451.1	430.2
39.5°	242.4	248.7	267.2	295.3	330.7	374.2	413.5	429.6	442.1	438.3	418.8
40°	236.9	243.1	260.9	288.6	322.7	364.8	402.6	417.2	429.3	425.7	407.3
40.5°	231.4	237.5	255.0	281.7	314.9	355.6	391.4	405.4	416.3	413.1	395.7
41°	226.0	232.0	249.0	275.0	307.0	346.3	380.6	393.1	403.9	400.7	384.3
41.5°	220.5	226.6	243.2	268.4	299.4	336.9	369.8	381.0	391.1	388.3	372.9
42°	215.1	221.1	237.3	261.8	291.5	327.7	359.2	369.4	378.9	375.9	361.7
42.5°	209.8	215.7	231.4	255.4	283.7	318.4	348.7	358.0	366.8	363.9	350.7
43°	204.4	210.3	225.8	248.8	276.1	309.5	338.1	346.8	355.0	352.4	339.7
43.5°	199.1	204.9	220.1	242.4	268.3	300.5	327.9	335.8	343.4	340.7	328.8



TEST NUMBER: P775852

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	183.1	189.1	203.2	223.3	245.8	274.3	298.6	304.7	311.1	308.7	298.3
45.5°	178.0	183.7	197.8	217.2	238.6	266.0	289.2	295.0	301.0	298.4	288.5
46°	172.9	178.6	192.3	211.2	231.4	257.9	280.2	285.6	291.4	288.9	279.0
46.5°	167.9	173.6	187.1	205.2	224.5	249.8	271.4	276.4	282.1	279.5	269.8
47°	162.8	168.4	181.6	199.0	217.5	241.8	262.8	267.9	273.3	270.6	261.2
47.5°	157.9	163.7	176.3	193.4	210.8	234.2	254.5	259.6	265.0	262.1	252.7
48°	153.0	158.8	171.1	187.5	204.4	227.1	246.5	251.6	256.9	254.1	244.5
48.5°	148.2	154.0	166.0	181.8	198.2	219.8	239.0	244.0	249.0	246.1	236.5
49°	143.4	149.5	161.0	176.2	191.9	212.7	231.4	236.7	241.9	238.9	229.1
49.5°	139.0	144.9	155.9	170.8	185.6	206.1	224.4	229.6	234.7	231.4	221.7
50°	134.4	140.4	151.0	165.3	179.7	199.6	217.4	222.8	227.9	224.7	214.7
50.5°	129.9	136.1	146.2	159.9	174.0	193.2	210.6	216.2	221.3	218.0	208.0
51°	125.7	131.7	141.5	154.8	168.4	187.0	204.2	210.0	215.0	211.5	201.6
51.5°	121.6	127.5	136.8	149.8	163.1	181.1	198.1	203.9	208.9	205.5	195.4
52°	117.6	123.3	132.2	144.9	157.8	175.3	192.0	198.2	203.0	199.5	189.4
52.5°	113.7	119.3	127.8	140.1	152.7	169.9	186.2	192.4	197.4	193.7	183.5
53°	110.2	115.4	123.5	135.3	147.7	164.4	180.5	187.0	192.0	188.2	177.9
53.5°	106.8	111.6	119.2	130.7	143.0	159.1	175.1	181.7	186.7	182.8	172.4
54°	103.7	107.8	115.1	126.3	138.3	153.9	169.8	176.5	181.6	177.7	167.3
54.5°	100.9	104.3	111.0	122.1	133.8	149.2	164.6	171.5	176.5	172.6	162.2
55°	98.3	101.0	107.2	117.9	129.4	144.3	159.7	166.7	171.5	167.7	157.3
55.5°	95.9	97.7	103.5	114.0	125.1	139.6	155.0	161.9	166.8	162.9	152.5
56°	93.8	94.7	99.9	109.9	120.9	135.2	150.2	157.4	162.0	158.4	147.8
56.5°	92.1	91.8	96.4	106.2	116.9	130.7	145.6	152.8	157.4	153.6	143.3
57°	90.1	89.1	93.0	102.5	112.8	126.4	141.2	148.3	152.8	149.2	138.9
57.5°	87.8	86.6	89.8	98.8	109.0	122.2	136.8	144.1	148.3	144.9	134.7
58°	85.6	84.5	86.7	95.3	105.2	118.3	132.6	139.7	143.9	140.7	130.5
58.5°	83.3	82.5	83.7	92.0	101.6	114.4	128.6	135.5	139.4	136.3	126.3
59°	81.0	80.4	80.8	88.7	98.1	110.5	124.4	131.4	135.2	132.1	122.3
59.5°	78.6	78.2	78.1	85.5	94.7	106.8	120.5	127.2	130.9	127.9	118.4
60°	76.3	76.1	75.4	82.4	91.3	103.2	116.6	123.3	126.9	124.0	114.6
60.5°	74.1	74.0	72.9	79.4	88.2	99.8	112.7	119.3	122.8	120.0	110.8
61°	71.9	71.8	70.4	76.3	85.0	96.2	109.0	115.5	118.8	116.1	107.1
61.5°	69.7	69.7	68.1	73.5	81.8	92.8	105.4	111.7	114.9	112.4	103.6
62°	67.6	67.6	65.9	70.8	78.7	89.7	101.9	107.9	111.0	108.8	100.1
62.5°	65.5	65.6	63.7	68.1	75.9	86.5	98.4	104.2	107.3	104.8	96.7
63°	63.5	63.6	61.6	65.5	73.0	83.4	95.0	100.7	103.6	101.3	93.3
63.5°	61.4	61.6	59.7	63.0	70.2	80.3	91.7	97.3	100.0	97.8	90.1
64°	59.6	59.7	57.9	60.6	67.5	77.2	88.5	93.8	96.4	94.4	86.9
64.5°	57.6	57.8	56.1	58.3	64.8	74.3	85.3	90.5	93.0	91.1	83.8
65°	55.7	56.0	54.5	56.0	62.4	71.5	82.0	87.3	89.7	87.8	80.6
65.5°	54.0	54.2	52.8	53.9	59.9	68.7	78.9	84.1	86.4	84.6	77.4
66°	52.1	52.4	51.2	51.8	57.4	65.9	76.0	80.9	83.2	81.4	74.5



