

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: P775682

Luminaire Tested: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775682
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-HCD4TRMB-1000lm-3500K
Description: 4 INCH ROUND MEDIUM MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

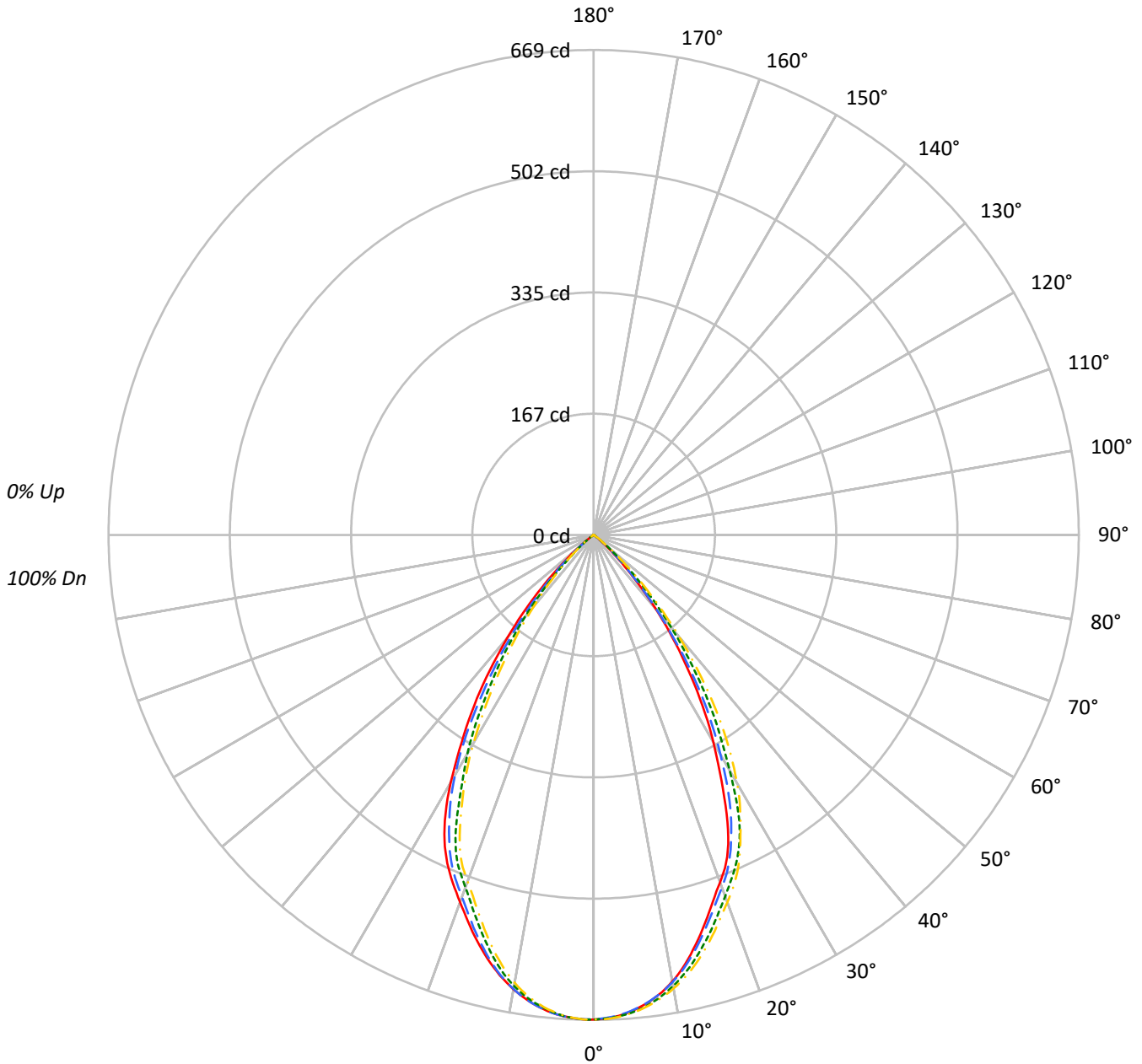
Lumens per Lamp: N/A
Luminaire Lumens: 656.3 lumens
Efficiency: N/A
Efficacy: 65.6 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 0.95 / 0.94
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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					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								
1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93								
2	108	103	98	95	105	101	97	94	98	95	92	95	92	90	92	90	88	86								
3	102	95	90	86	100	94	89	85	91	87	84	89	86	83	87	84	82	80								
4	97	89	83	79	95	88	82	78	85	81	77	83	80	76	82	78	76	74								
5	91	83	77	72	90	82	76	72	80	75	71	78	74	71	77	73	70	69								
6	87	77	71	67	85	77	71	67	75	70	66	74	69	66	72	68	65	64								
7	82	72	66	62	81	72	66	62	70	65	61	69	65	61	68	64	61	59								
8	78	68	62	58	77	67	62	57	66	61	57	65	60	57	64	60	57	55								
9	74	64	58	54	73	63	58	54	62	57	53	62	57	53	61	56	53	52								
10	70	60	54	50	69	60	54	50	59	54	50	58	53	50	57	53	50	48								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	84143	84143	84143	84143
5°	83037	83315	83568	83416
10°	79921	80726	81326	80751
15°	74226	76271	77301	75411
20°	68276	71021	72146	69267
25°	60626	65833	67125	62501
30°	47970	54436	57227	50556
35°	34875	41435	44124	37149
40°	21834	27370	30360	23986
45°	9878	14665	16890	11266
50°	2858	4484	5854	3368
55°	461	461	614	570
60°	176	176	201	176
65°	119	119	119	119
70°	74	110	110	110
75°	49	97	49	97
80°	0	72	72	72
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 180°
 Vertical Angle: 45°
 Luminance: 16890 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.1	9.5
10°-20°	162.8	24.8
20°-30°	207.8	31.7
30°-40°	158.9	24.2
40°-50°	59.4	9.0
50°-60°	4.8	0.7
60°-70°	0.4	0.1
70°-80°	0.2	0.0
80°-90°	0.0	0.0
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°	432.6	65.9
0°-40°	591.5	90.1
0°-60°	655.7	99.9
0°-90°	656.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	656.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	669	669	669	669	669	
5°	657	660	662	660	657	62
15°	570	585	593	579	570	159
25°	437	474	483	450	437	196
35°	227	270	287	242	227	141
