

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: P775853

Luminaire Tested: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775853
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-4000K
Description: 8 INCH ROUND NARROW LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

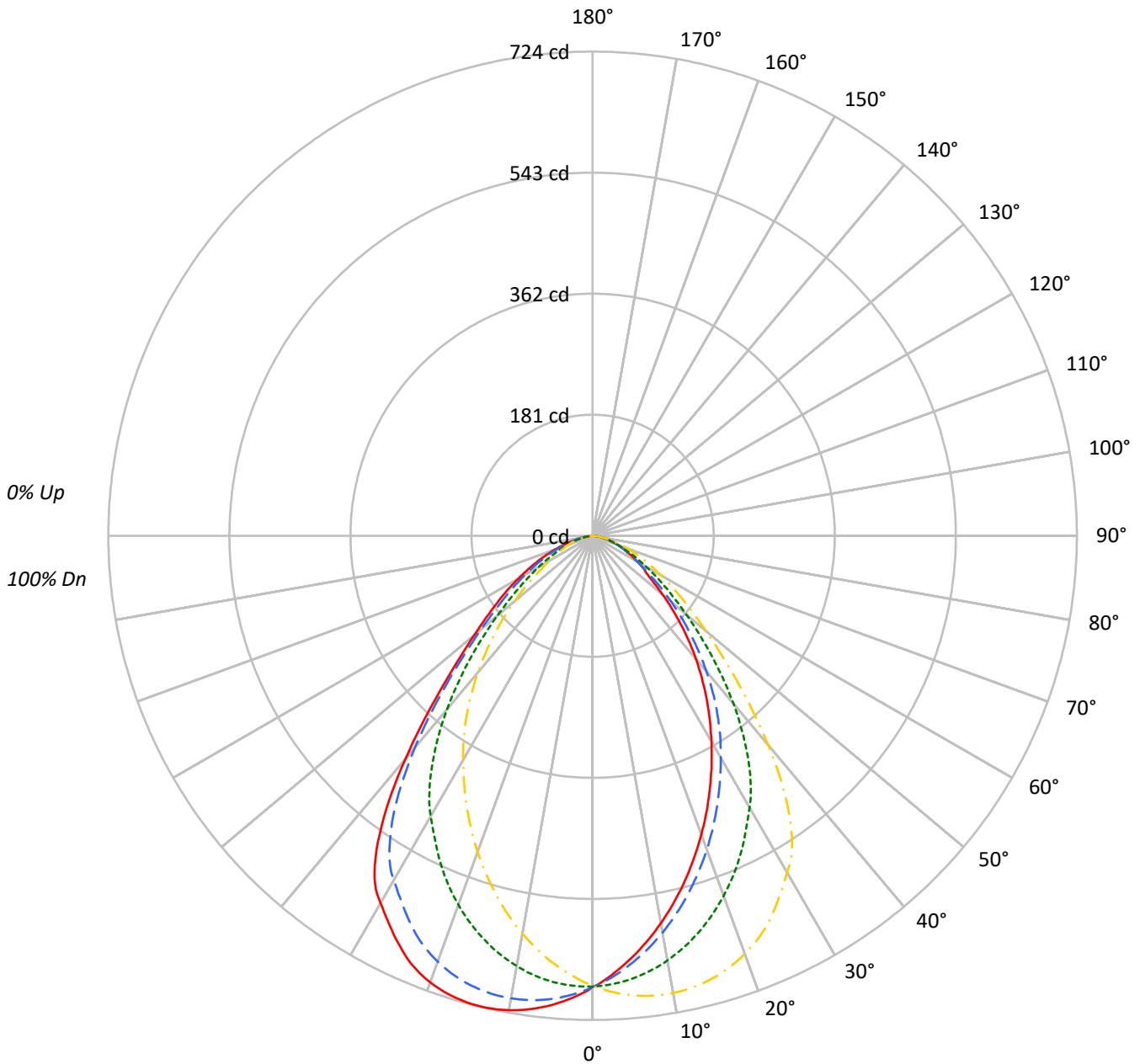
Lumens per Lamp: N/A
Luminaire Lumens: 1169.4 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.13
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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°	20593	20593	20593	20593
5°	19498	20386	21588	20530
10°	18232	19990	22333	20259
15°	16869	19391	22843	19767
20°	15446	18613	23084	19071
25°	13987	17655	22887	18150
30°	12529	16541	22354	17070
35°	11051	15087	20868	15583
40°	9573	13040	17349	13495
45°	8018	10764	13618	11118
50°	6469	8654	10976	8844
55°	5307	6984	9262	7026
60°	4726	5648	7858	5666
65°	4082	4566	6574	4544
70°	3535	3651	5311	3615
75°	3032	2902	4034	2866
80°	2514	2321	2602	2233
85°	1751	1751	771	1611