TEST NUMBER: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	46.9	47.3	46.3	45.9	50.6	58.2	67.4	71.6	73.3	72.0	65.9
68°	45.4	45.7	44.9	44.1	48.3	55.7	64.6	68.6	70.2	69.0	63.1
68.5°	43.7	44.0	43.3	42.4	46.2	53.3	61.8	65.8	67.3	66.2	60.5
69°	42.2	42.5	41.7	40.7	44.2	51.0	59.3	62.9	64.3	63.3	57.8
69.5°	40.5	40.9	40.3	39.1	42.3	48.8	56.7	60.2	61.5	60.5	55.3
70°	39.1	39.4	38.8	37.4	40.3	46.6	54.2	57.5	58.6	57.8	52.8
70.5°	37.5	37.9	37.3	35.9	38.5	44.4	51.7	54.9	55.9	55.3	50.4
71°	36.0	36.5	35.9	34.6	36.7	42.4	49.4	52.3	53.2	52.6	48.0
71.5°	34.7	35.1	34.7	33.3	35.0	40.3	47.0	49.9	50.7	50.1	45.7
72°	33.4	33.8	33.4	31.9	33.3	38.3	44.8	47.3	48.0	47.7	43.4
72.5°	31.9	32.3	32.1	30.5	31.6	36.5	42.5	45.1	45.5	45.2	41.1
73°	30.6	31.0	30.8	29.2	30.0	34.6	40.3	42.7	43.0	42.9	39.0
73.5°	29.2	29.6	29.4	28.0	28.5	32.7	38.1	40.4	40.6	40.6	37.0
74°	28.0	28.3	28.2	26.8	27.0	31.0	36.2	38.2	38.3	38.4	34.9
74.5°	26.6	27.0	26.9	25.6	25.6	29.3	34.1	36.2	35.9	36.3	32.8
75°	25.4	25.8	25.8	24.4	24.2	27.7	32.1	34.0	33.8	34.1	31.0
75.5°	24.1	24.6	24.6	23.4	23.0	26.1	30.2	32.0	31.6	32.1	29.1
76°	23.0	23.3	23.4	22.3	21.7	24.6	28.4	30.0	29.4	30.1	27.2
76.5°	21.8	22.2	22.3	21.2	20.5	23.0	26.6	28.1	27.3	28.2	25.5
77°	20.6	20.9	21.1	20.2	19.3	21.7	25.0	26.2	25.4	26.3	23.8
77.5°	19.5	19.8	20.0	19.2	18.1	20.2	23.2	24.4	23.4	24.6	22.2
78°	18.3	18.8	19.0	18.1	17.1	19.0	21.7	22.7	21.5	22.8	20.5
78.5°	17.3	17.6	17.8	17.2	16.0	17.6	20.1	21.0	19.7	21.0	19.1
79°	16.2	16.6	16.8	16.2	15.0	16.4	18.5	19.4	17.9	19.5	17.5
79.5°	15.1	15.5	15.7	15.2	14.0	15.2	17.1	17.8	16.3	17.8	16.2
80°	14.1	14.4	14.7	14.3	13.1	14.1	15.6	16.3	14.6	16.4	14.7
80.5°	13.2	13.4	13.8	13.4	12.1	12.9	14.4	14.7	13.1	14.8	13.4
81°	12.1	12.4	12.8	12.5	11.2	11.9	13.1	13.3	11.5	13.4	12.1
81.5°	11.2	11.5	11.9	11.6	10.4	10.9	11.8	11.8	10.2	12.0	10.9
82°	10.3	10.5	11.0	10.8	9.5	9.8	10.7	10.6	8.8	10.8	9.8
82.5°	9.3	9.5	10.0	9.8	8.7	9.0	9.6	9.3	7.6	9.5	8.8
83°	8.4	8.7	9.2	9.0	8.0	8.2	8.6	8.1	6.2	8.3	7.7
83.5°	7.5	7.8	8.3	8.3	7.3	7.3	7.6	6.8	4.9	7.0	6.6
84°	6.6	6.8	7.5	7.5	6.4	6.4	6.5	5.6	3.8	5.8	5.6
84.5°	5.8	6.0	6.6	6.6	5.7	5.6	5.5	4.5	2.9	4.6	4.8
85°	5.0	5.2	5.8	5.9	5.0	4.9	4.7	3.5	2.2	3.5	3.9