45°	56	82	95	63	56	47
55°	2	2	3	3	2	3
65°	0	0	0	0	0	0
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
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°	668.6	668.6	668.6	668.6	668.6	668.6	668.6	668.6	668.6	668.6	668.6
0.5°	668.4	667.8	667.8	667.8	668.4	668.5	668.8	669.0	668.7	668.4	668.4
1°	667.9	667.4	667.3	667.4	667.9	668.1	668.5	668.7	668.6	668.4	668.3
1.5°	667.3	666.7	666.6	666.7	667.4	667.7	668.0	668.4	668.1	668.0	668.1
2°	666.5	665.9	665.7	665.9	666.8	667.1	667.4	667.7	667.7	667.6	667.7
2.5°	665.5	664.7	664.6	664.9	666.0	666.3	666.6	667.0	667.1	667.0	667.1
3°	664.2	663.5	663.4	663.8	664.9	665.4	665.7	666.1	666.3	666.3	666.4
3.5°	662.8	661.9	662.0	662.6	663.8	664.2	664.6	665.0	665.4	665.5	665.5
4°	661.1	660.4	660.4	661.0	662.6	663.0	663.3	663.8	664.2	664.4	664.4
4.5°	659.2	658.5	658.6	659.4	661.2	661.6	661.9	662.4	663.0	663.2	663.2
5°	657.3	656.4	656.5	657.6	659.5	660.0	660.3	660.9	661.5	661.8	661.7
5.5°	655.0	654.1	654.5	655.5	657.7	658.1	658.5	659.1	659.9	660.2	660.0
6°	652.6	651.7	652.1	653.3	655.7	656.1	656.5	657.3	658.1	658.4	658.1
6.5°	650.0	649.2	649.7	650.9	653.4	654.1	654.5	655.2	656.1	656.4	656.1
7°	647.2	646.4	647.0	648.2	650.9	651.7	652.2	653.0	653.8	654.3	653.9
7.5°	644.2	643.5	644.0	645.3	648.2	649.1	649.8	650.5	651.4	651.9	651.6
8°	641.0	640.4	640.9	642.3	645.3	646.3	647.2	648.0	648.9	649.2	648.9
8.5°	637.5	637.1	637.7	639.0	642.2	643.3	644.5	645.2	646.0	646.5	646.1
9°	633.7	633.4	634.2	635.5	638.9	640.3	641.6	642.3	643.1	643.4	643.1
9.5°	629.6	629.6	630.4	631.9	635.4	636.9	638.5	639.4	639.9	640.2	639.9
10°	625.4	625.4	626.4	627.9	631.7	633.5	635.2	636.1	636.4	636.6	636.3
10.5°	621.1	621.1	622.1	623.9	628.0	629.8	631.7	632.7	632.9	633.0	632.6
11°	616.1	616.3	617.7	619.4	623.9	626.0	628.0	629.1	629.3	629.2	628.7
11.5°	611.0	611.5	613.0	614.9	619.6	622.0	624.3	625.2	625.2	625.1	624.4
12°	605.6	606.3	608.0	610.1	615.4	617.9	620.3	621.3	621.3	620.9	620.2
12.5°	600.0	600.8	602.7	605.2	610.7	613.4	616.0	617.2	617.0	616.4	615.6
13°	594.2	595.2	597.5	600.2	606.0	608.9	611.8	612.9	612.6	611.8	610.5
13.5°	588.2	589.5	591.9	594.8	601.2	604.2	607.1	608.2	608.0	607.1	605.6
14°	582.1	583.6	586.4	589.5	595.9	599.4	602.3	603.7	603.3	602.0	600.4
14.5°	575.9	577.6	580.6	584.0	590.7	594.5	597.4	598.7	598.3	596.9	594.9
15°	569.7	571.4	574.7	578.3	585.4	589.3	592.4	593.7	593.3	591.7	589.4
15.5°	563.3	565.3	568.6	572.7	580.1	584.0	587.3	588.5	588.1	586.4	583.7