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 180°
 Vertical Angle: 45°
 Luminance: 13618 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.3	5.4
10°-20°	175.3	15.0
20°-30°	247.7	21.2
30°-40°	260.4	22.3
40°-50°	196.3	16.8
50°-60°	121.7	10.4
60°-70°	68.4	5.9
70°-80°	30.2	2.6
80°-90°	6.0	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°	486.3	41.6
0°-40°	746.7	63.9
0°-60°	1064.8	91.1
0°-90°	1169.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1169.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	674	674	674	674	674	
5°	636	665	704	670	636	59
15°	534	614	723	625	534	149
25°	415	524	679	539	415	191
35°	296	405	560	418	296	185
45°	186	249	315	258	186	143
55°	100	131	174	132	100	91
65°	56	63	91	63	56	57
75°	26	25	34	24	26	28
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°	674.5	674.5	674.5	674.5	674.5	674.5	674.5	674.5	674.5	674.5	674.5
0.5°	672.3	672.6	672.5	672.5	673.5	674.3	675.0	678.5	679.2	679.2	677.7
1°	668.7	669.2	669.8	670.8	673.1	675.2	677.1	681.4	682.4	682.3	680.0
1.5°	665.0	665.7	666.9	669.0	672.6	676.1	679.2	684.3	685.6	685.3	682.5
2°	661.1	662.0	663.9	667.0	672.0	676.8	681.1	686.9	688.7	688.1	684.6
2.5°	657.3	658.2	660.8	664.9	671.1	677.3	682.8	689.4	691.5	690.9	686.8
3°	653.3	654.4	657.5	662.8	670.2	677.7	684.5	691.7	694.4	693.5	688.6
3.5°	649.2	650.5	654.3	660.5	669.2	678.1	686.0	694.1	697.1	696.0	690.3
4°	645.0	646.4	650.8	658.2	668.0	678.3	687.4	696.2	699.6	698.4	692.0
4.5°	640.7	642.2	647.3	655.7	666.7	678.4	688.8	698.3	702.0	700.6	693.7
5°	636.2	638.1	643.6	653.1	665.2	678.3	689.8	700.2	704.4	702.8	695.1
5.5°	631.8	633.8	640.0	650.3	663.8	678.2	690.9	702.0	706.6	704.8	696.4
6°	627.3	629.3	636.1	647.4	662.1	677.7	691.8	703.7	708.6	706.7	697.6
6.5°	622.7	624.8	632.3	644.4	660.3	677.3	692.5	705.2	710.5	708.5	698.7
7°	617.9	620.3	628.2	641.4	658.5	676.8	693.2	706.6	712.4	710.1	699.6
7.5°	613.2	615.8	624.2	638.2	656.4	676.2	693.7	707.9	714.1	711.7	700.4
8°	608.3	610.9	620.0	635.0	654.3	675.2	694.1	709.0	715.7	713.0	701.1
8.5°	603.4	606.2	615.8	631.6	652.1	674.4	694.3	710.0	717.0	714.3	701.6
9°	598.2	601.3	611.2	628.2	649.7	673.3	694.4	710.9	718.3	715.3	702.1
9.5°	593.3	596.3	606.9	624.6	647.3	672.2	694.4	711.7	719.4	716.3	702.3
10°	588.1	591.3	602.4	620.8	644.8	670.8	694.3	712.2	720.4	717.1	702.5
10.5°	582.9	586.2	597.8	617.2	642.0	669.3	694.1	712.7	721.2	717.9	702.5
11°	577.6	581.1	593.1	613.3	639.2	667.9	693.7	713.0	722.0	718.4	702.4
11.5°	572.4	576.0	588.5	609.4	636.4	666.2	693.3	713.2	722.6	718.9	702.1
12°	567.0	570.6	583.6	605.3	633.4	664.5	692.7	713.2	723.0	719.1	701.8
12.5°	561.5	565.3	578.7	601.3	630.3	662.6	691.8	713.2	723.3	719.3	701.3
13°	555.9	559.9	573.7	597.0	627.1	660.6	691.0	713.0	723.5	719.3	700.6
13.5°	550.5	554.4	568.8	592.9	624.0	658.5	689.9	712.7	723.5	719.2	699.9
14°	545.0	549.1	563.8	588.5	620.4	656.3	688.8	712.2	723.4	718.9	699.0
14.5°	539.3	543.5	558.6	584.0	616.9	653.9	687.5	711.7	723.1	718.5	697.9
15°	533.7	538.0	553.4	579.5	613.5	651.5	686.1	710.8	722.7	718.0	696.8
15.5°	527.8	532.4	548.1	574.9	609.8	648.9	684.6	710.0	722.2	717.3	695.5
16°	522.2	526.7	542.9	570.3	606.0	646.2	683.0	708.9	721.4	716.5	694.0
16.5°	516.4	521.0	537.6	565.7	602.1	643.4	681.2	707.8	720.7	715.6	692.4
17°	510.6	515.4	532.4	560.8	598.2	640.6	679.3	706.5	719.6	714.4	690.8
17.5°	504.7	509.7	526.8	556.1	594.2	637.6	677.3	705.0	718.5	713.1	688.9
18°	498.8	503.9	521.4	551.1	590.1	634.5	675.2	703.5	717.2	711.7	687.0
18.5°	493.0	498.0	515.9	546.2	585.8	631.3	672.9	701.7	715.8	710.1	684.9
19°	487.2	492.2	510.4	541.2	581.6	627.9	670.5	699.8	714.2	708.4	682.6
19.5°	481.1	486.3	504.8	536.1	577.3	624.6	668.0	697.8	712.5	706.5	680.2
20°	475.4	480.6	499.2	531.1	572.9	621.0	665.3	695.6	710.5	704.3	677.6
20.5°	469.3	474.8	493.6	525.8	568.3	617.4	662.6	693.3	708.4	702.1	675.0
21°	463.4	468.9	487.9	520.6	563.8	613.7	659.6	690.8	706.1	699.8	672.1