85.5°	4.1	4.2	5.1	5.1	4.2	4.1	3.9	2.8	1.7	2.8	3.2
86°	3.5	3.7	4.4	4.4	3.6	3.4	3.2	2.1	1.3	2.1	2.5
86.5°	2.9	3.1	3.6	3.7	3.0	2.8	2.5	1.5	1.0	1.5	1.9
87°	2.3	2.5	3.0	3.0	2.4	2.2	1.9	0.9	0.7	0.9	1.3
87.5°	1.7	1.9	2.4	2.4	1.8	1.6	1.3	0.5	0.5	0.5	0.8
88°	1.1	1.3	1.8	1.7	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: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	665.2	665.2	665.2	665.2	665.2	665.2
0.5°	666.2	664.7	662.8	661.0	663.1	663.0
1°	667.4	664.7	661.4	658.6	659.9	659.5
1.5°	668.6	664.7	660.0	656.0	656.6	655.8
2°	669.7	664.4	658.4	653.2	653.1	652.0
2.5°	670.7	664.1	656.7	650.3	649.6	648.2
3°	671.5	663.6	654.9	647.5	646.0	644.2
3.5°	672.1	663.0	652.9	644.5	642.4	640.2
4°	672.7	662.4	651.0	641.4	638.5	636.1
4.5°	673.1	661.5	648.8	638.1	634.6	631.8
5°	673.3	660.6	646.6	634.7	630.7	627.5
5.5°	673.6	659.6	644.1	631.3	626.5	623.1
6°	673.7	658.3	641.7	627.8	622.4	618.6
6.5°	673.6	657.0	639.2	624.0	618.1	614.1
7°	673.3	655.6	636.4	620.4	613.7	609.3
7.5°	673.0	654.0	633.6	616.4	609.3	604.8
8°	672.6	652.3	630.7	612.5	604.8	599.9
8.5°	672.1	650.6	627.6	608.4	600.2	595.0
9°	671.4	648.6	624.3	604.4	595.4	590.0
9.5°	670.5	646.5	621.0	600.0	590.7	585.1
10°	669.6	644.4	617.7	595.9	585.9	580.0
10.5°	668.6	642.2	614.3	591.4	581.0	574.8
11°	667.3	639.7	610.8	587.1	576.1	569.6
11.5°	666.1	637.2	607.0	582.4	571.0	564.5
12°	664.5	634.6	603.3	577.8	565.9	559.2
12.5°	663.1	631.9	599.5	573.2	560.7	553.7
13°	661.3	629.1	595.7	568.4	555.6	548.2
13.5°	659.6	626.2	591.6	563.6	550.4	542.9
14°	657.6	623.2	587.5	558.7	545.0	537.4
14.5°	655.6	620.1	583.2	553.7	539.7	531.8
15°	653.5	616.8	579.1	548.8	534.2	526.3
15.5°	651.2	613.5	574.6	543.5	528.7	520.5
16°	648.8	609.9	570.3	538.5	523.2	515.0
16.5°	646.3	606.5	565.8	533.2	517.6	509.3
17°	643.6	602.8	561.2	528.1	512.2	503.6
17.5°	640.9	599.1	556.6	522.9	506.6	497.8
18°	638.0	595.2	551.8	517.4	501.0	492.0
18.5°	635.1	591.3	547.1	512.1	495.3	486.2
19°	631.9	587.3	542.2	506.8	489.5	480.5
19.5°	628.7	583.2	537.3	501.4	483.8	474.4
20°	625.4	578.9	532.4	495.9	478.1	468.9
20.5°	621.9	574.7	527.4	490.3	472.4	462.8
21°	618.3	570.3	522.2	484.8	466.6	457.0