16°	556.8	559.1	562.8	566.9	574.6	578.8	582.1	583.4	582.8	580.9	578.0
16.5°	550.6	553.1	556.9	561.2	569.1	573.4	576.6	578.3	577.6	575.4	572.2
17°	544.4	546.9	550.9	555.5	563.5	567.9	571.3	572.8	572.1	569.7	566.4
17.5°	538.2	540.8	545.0	549.8	557.8	562.3	565.7	567.1	566.5	564.0	560.3
18°	531.9	534.7	539.1	544.0	552.2	556.8	560.2	561.8	560.9	558.3	554.5
18.5°	525.9	529.0	533.3	538.3	546.5	551.3	554.9	556.2	555.2	552.5	548.5
19°	520.3	523.6	528.0	532.8	541.0	545.9	549.4	550.7	549.6	546.8	542.6
19.5°	515.1	518.4	522.6	527.5	535.7	540.6	544.2	545.4	544.3	541.1	536.8
20°	509.8	513.2	517.4	522.3	530.3	535.3	539.2	540.2	538.7	535.7	531.3
20.5°	504.6	507.9	512.3	517.0	525.1	530.2	534.0	535.2	533.6	530.3	525.9
21°	499.3	502.7	506.9	511.7	519.9	525.1	528.7	530.1	528.4	525.1	520.7



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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°	480.7	484.0	488.0	494.4	504.2	509.2	512.6	514.1	512.9	509.5	504.5
23°	473.3	476.6	480.8	488.4	498.7	503.5	506.5	508.3	507.6	504.0	498.6
23.5°	465.2	468.7	473.4	481.6	493.0	497.4	499.7	501.8	501.9	498.4	492.2
24°	456.2	459.9	465.5	474.4	487.2	490.9	492.6	495.2	496.0	492.6	485.6
24.5°	446.6	450.4	457.1	466.9	480.8	484.3	485.4	488.0	489.9	486.3	478.4
25°	436.6	440.2	448.9	459.2	474.1	477.1	477.8	480.6	483.4	480.0	470.9
25.5°	426.0	429.9	440.3	450.8	467.1	469.5	469.8	472.9	476.6	473.2	463.1
26°	415.0	419.3	431.7	442.7	459.4	461.6	461.9	465.0	469.2	466.0	455.2
26.5°	403.8	408.7	422.4	434.2	451.0	453.3	454.1	457.0	461.4	458.3	446.8
27°	392.5	398.3	413.0	425.4	442.0	444.9	446.3	449.0	453.0	449.8	438.5
27.5°	381.8	388.1	403.1	416.4	432.0	436.3	438.5	440.9	444.4	440.9	430.2
28°	370.9	378.3	392.7	406.7	421.6	427.5	430.4	432.9	434.8	431.5	421.2
28.5°	360.3	368.9	382.2	396.6	410.2	418.1	422.3	424.6	425.2	421.9	412.2
29°	350.1	359.6	371.5	386.2	398.5	408.7	414.0	416.2	415.3	411.3	402.8
29.5°	340.1	350.1	360.5	375.2	386.6	398.9	405.0	407.2	404.6	400.5	392.8
30°	330.1	340.5	349.6	363.7	374.6	388.5	395.6	398.1	393.8	389.3	382.3
30.5°	320.3	330.6	339.2	351.7	363.2	377.8	385.8	388.4	382.3	377.6	371.7
31°	310.2	320.3	328.5	340.0	352.1	366.8	376.2	378.9	371.1	365.9	360.7
31.5°	300.2	309.7	318.2	327.6	341.4	355.7	366.1	368.5	359.9	354.1	349.7
32°	290.0	299.0	307.6	315.6	331.4	344.4	356.3	358.1	349.2	342.7	338.1
32.5°	279.9	287.7	297.2	303.9	321.1	333.3	346.3	347.2	338.4	331.6	327.0
33°	269.3	276.7	286.5	291.9	311.4	322.4	336.1	336.6	328.2	320.6	315.2