TEST NUMBER: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	445.4	451.1	470.8	504.7	549.6	601.7	650.0	682.0	697.9	691.3	662.4
23°	439.4	445.2	465.0	499.3	544.6	597.5	646.4	678.7	694.8	688.0	658.8
23.5°	433.4	439.1	459.1	493.8	539.6	593.2	642.7	675.2	691.3	684.6	655.0
24°	427.4	433.2	453.6	488.3	534.6	588.7	638.8	671.2	687.6	680.7	651.0
24.5°	421.3	427.2	447.6	482.8	529.4	583.9	634.6	667.1	683.6	676.7	646.6
25°	415.2	421.2	441.8	477.1	524.1	579.1	630.2	662.8	679.4	672.4	642.1
25.5°	409.2	415.1	435.9	471.4	518.5	574.0	625.5	658.5	675.1	668.2	637.5
26°	403.3	409.4	430.0	465.8	513.1	568.8	620.8	653.8	670.7	663.5	632.7
26.5°	397.3	403.4	424.2	460.1	507.5	563.5	615.9	649.1	666.2	658.9	627.9
27°	391.4	397.4	418.4	454.3	501.8	558.3	611.0	644.4	661.6	654.4	623.0
27.5°	385.3	391.4	412.5	448.4	496.3	553.1	606.1	639.9	656.9	649.7	618.2
28°	379.2	385.5	406.5	442.7	490.8	547.8	601.3	635.1	652.2	645.0	613.3
28.5°	373.1	379.4	400.6	436.9	485.3	542.4	596.1	630.5	647.7	640.4	608.6
29°	367.2	373.5	395.0	431.2	479.8	537.3	591.3	625.7	643.0	635.7	603.7
29.5°	361.3	367.5	389.1	425.5	474.5	532.1	586.4	621.2	638.5	631.1	599.0
30°	355.4	361.7	383.2	420.1	469.2	527.1	581.6	616.8	634.1	626.8	594.5
30.5°	349.3	355.8	377.4	414.4	463.8	522.1	577.0	612.6	630.0	622.7	590.1
31°	343.4	349.9	371.9	408.9	458.4	517.1	572.6	608.0	625.5	618.0	585.1
31.5°	337.5	344.0	366.2	403.2	452.5	511.5	567.3	602.3	620.2	612.5	579.3
32°	331.6	338.2	360.4	397.5	446.4	505.5	561.5	595.8	613.9	606.1	572.6
32.5°	325.5	332.3	354.7	391.4	439.9	498.6	554.8	588.9	606.7	598.9	565.4
33°	319.8	326.6	348.8	385.5	433.3	491.7	547.7	580.8	598.6	590.9	557.8
33.5°	314.1	320.9	343.2	379.2	426.3	484.1	539.8	572.3	589.9	582.3	549.4
34°	308.2	315.1	337.2	372.7	419.2	476.5	531.6	562.8	580.5	573.1	540.8
34.5°	302.4	309.5	331.2	366.3	412.1	468.5	522.8	553.2	570.5	563.3	531.7
35°	296.5	303.7	325.2	359.9	404.8	460.1	513.8	542.5	559.9	552.8	522.5
35.5°	290.8	297.9	319.2	353.3	397.3	451.8	504.1	531.7	548.6	542.3	512.7
36°	285.2	292.1	313.2	346.6	389.8	443.3	494.4	520.4	537.0	531.1	502.4
36.5°	279.4	286.5	307.3	339.9	382.0	434.5	484.6	509.0	525.0	519.4	491.9
37°	273.8	280.8	301.3	333.4	374.4	425.4	473.8	496.9	512.7	507.5	481.3
37.5°	268.1	275.0	295.1	326.7	366.6	416.5	463.3	484.7	500.2	495.1	470.3
38°	262.5	269.3	289.1	319.9	358.6	407.3	452.3	472.5	487.5	482.7	459.1
38.5°	256.8	263.4	283.0	312.9	350.8	398.2	441.4	460.7	474.7	470.2	447.7
39°	251.3	257.9	276.9	306.2	343.3	388.9	430.5	447.9	461.5	457.5	436.2
39.5°	245.8	252.2	270.9	299.5	335.3	379.4	419.3	435.6	448.3	444.4	424.7
40°	240.2	246.5	264.6	292.6	327.2	370.0	408.2	423.0	435.3	431.6	413.0
40.5°	234.7	240.9	258.6	285.6	319.3	360.6	396.9	411.0	422.2	418.9	401.3
41°	229.2	235.3	252.5	278.9	311.3	351.2	385.9	398.6	409.6	406.3	389.7
41.5°	223.6	229.7	246.6	272.2	303.6	341.6	375.0	386.3	396.5	393.7	378.2
42°	218.1	224.2	240.7	265.4	295.6	332.3	364.2	374.6	384.2	381.2	366.8
42.5°	212.7	218.7	234.7	258.9	287.7	322.9	353.6	363.0	372.0	369.0	355.6
43°	207.2	213.2	229.0	252.3	279.9	313.9	342.9	351.7	360.0	357.4	344.4
43.5°	201.9	207.8	223.2	245.8	272.1	304.7	332.5	340.5	348.2	345.5	333.4