TEST NUMBER: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	606.8	556.6	506.7	468.0	449.2	439.2
23°	602.7	551.7	501.3	462.3	443.2	433.3
23.5°	598.2	546.9	495.9	456.7	437.5	427.4
24°	593.8	541.9	490.4	450.8	431.7	421.5
24.5°	589.0	536.7	484.9	445.3	425.7	415.5
25°	584.0	531.3	479.3	439.4	419.8	409.5
25.5°	579.1	526.0	473.7	433.6	414.0	403.6
26°	573.9	520.7	468.0	427.9	408.0	397.7
26.5°	568.8	515.1	462.3	422.2	402.1	391.8
27°	563.7	509.5	456.5	416.3	396.3	386.0
27.5°	558.6	504.1	450.8	410.4	390.3	380.0
28°	553.4	498.7	445.1	404.6	384.5	374.0
28.5°	548.3	493.2	439.6	399.0	378.5	368.0
29°	543.3	487.9	434.0	393.2	372.8	362.2
29.5°	538.5	482.7	428.7	387.6	366.9	356.4
30°	533.7	477.6	423.2	381.8	361.1	350.4
30.5°	528.7	472.4	417.6	376.2	355.3	344.4
31°	523.1	466.8	411.9	370.6	349.6	338.6
31.5°	517.2	461.0	406.3	365.0	343.8	332.8
32°	510.6	454.6	400.3	359.3	338.0	327.0
32.5°	503.6	447.9	394.2	353.5	332.2	321.0
33°	496.1	441.3	387.9	347.7	326.6	315.3
33.5°	488.4	434.2	381.6	341.9	320.9	309.7
34°	480.5	427.0	375.1	335.9	315.2	303.9
34.5°	472.4	419.8	368.5	329.9	309.5	298.2
35°	464.1	412.3	361.8	323.9	303.9	292.4
35.5°	455.5	404.8	355.2	317.8	298.1	286.7
36°	446.8	397.2	348.5	311.9	292.5	281.3
36.5°	437.8	389.6	341.7	305.8	286.8	275.6
37°	428.7	381.7	334.8	299.6	281.1	270.1
37.5°	419.4	374.0	328.1	293.5	275.4	264.4
38°	410.1	365.9	321.1	287.4	269.8	258.9
38.5°	400.8	358.0	314.3	281.3	264.1	253.3
39°	391.4	349.9	307.6	275.2	258.4	247.8
39.5°	381.8	342.0	300.5	269.1	252.8	242.4
40°	371.9	333.9	293.7	263.0	247.2	236.9
40.5°	362.2	325.7	286.8	257.0	241.5	231.4
41°	352.6	317.5	280.0	251.0	235.9	226.0
41.5°	342.9	309.4	273.2	244.9	230.2	220.5
42°	333.3	301.5	266.4	239.1	224.7	215.1
42.5°	323.4	293.2	259.8	233.3	219.2	209.8
43°	313.9	285.3	253.1	227.3	213.8	204.4
43.5°	304.5	277.3	246.2	221.4	208.4	199.1