33.5°	258.5	265.6	275.7	280.1	301.0	311.5	325.6	325.8	317.6	309.8	303.3
34°	247.8	255.0	264.6	268.6	290.6	301.1	315.1	315.0	307.7	299.1	291.2
34.5°	237.5	244.0	253.6	257.4	280.0	291.0	304.2	303.8	297.4	288.8	279.7
35°	227.0	233.7	242.7	246.3	269.7	281.2	293.3	293.0	287.2	278.5	267.7
35.5°	217.2	223.9	231.4	235.5	258.3	271.1	281.8	282.1	276.9	268.2	256.5
36°	207.4	213.9	220.1	225.0	247.3	260.8	270.5	271.3	266.9	257.7	245.7
36.5°	197.9	204.2	209.1	214.8	236.5	250.7	259.0	260.3	256.2	247.0	235.1
37°	188.4	194.2	197.6	204.6	226.0	240.7	247.7	249.1	245.7	236.1	224.4
37.5°	179.1	184.6	186.5	194.7	215.4	230.2	236.3	238.5	235.0	225.3	214.5
38°	169.8	174.7	175.6	184.6	205.4	219.6	225.8	228.0	224.5	214.6	204.3
38.5°	160.5	164.8	165.4	174.9	195.5	209.0	214.9	217.8	214.4	204.0	194.2
39°	151.3	155.2	155.7	165.3	186.1	198.6	204.2	207.5	204.4	194.4	184.3
39.5°	141.9	145.1	145.9	156.4	176.1	188.2	193.6	197.4	194.5	183.9	174.6
40°	132.9	135.5	136.4	147.1	166.6	178.3	183.1	187.0	184.8	174.2	164.8
40.5°	123.9	126.0	127.7	138.4	157.2	168.4	172.6	176.9	175.1	165.0	155.2
41°	115.1	116.9	119.0	129.8	148.1	159.0	162.5	166.8	166.1	156.3	145.4
41.5°	106.3	108.1	110.6	121.3	138.7	149.5	152.8	156.5	156.7	147.1	136.2
42°	98.4	99.4	102.4	112.7	129.5	140.3	143.1	146.7	147.1	138.6	127.0
42.5°	90.4	91.3	94.7	104.9	120.8	131.2	133.7	137.2	137.9	130.0	118.3
43°	82.9	83.4	87.1	97.1	112.4	122.1	124.5	128.0	128.9	122.0	109.9
43.5°	75.5	75.9	80.0	89.5	104.3	112.9	115.9	119.0	119.9	113.3	101.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	55.5	54.9	60.2	68.2	82.4	87.6	91.7	94.3	94.9	90.8	80.0
45.5°	49.4	48.8	54.5	61.8	75.1	79.3	84.0	86.6	87.2	83.4	72.8
46°	43.8	43.2	49.0	55.7	67.9	71.0	76.2	78.8	79.4	76.1	66.2
46.5°	38.5	37.9	43.9	50.1	61.2	63.7	68.5	71.1	71.6	68.8	60.1
47°	34.6	34.2	39.0	44.7	54.6	56.9	61.6	63.9	64.4	62.1	54.2
47.5°	30.9	30.4	35.1	39.5	48.4	50.5	54.9	57.1	57.8	55.9	48.7
48°	27.2	26.5	31.3	34.6	42.5	44.6	48.9	50.7	51.5	50.0	43.6
48.5°	23.4	22.8	27.5	30.4	37.0	39.0	43.1	44.8	45.6	43.9	38.9
49°	19.7	19.0	23.6	26.7	31.8	34.0	37.6	39.1	39.9	38.6	34.3
49.5°	17.1	16.5	19.8	23.4	27.1	29.3	32.5	33.9	34.7	33.6	30.2
50°	14.6	14.1	16.8	20.1	22.9	25.1	27.8	29.2	29.9	28.9	26.3
50.5°	12.4	12.0	14.1	16.8	19.2	21.2	23.5	25.0	25.5	24.8	22.7
51°	10.5	10.1	11.6	13.5	15.9	17.7	19.6	21.0	21.5	20.8	19.5
51.5°	8.6	8.3	9.4	11.0	13.8	14.6	16.2	17.4	17.8	17.5	16.5
52°	7.0	6.7	7.5	8.7	11.7	12.4	13.8	14.3	14.6	14.5	13.8