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CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	185.7	191.7	206.1	226.5	249.3	278.2	302.7	308.9	315.4	313.0	302.5
45.5°	180.5	186.2	200.5	220.3	241.9	269.8	293.3	299.2	305.3	302.6	292.5
46°	175.3	181.1	195.0	214.2	234.7	261.6	284.1	289.6	295.5	293.0	282.9
46.5°	170.3	176.1	189.7	208.1	227.6	253.3	275.2	280.3	286.0	283.4	273.5
47°	165.1	170.8	184.1	201.8	220.6	245.2	266.5	271.6	277.1	274.4	264.8
47.5°	160.1	166.0	178.8	196.1	213.8	237.5	258.1	263.2	268.7	265.8	256.2
48°	155.1	161.0	173.5	190.1	207.2	230.3	250.0	255.1	260.5	257.7	247.9
48.5°	150.3	156.2	168.3	184.4	200.9	222.9	242.3	247.4	252.5	249.6	239.8
49°	145.4	151.6	163.2	178.7	194.5	215.7	234.7	240.0	245.3	242.2	232.4
49.5°	141.0	147.0	158.1	173.2	188.2	209.0	227.5	232.8	238.0	234.7	224.8
50°	136.2	142.3	153.2	167.6	182.2	202.4	220.5	225.9	231.1	227.8	217.8
50.5°	131.7	138.0	148.2	162.2	176.5	195.9	213.6	219.2	224.4	221.0	210.9
51°	127.4	133.5	143.5	156.9	170.8	189.6	207.0	212.9	218.0	214.5	204.4
51.5°	123.3	129.3	138.8	151.9	165.3	183.6	200.8	206.7	211.9	208.4	198.1
52°	119.2	125.0	134.0	147.0	160.0	177.7	194.6	200.9	205.9	202.3	192.0
52.5°	115.3	121.0	129.6	142.0	154.8	172.3	188.8	195.1	200.2	196.4	186.0
53°	111.8	117.0	125.2	137.2	149.8	166.7	183.0	189.6	194.6	190.9	180.4
53.5°	108.3	113.1	120.9	132.6	145.0	161.3	177.5	184.2	189.3	185.4	174.8
54°	105.1	109.3	116.7	128.0	140.2	156.1	172.2	179.0	184.1	180.1	169.6
54.5°	102.3	105.8	112.6	123.8	135.7	151.3	166.9	174.0	179.0	175.0	164.5
55°	99.7	102.4	108.7	119.5	131.2	146.3	162.0	169.0	174.0	170.1	159.5
55.5°	97.3	99.1	104.9	115.5	126.9	141.6	157.1	164.2	169.1	165.2	154.6
56°	95.1	96.0	101.3	111.5	122.6	137.1	152.3	159.6	164.3	160.6	149.9
56.5°	93.4	93.1	97.8	107.7	118.5	132.6	147.7	154.9	159.6	155.8	145.3
57°	91.4	90.3	94.3	103.9	114.4	128.2	143.2	150.4	154.9	151.3	140.9
57.5°	89.1	87.8	91.1	100.2	110.5	124.0	138.8	146.1	150.4	147.0	136.6
58°	86.8	85.7	87.9	96.6	106.7	120.0	134.5	141.7	145.9	142.6	132.4
58.5°	84.5	83.6	84.9	93.3	103.0	116.0	130.4	137.4	141.4	138.2	128.0
59°	82.1	81.5	81.9	89.9	99.5	112.1	126.2	133.2	137.1	133.9	124.1
59.5°	79.7	79.3	79.2	86.7	96.0	108.3	122.2	129.0	132.8	129.7	120.1
60°	77.4	77.2	76.5	83.5	92.5	104.6	118.3	125.0	128.7	125.7	116.2
60.5°	75.1	75.0	74.0	80.5	89.4	101.2	114.3	121.0	124.5	121.6	112.4
61°	72.9	72.8	71.4	77.4	86.2	97.6	110.5	117.1	120.5	117.8	108.6
61.5°	70.7	70.7	69.0	74.6	83.0	94.1	106.8	113.2	116.5	114.0	105.0
62°	68.6	68.6	66.8	71.7	79.8	91.0	103.4	109.5	112.6	110.3	101.5
62.5°	66.4	66.5	64.6	69.0	77.0	87.7	99.8	105.7	108.8	106.3	98.0
63°	64.4	64.5	62.5	66.4	74.1	84.6	96.3	102.1	105.0	102.7	94.6
63.5°	62.3	62.5	60.5	63.9	71.2	81.4	93.0	98.6	101.4	99.2	91.4
64°	60.4	60.5	58.7	61.5	68.5	78.3	89.7	95.1	97.8	95.7	88.1
64.5°	58.4	58.6	56.9	59.1	65.8	75.3	86.5	91.8	94.3	92.3	85.0
65°	56.5	56.8	55.3	56.8	63.2	72.5	83.2	88.6	91.0	89.1	81.7
65.5°	54.7	54.9	53.6	54.6	60.7	69.6	80.0	85.3	87.6	85.8	78.5
66°	52.8	53.2	51.9	52.5	58.2	66.8	77.1	82.0	84.3	82.6	75.5