TEST NUMBER: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	277.1	253.9	226.7	204.2	192.2	183.1
45.5°	268.1	246.1	220.1	198.5	187.0	178.0
46°	259.7	238.7	213.8	193.0	181.7	172.9
46.5°	251.0	231.2	207.5	187.5	176.6	167.9
47°	242.8	224.1	201.3	181.9	171.5	162.8
47.5°	234.8	216.8	195.1	176.4	166.6	157.9
48°	227.3	209.9	189.2	171.1	161.7	153.0
48.5°	219.6	203.0	183.1	165.7	156.7	148.2
49°	212.3	196.5	177.3	160.7	152.1	143.4
49.5°	205.3	190.1	171.5	155.5	147.4	139.0
50°	198.6	183.7	166.0	150.4	142.7	134.4
50.5°	191.9	177.5	160.4	145.3	138.3	129.9
51°	185.6	171.5	155.1	140.6	133.6	125.7
51.5°	179.6	165.8	149.8	135.7	129.4	121.6
52°	173.7	160.3	144.7	131.3	125.1	117.6
52.5°	167.9	154.9	139.7	126.6	120.9	113.7
53°	162.4	149.6	134.9	122.1	116.7	110.2
53.5°	157.0	144.5	130.2	117.8	112.7	106.8
54°	152.1	139.6	125.6	113.6	108.8	103.7
54.5°	147.1	135.0	121.2	109.5	105.0	100.9
55°	142.2	130.2	117.0	105.6	101.5	98.3
55.5°	137.7	125.9	112.8	101.7	98.1	95.9
56°	133.1	121.6	108.8	98.1	94.8	93.8
56.5°	128.8	117.4	104.8	94.6	91.7	92.1
57°	124.5	113.2	101.1	91.1	88.9	90.1
57.5°	120.4	109.4	97.5	87.8	86.1	87.8
58°	116.4	105.7	94.0	84.7	83.6	85.6
58.5°	112.5	101.9	90.5	81.7	81.3	83.3
59°	108.7	98.2	87.2	78.8	79.2	81.0
59.5°	105.0	94.9	84.0	75.9	77.3	78.6
60°	101.4	91.5	80.9	73.3	75.2	76.3
60.5°	97.9	88.2	77.9	70.8	73.1	74.1
61°	94.5	84.7	75.0	68.3	71.1	71.9
61.5°	91.3	81.7	72.1	65.9	69.0	69.7
62°	88.1	78.7	69.3	63.7	67.0	67.6
62.5°	84.9	75.8	66.7	61.4	65.0	65.5
63°	81.7	72.8	64.1	59.4	63.0	63.5
63.5°	78.6	70.0	61.6	57.4	61.1	61.4
64°	75.6	67.3	59.2	55.4	59.2	59.6
64.5°	72.8	64.6	56.9	53.6	57.4	57.6
65°	69.8	62.1	54.6	51.9	55.5	55.7
65.5°	67.1	59.6	52.4	50.2	53.8	54.0
66°	64.4	57.1	50.3	48.7	52.0	52.1