52.5°	5.6	5.3	5.8	6.6	9.6	10.4	11.4	12.2	12.4	12.4	11.8
53°	4.2	4.0	4.4	5.0	7.6	8.2	9.1	10.1	10.4	10.3	9.8
53.5°	3.7	3.5	3.8	3.6	5.5	6.0	6.7	8.0	8.2	8.2	7.9
54°	3.2	2.9	3.2	3.0	3.4	3.9	4.5	5.8	6.0	6.1	5.8
54.5°	2.7	2.3	2.7	2.6	2.5	2.8	3.1	3.7	3.9	3.9	3.9
55°	2.1	1.8	2.1	2.1	2.1	2.2	2.4	2.7	2.8	2.9	2.9
55.5°	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.2
56°	1.5	1.3	1.3	1.5	1.6	1.7	1.7	1.8	1.9	1.9	1.9
56.5°	1.2	1.2	1.2	1.2	1.3	1.5	1.6	1.6	1.7	1.7	1.7
57°	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.5	1.5	1.5	1.5
57.5°	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.3
58°	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1
58.5°	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0
59°	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
59.5°	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
60°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
60.5°	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
61°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
61.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
62°	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
62.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6
63°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
63.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
64°	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
64.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
65°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
65.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
66°	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
68°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
68.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
69°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
69.5°	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
70°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
70.5°	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3
71°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
71.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74°	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75°	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
75.5°	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2
76°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
76.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
77°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
81°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