TEST NUMBER: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	47.6	48.0	47.0	46.5	51.3	59.0	68.4	72.6	74.4	73.0	66.8
68°	46.0	46.3	45.5	44.7	49.0	56.5	65.5	69.5	71.2	70.0	64.0
68.5°	44.3	44.6	43.9	43.0	46.8	54.1	62.7	66.7	68.3	67.1	61.3
69°	42.8	43.1	42.3	41.3	44.9	51.7	60.1	63.8	65.2	64.2	58.6
69.5°	41.1	41.5	40.9	39.6	42.9	49.5	57.5	61.0	62.4	61.3	56.1
70°	39.6	39.9	39.4	37.9	40.9	47.3	54.9	58.3	59.5	58.6	53.6
70.5°	38.0	38.4	37.8	36.4	39.1	45.1	52.4	55.7	56.7	56.1	51.2
71°	36.6	37.0	36.4	35.1	37.2	43.0	50.1	53.0	54.0	53.4	48.6
71.5°	35.2	35.6	35.2	33.7	35.5	40.9	47.7	50.6	51.4	50.8	46.3
72°	33.8	34.2	33.8	32.4	33.7	38.9	45.4	48.0	48.6	48.3	44.0
72.5°	32.4	32.8	32.6	30.9	32.0	37.0	43.1	45.7	46.1	45.8	41.7
73°	31.0	31.4	31.2	29.6	30.5	35.1	40.9	43.3	43.6	43.5	39.5
73.5°	29.6	30.0	29.8	28.4	28.9	33.2	38.7	41.0	41.2	41.2	37.5
74°	28.4	28.7	28.6	27.2	27.4	31.4	36.7	38.8	38.9	39.0	35.4
74.5°	27.0	27.4	27.3	25.9	25.9	29.7	34.6	36.7	36.4	36.8	33.3
75°	25.7	26.2	26.2	24.8	24.6	28.0	32.6	34.5	34.2	34.6	31.4
75.5°	24.5	24.9	24.9	23.7	23.3	26.5	30.7	32.5	32.0	32.6	29.5
76°	23.3	23.6	23.7	22.6	22.0	24.9	28.8	30.5	29.8	30.6	27.6
76.5°	22.1	22.5	22.6	21.5	20.8	23.3	27.0	28.5	27.7	28.6	25.8
77°	20.9	21.2	21.4	20.5	19.5	22.0	25.3	26.6	25.7	26.7	24.2
77.5°	19.7	20.1	20.3	19.4	18.4	20.5	23.5	24.8	23.7	24.9	22.5
78°	18.6	19.0	19.2	18.4	17.3	19.2	22.0	23.0	21.8	23.1	20.8
78.5°	17.5	17.9	18.1	17.4	16.2	17.9	20.4	21.3	20.0	21.3	19.3
79°	16.4	16.8	17.0	16.4	15.2	16.6	18.8	19.6	18.2	19.7	17.8
79.5°	15.3	15.8	16.0	15.4	14.2	15.4	17.3	18.1	16.5	18.1	16.4
80°	14.3	14.6	14.9	14.5	13.2	14.3	15.9	16.5	14.8	16.6	14.9
80.5°	13.3	13.6	14.0	13.6	12.3	13.1	14.6	14.9	13.2	15.0	13.6
81°	12.3	12.6	13.0	12.7	11.3	12.1	13.2	13.4	11.7	13.6	12.3
81.5°	11.3	11.7	12.1	11.8	10.5	11.0	12.0	12.0	10.3	12.2	11.0
82°	10.4	10.6	11.1	10.9	9.7	10.0	10.8	10.7	8.9	10.9	10.0
82.5°	9.5	9.7	10.2	10.0	8.8	9.1	9.8	9.5	7.7	9.7	8.9
83°	8.5	8.8	9.3	9.1	8.1	8.3	8.7	8.2	6.3	8.4	7.8
83.5°	7.6	7.9	8.4	8.4	7.4	7.4	7.7	6.9	4.9	7.1	6.7
84°	6.7	6.9	7.6	7.6	6.5	6.5	6.6	5.7	3.9	5.9	5.7
84.5°	5.9	6.1	6.7	6.7	5.8	5.7	5.6	4.5	2.9	4.6	4.8
85°	5.0	5.3	5.9	6.0	5.0	4.9	4.7	3.6	2.2	3.6	4.0
85.5°	4.2	4.3	5.1	5.1	4.3	4.2	4.0	2.8	1.7	2.8	3.3
86°	3.6	3.8	4.4	4.4	3.7	3.5	3.3	2.1	1.4	2.1	2.5
86.5°	2.9	3.2	3.7	3.8	3.0	2.8	2.5	1.5	1.1	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	1.4
87.5°	1.7	1.9	2.4	2.4	1.8	1.6	1.4	0.5	0.5	0.5	0.8
88°	1.2	1.4	1.8	1.7	1.3	1.1	0.8	0.2	0.2	0.2	0.4
88.5°	0.7	0.8	1.1	1.1	0.6	0.5	0.4	0.1	0.1	0.1	0.1