TEST NUMBER: P775852

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	56.8	50.2	44.4	44.0	46.8	46.9
68°	54.4	48.1	42.6	42.6	45.3	45.4
68.5°	52.0	45.9	40.8	41.1	43.6	43.7
69°	49.7	43.9	39.2	39.6	42.2	42.2
69.5°	47.4	42.0	37.5	38.2	40.6	40.5
70°	45.3	40.0	36.0	36.9	39.1	39.1
70.5°	43.1	38.1	34.6	35.5	37.6	37.5
71°	41.0	36.5	33.1	34.3	36.3	36.0
71.5°	39.1	34.8	31.7	32.9	34.8	34.7
72°	37.1	33.1	30.1	31.6	33.5	33.4
72.5°	35.2	31.5	28.9	30.2	32.1	31.9
73°	33.4	29.7	27.6	29.0	30.8	30.6
73.5°	31.6	28.3	26.3	27.8	29.4	29.2
74°	29.8	26.7	25.2	26.6	28.1	28.0
74.5°	28.2	25.3	23.9	25.4	26.8	26.6
75°	26.5	23.9	22.8	24.1	25.6	25.4
75.5°	25.0	22.6	21.8	23.0	24.3	24.1
76°	23.4	21.3	20.6	21.9	23.1	23.0
76.5°	22.0	20.1	19.6	20.8	22.0	21.8
77°	20.6	18.9	18.5	19.7	20.8	20.6
77.5°	19.3	17.7	17.6	18.6	19.6	19.5
78°	17.9	16.6	16.7	17.6	18.5	18.3
78.5°	16.7	15.5	15.6	16.6	17.4	17.3
79°	15.4	14.5	14.8	15.5	16.4	16.2
79.5°	14.3	13.5	13.9	14.6	15.3	15.1
80°	13.1	12.5	12.9	13.6	14.3	14.1
80.5°	12.0	11.6	12.1	12.6	13.3	13.2
81°	11.0	10.7	11.3	11.7	12.3	12.1
81.5°	9.9	9.8	10.4	10.8	11.3	11.2
82°	9.1	9.0	9.5	9.9	10.4	10.3
82.5°	8.2	8.2	8.7	9.0	9.4	9.3
83°	7.4	7.4	8.0	8.2	8.5	8.4
83.5°	6.4	6.6	7.1	7.4	7.7	7.5
84°	5.6	5.9	6.4	6.5	6.7	6.6
84.5°	4.8	5.2	5.7	5.8	5.9	5.8
85°	4.0	4.6	5.0	5.1	5.1	5.0
85.5°	3.3	3.8	4.2	4.4	4.2	4.1
86°	2.7	3.2	3.5	3.6	3.6	3.5
86.5°	2.1	2.6	2.9	3.0	3.1	2.9
87°	1.6	2.0	2.3	2.4	2.5	2.3
87.5°	0.9	1.5	1.7	1.7	1.9	1.7
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: P775852
CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-3500K

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°	451.0	456.5	475.4	508.2	551.4	601.3	647.4	678.5	693.9	687.4	659.7
22°	445.1	450.6	469.9	503.0	546.8	597.4	644.3	675.6	691.2	684.7	656.6



44°	193.7	199.5	214.5	235.8	260.7	291.6	317.9	325.1	332.1	329.7	318.2
44.5°	188.4	194.2	208.8	229.8	253.3	282.8	308.2	314.7	321.4	318.8	308.1



66.5°	50.3	50.7	49.5	49.7	55.0	63.2	73.1	77.7	79.9	78.2	71.6
67°	48.7	49.0	48.0	47.8	52.7	60.7	70.2	74.6	76.6	75.0	68.7



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°	614.5	565.8	517.1	479.2	460.8	451.0
22°	610.7	561.1	511.8	473.6	455.0	445.1



44°	295.1	269.3	239.7	215.7	202.8	193.7
44.5°	286.1	261.5	233.2	209.9	197.5	188.4



66.5°	61.8	54.8	48.3	47.1	50.2	50.3
67°	59.3	52.5	46.3	45.6	48.6	48.7

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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)