81.5°	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
82°	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775682
CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	668.6	668.6	668.6	668.6	668.6	668.6
0.5°	668.4	668.6	668.7	668.8	668.8	668.4
1°	668.4	668.5	668.5	668.6	668.5	667.9
1.5°	668.1	668.1	668.1	668.1	667.9	667.3
2°	667.7	667.6	667.6	667.5	667.1	666.5
2.5°	667.1	666.9	666.8	666.7	666.2	665.5
3°	666.4	666.0	665.9	665.7	665.1	664.2
3.5°	665.4	664.8	664.7	664.4	663.7	662.8
4°	664.1	663.5	663.4	663.0	662.1	661.1
4.5°	662.8	661.9	661.7	661.3	660.5	659.2
5°	661.3	660.3	659.9	659.3	658.5	657.3
5.5°	659.5	658.3	657.8	657.3	656.1	655.0
6°	657.6	656.1	655.6	654.9	653.8	652.6
6.5°	655.5	653.8	653.2	652.4	651.3	650.0
7°	653.2	651.4	650.5	649.6	648.2	647.2
7.5°	650.7	648.7	647.6	646.5	645.1	644.2
8°	648.1	645.8	644.5	643.2	642.0	641.0
8.5°	645.2	642.7	641.2	639.6	638.4	637.5
9°	642.1	639.3	637.6	635.8	634.6	633.7
9.5°	638.8	635.7	633.7	631.7	630.2	629.6
10°	635.3	631.9	629.6	627.4	626.1	625.4
10.5°	631.5	627.8	625.1	622.7	621.5	621.1
11°	627.5	623.5	620.5	617.9	616.5	616.1
11.5°	623.3	618.7	615.5	612.7	611.2	611.0
12°	618.6	613.8	610.2	607.2	605.8	605.6
12.5°	613.8	608.4	604.6	601.5	600.0	600.0
13°	608.9	602.8	598.9	595.7	594.1	594.2
13.5°	603.5	597.1	592.9	589.5	588.2	588.2
14°	597.9	591.2	586.8	583.3	581.7	582.1
14.5°	592.2	585.0	580.5	577.0	575.4	575.9
15°	586.4	578.8	574.0	570.6	569.1	569.7
15.5°	580.4	572.6	567.6	564.2	562.6	563.3
16°	574.3	566.2	561.2	557.4	556.2	556.8
16.5°	568.2	559.9	554.8	551.0	549.8	550.6
17°	562.0	553.6	548.1	544.5	543.2	544.4
17.5°	555.8	547.2	541.7	538.2	536.9	538.2
18°	549.7	540.8	535.4	531.6	530.7	531.9
18.5°	543.6	534.6	528.9	525.3	524.5	525.9
19°	537.4	528.4	522.8	519.3	518.7	520.3
19.5°	531.6	522.7	517.3	513.8	513.1	515.1
20°	526.0	517.2	511.6	508.4	507.7	509.8
20.5°	520.7	511.9	506.3	503.0	502.5	504.6
21°	515.3	506.7	500.9	497.5	497.3	499.3

TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	499.0	490.2	483.6	479.5	478.5	480.7
23°	492.6	483.6	476.6	471.7	470.7	473.3
23.5°	485.9	476.5	469.0	463.3	462.7	465.2
24°	478.7	468.4	460.3	454.1	453.7	456.2
24.5°	471.0	459.6	451.7	444.6	444.2	446.6
25°	462.8	450.1	442.2	434.5	434.3	436.6
25.5°	454.4	439.8	432.3	424.7	424.4	426.0
26°	445.5	429.0	421.8	415.0	413.8	415.0
26.5°	436.3	417.7	411.2	405.3	403.5	403.8
27°	426.8	406.8	399.9	395.7	393.1	392.5
27.5°	416.9	396.1	388.0	385.6	382.4	381.8