TEST NUMBER: P775853
CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

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: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	674.5	674.5	674.5	674.5	674.5	674.5
0.5°	675.5	674.1	672.1	670.3	672.4	672.3
1°	676.8	674.1	670.7	667.9	669.1	668.7
1.5°	677.9	674.1	669.2	665.2	665.8	665.0
2°	679.1	673.7	667.7	662.4	662.3	661.1
2.5°	680.0	673.4	665.9	659.5	658.7	657.3
3°	680.9	672.9	664.1	656.6	655.0	653.3
3.5°	681.5	672.3	662.1	653.6	651.4	649.2
4°	682.1	671.6	660.1	650.4	647.5	645.0
4.5°	682.6	670.8	657.9	647.1	643.5	640.7
5°	682.8	669.9	655.7	643.6	639.5	636.2
5.5°	683.0	668.8	653.2	640.1	635.3	631.8
6°	683.1	667.5	650.7	636.6	631.1	627.3
6.5°	683.0	666.2	648.1	632.8	626.8	622.7
7°	682.8	664.8	645.3	629.1	622.3	617.9
7.5°	682.5	663.1	642.4	625.0	617.9	613.2
8°	682.0	661.5	639.5	621.1	613.2	608.3
8.5°	681.5	659.7	636.4	616.9	608.6	603.4
9°	680.8	657.7	633.1	612.8	603.8	598.2
9.5°	679.9	655.6	629.7	608.4	599.0	593.3
10°	679.0	653.5	626.4	604.2	594.1	588.1
10.5°	677.9	651.2	622.9	599.7	589.2	582.9
11°	676.7	648.6	619.3	595.3	584.1	577.6
11.5°	675.4	646.1	615.6	590.6	579.0	572.4
12°	673.9	643.5	611.8	585.9	573.9	567.0
12.5°	672.4	640.8	607.9	581.2	568.6	561.5
13°	670.6	637.9	604.0	576.4	563.3	555.9
13.5°	668.8	635.0	599.9	571.5	558.1	550.5
14°	666.8	631.9	595.7	566.5	552.6	545.0
14.5°	664.8	628.8	591.4	561.5	547.3	539.3
15°	662.6	625.4	587.2	556.5	541.7	533.7
15.5°	660.3	622.1	582.7	551.2	536.1	527.8
16°	657.9	618.5	578.3	546.0	530.6	522.2
16.5°	655.4	615.0	573.7	540.7	524.9	516.4
17°	652.6	611.2	569.0	535.5	519.3	510.6
17.5°	649.9	607.5	564.4	530.3	513.7	504.7
18°	647.0	603.6	559.6	524.7	508.0	498.8
18.5°	644.0	599.6	554.7	519.2	502.2	493.0
19°	640.8	595.5	549.8	513.9	496.3	487.2
19.5°	637.5	591.4	544.9	508.4	490.6	481.1
20°	634.1	587.0	539.8	502.8	484.8	475.4
20.5°	630.6	582.8	534.8	497.2	479.0	469.3
21°	627.0	578.3	529.5	491.6	473.1	463.4

TEST NUMBER: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	615.3	564.4	513.8	474.6	455.5	445.4
23°	611.1	559.5	508.3	468.8	449.4	439.4
23.5°	606.6	554.5	502.8	463.1	443.6	433.4
24°	602.1	549.5	497.3	457.1	437.7	427.4
24.5°	597.3	544.2	491.7	451.6	431.6	421.3
25°	592.2	538.8	486.0	445.6	425.6	415.2
25.5°	587.2	533.4	480.4	439.7	419.8	409.2
26°	581.9	527.9	474.6	433.9	413.8	403.3
26.5°	576.8	522.3	468.8	428.2	407.8	397.3
27°	571.6	516.6	462.9	422.2	401.9	391.4
27.5°	566.4	511.1	457.1	416.2	395.8	385.3
28°	561.1	505.7	451.4	410.3	389.9	379.2
28.5°	556.0	500.1	445.8	404.6	383.8	373.1
29°	551.0	494.8	440.1	398.7	378.0	367.2
29.5°	546.0	489.5	434.7	393.1	372.1	361.3
30°	541.2	484.2	429.1	387.2	366.2	355.4
30.5°	536.1	479.0	423.4	381.5	360.3	349.3
31°	530.5	473.3	417.7	375.8	354.5	343.4
31.5°	524.5	467.4	412.0	370.1	348.6	337.5
32°	517.8	460.9	405.9	364.3	342.8	331.6
32.5°	510.6	454.2	399.7	358.4	336.9	325.5
33°	503.1	447.5	393.4	352.5	331.2	319.8
33.5°	495.3	440.2	387.0	346.6	325.4	314.1
34°	487.2	433.0	380.4	340.7	319.6	308.2
34.5°	479.0	425.6	373.6	334.6	313.9	302.4
35°	470.6	418.1	366.9	328.5	308.2	296.5
35.5°	461.9	410.5	360.2	322.3	302.3	290.8
36°	453.1	402.7	353.4	316.3	296.6	285.2
36.5°	443.9	395.1	346.5	310.1	290.9	279.4
37°	434.7	387.1	339.5	303.8	285.1	273.8
37.5°	425.3	379.2	332.7	297.6	279.3	268.1
38°	415.9	371.0	325.6	291.4	273.5	262.5
38.5°	406.4	363.0	318.7	285.2	267.8	256.8
39°	396.9	354.8	311.9	279.1	262.0	251.3
39.5°	387.2	346.7	304.7	272.9	256.3	245.8
40°	377.1	338.6	297.8	266.7	250.6	240.2
40.5°	367.2	330.3	290.9	260.6	244.9	234.7
41°	357.6	322.0	283.9	254.5	239.2	229.2
41.5°	347.7	313.8	277.0	248.3	233.4	223.6
42°	337.9	305.7	270.2	242.4	227.8	218.1
42.5°	327.9	297.3	263.4	236.6	222.3	212.7
43°	318.3	289.3	256.6	230.5	216.8	207.2
43.5°	308.7	281.2	249.7	224.5	211.3	201.9



TEST NUMBER: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	281.0	257.5	229.8	207.0	194.9	185.7
45.5°	271.9	249.6	223.2	201.3	189.6	180.5
46°	263.3	242.0	216.8	195.7	184.2	175.3
46.5°	254.5	234.5	210.4	190.1	179.1	170.3
47°	246.2	227.2	204.1	184.5	174.0	165.1
47.5°	238.1	219.9	197.8	178.9	168.9	160.1
48°	230.5	212.8	191.8	173.5	164.0	155.1
48.5°	222.7	205.9	185.7	168.1	158.9	150.3
49°	215.2	199.3	179.8	162.9	154.2	145.4
49.5°	208.2	192.8	174.0	157.7	149.5	141.0
50°	201.4	186.2	168.3	152.5	144.7	136.2
50.5°	194.5	179.9	162.6	147.4	140.2	131.7
51°	188.2	174.0	157.2	142.5	135.5	127.4
51.5°	182.1	168.2	151.9	137.6	131.2	123.3
52°	176.2	162.5	146.7	133.1	126.9	119.2
52.5°	170.3	157.0	141.7	128.4	122.6	115.3
53°	164.7	151.7	136.8	123.8	118.4	111.8
53.5°	159.2	146.5	132.0	119.4	114.3	108.3
54°	154.2	141.6	127.3	115.2	110.3	105.1
54.5°	149.2	136.9	122.9	111.0	106.5	102.3
55°	144.2	132.0	118.6	107.0	102.9	99.7
55.5°	139.6	127.6	114.4	103.2	99.5	97.3
56°	135.0	123.3	110.3	99.5	96.1	95.1
56.5°	130.6	119.0	106.3	95.9	93.0	93.4
57°	126.3	114.8	102.5	92.3	90.1	91.4
57.5°	122.1	110.9	98.8	89.1	87.3	89.1
58°	118.1	107.1	95.3	85.9	84.8	86.8
58.5°	114.1	103.4	91.8	82.9	82.5	84.5
59°	110.2	99.6	88.4	79.9	80.4	82.1
59.5°	106.5	96.2	85.2	77.0	78.4	79.7
60°	102.8	92.8	82.0	74.4	76.3	77.4
60.5°	99.3	89.4	79.0	71.7	74.2	75.1
61°	95.8	85.9	76.1	69.2	72.1	72.9
61.5°	92.5	82.9	73.1	66.8	70.0	70.7
62°	89.3	79.8	70.3	64.6	68.0	68.6
62.5°	86.1	76.9	67.6	62.3	65.9	66.4
63°	82.9	73.8	65.0	60.2	63.9	64.4
63.5°	79.7	71.0	62.5	58.2	62.0	62.3
64°	76.7	68.3	60.0	56.2	60.0	60.4
64.5°	73.8	65.5	57.7	54.3	58.2	58.4
65°	70.8	62.9	55.4	52.6	56.3	56.5
65.5°	68.1	60.4	53.2	50.9	54.5	54.7
66°	65.3	57.9	51.1	49.4	52.7	52.8



TEST NUMBER: P775853

CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	57.6	50.9	45.1	44.6	47.5	47.6
68°	55.1	48.7	43.2	43.2	45.9	46.0
68.5°	52.7	46.5	41.4	41.7	44.2	44.3
69°	50.4	44.5	39.7	40.1	42.8	42.8
69.5°	48.1	42.5	38.0	38.8	41.2	41.1
70°	45.9	40.5	36.6	37.4	39.6	39.6
70.5°	43.7	38.7	35.1	36.0	38.1	38.0
71°	41.6	37.0	33.6	34.8	36.8	36.6
71.5°	39.6	35.3	32.1	33.4	35.3	35.2
72°	37.6	33.6	30.6	32.0	33.9	33.8
72.5°	35.7	31.9	29.3	30.7	32.6	32.4
73°	33.8	30.1	27.9	29.4	31.2	31.0
73.5°	32.0	28.7	26.7	28.2	29.8	29.6
74°	30.3	27.1	25.5	27.0	28.5	28.4
74.5°	28.6	25.6	24.3	25.7	27.2	27.0
75°	26.9	24.3	23.1	24.5	25.9	25.7
75.5°	25.3	22.9	22.1	23.3	24.7	24.5
76°	23.7	21.6	20.9	22.2	23.4	23.3
76.5°	22.3	20.4	19.9	21.1	22.3	22.1
77°	20.9	19.1	18.8	20.0	21.1	20.9
77.5°	19.5	18.0	17.9	18.9	19.9	19.7
78°	18.2	16.8	16.9	17.9	18.8	18.6
78.5°	16.9	15.8	15.9	16.8	17.6	17.5
79°	15.7	14.7	15.0	15.8	16.6	16.4
79.5°	14.5	13.7	14.1	14.8	15.5	15.3
80°	13.2	12.7	13.1	13.8	14.5	14.3
80.5°	12.2	11.8	12.3	12.8	13.4	13.3
81°	11.1	10.8	11.4	11.9	12.5	12.3
81.5°	10.1	10.0	10.5	10.9	11.4	11.3
82°	9.2	9.1	9.7	10.1	10.5	10.4
82.5°	8.3	8.3	8.8	9.1	9.6	9.5
83°	7.5	7.5	8.1	8.3	8.6	8.5
83.5°	6.5	6.7	7.2	7.5	7.8	7.6
84°	5.7	6.0	6.5	6.6	6.8	6.7
84.5°	4.8	5.3	5.8	5.9	6.0	5.9
85°	4.1	4.6	5.0	5.1	5.1	5.0
85.5°	3.4	3.9	4.3	4.4	4.3	4.2
86°	2.7	3.3	3.6	3.7	3.7	3.6
86.5°	2.1	2.6	2.9	3.0	3.2	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	1.1	1.4	1.2
88.5°	0.1	0.3	0.4	0.5	0.8	0.7



TEST NUMBER: P775853
CATALOG NUMBER: HCDJBL510CSD-HCD82TRH-HCD82TRLWW-1000lm-4000K

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°	457.4	462.9	482.0	515.3	559.1	609.8	656.5	688.0	703.6	697.1	668.9
22°	451.4	456.9	476.5	510.1	554.4	605.8	653.4	685.1	700.8	694.3	665.8



44°	196.4	202.3	217.5	239.1	264.4	295.7	322.4	329.6	336.8	334.4	322.7
44.5°	191.1	197.0	211.8	233.0	256.8	286.8	312.5	319.1	325.9	323.2	312.4



66.5°	51.1	51.4	50.2	50.4	55.8	64.1	74.2	78.8	81.0	79.3	72.6
67°	49.4	49.7	48.6	48.4	53.5	61.6	71.2	75.6	77.6	76.1	69.6



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°	623.1	573.7	524.4	485.9	467.2	457.4
22°	619.2	568.9	519.0	480.3	461.3	451.4



44°	299.3	273.1	243.1	218.7	205.7	196.4
44.5°	290.1	265.1	236.5	212.8	200.3	191.1



66.5°	62.7	55.6	49.0	47.8	50.9	51.1
67°	60.1	53.3	47.0	46.2	49.3	49.4

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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)