28°	406.7	386.0	376.5	375.4	371.8	370.9
28.5°	396.6	376.2	365.3	364.9	361.2	360.3
29°	386.1	366.6	354.5	353.9	350.2	350.1
29.5°	375.6	357.4	344.0	342.5	339.4	340.1
30°	365.5	347.9	333.7	331.1	328.2	330.1
30.5°	355.1	338.0	323.6	319.3	316.8	320.3
31°	345.1	328.0	313.6	307.3	305.6	310.2
31.5°	335.3	317.3	303.5	296.0	294.2	300.2
32°	325.4	306.4	293.2	284.7	283.4	290.0
32.5°	315.5	295.4	283.2	273.6	273.0	279.9
33°	305.7	284.2	272.8	263.0	262.8	269.3
33.5°	295.8	273.0	262.3	252.1	252.6	258.5
34°	285.4	262.2	251.9	241.5	242.4	247.8
34.5°	274.8	252.0	241.1	230.9	232.2	237.5
35°	263.7	241.8	230.6	220.4	221.9	227.0
35.5°	253.0	232.3	220.6	209.9	211.7	217.2
36°	241.2	223.1	210.5	199.9	201.3	207.4
36.5°	230.1	213.5	201.1	190.4	190.8	197.9
37°	218.7	204.2	191.4	181.0	180.8	188.4
37.5°	207.9	194.8	182.0	171.8	171.0	179.1
38°	197.0	184.9	172.7	162.6	161.6	169.8
38.5°	186.9	175.1	163.5	153.7	152.6	160.5
39°	176.5	165.4	154.7	145.2	144.1	151.3
39.5°	166.5	155.7	145.4	136.5	135.7	141.9
40°	156.4	146.0	136.6	128.4	127.5	132.9
40.5°	147.0	136.7	128.0	120.2	119.4	123.9
41°	137.3	127.9	119.5	112.6	111.8	115.1
41.5°	128.1	119.1	111.3	105.2	104.2	106.3
42°	119.1	110.8	103.3	98.4	96.9	98.4
42.5°	110.3	102.5	95.7	91.4	89.9	90.4
43°	101.8	94.5	88.3	85.0	83.2	82.9
43.5°	94.2	86.2	81.4	78.6	76.6	75.5



TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	71.7	63.3	62.0	61.1	59.0	55.5
45.5°	65.1	56.4	56.1	55.7	53.6	49.4
46°	58.9	50.0	50.6	50.7	48.7	43.8
46.5°	53.0	43.9	45.3	45.9	43.8	38.5
47°	47.5	38.7	40.2	41.3	39.3	34.6
47.5°	42.4	34.8	35.6	37.0	35.6	30.9
48°	37.5	31.0	31.9	33.5	31.9	27.2
48.5°	33.2	27.3	28.2	30.0	28.2	23.4
49°	29.1	23.5	24.6	26.4	24.5	19.7
49.5°	25.4	19.8	20.9	22.9	20.7	17.1
50°	22.0	17.2	17.9	19.4	17.8	14.6
50.5°	19.0	14.9	15.3	16.5	14.9	12.4
51°	16.2	12.7	13.1	13.9	12.5	10.5
51.5°	13.8	10.9	10.9	11.5	10.4	8.6
52°	11.9	9.1	8.9	9.3	8.3	7.0
52.5°	10.2	7.5	7.3	7.4	6.5	5.6
53°	8.3	6.0	5.7	5.6	5.0	4.2
53.5°	6.5	4.7	4.4	4.1	3.6	3.7
54°	4.7	3.5	3.7	3.5	3.1	3.2
54.5°	3.5	3.0	3.2	2.9	2.6	2.7
55°	2.7	2.6	2.7	2.3	2.1	2.1
55.5°	2.1	2.1	2.1	1.7	1.7	1.6
56°	1.9	1.7	1.6	1.6	1.5	1.5
56.5°	1.6	1.5	1.3	1.3	1.3	1.2
57°	1.5	1.2	1.2	1.2	1.1	1.1
57.5°	1.2	1.1	1.1	1.1	1.0	1.0
58°	1.1	1.0	1.0	1.0	0.9	0.9
58.5°	1.0	0.9	0.9	0.9	0.9	0.8
59°	0.9	0.8	0.8	0.8	0.8	0.8
59.5°	0.8	0.8	0.8	0.8	0.7	0.7
60°	0.8	0.7	0.7	0.7	0.7	0.7
60.5°	0.7	0.7	0.7	0.7	0.7	0.6
61°	0.7	0.6	0.6	0.6	0.6	0.6
61.5°	0.6	0.6	0.6	0.6	0.6	0.6
62°	0.6	0.6	0.6	0.6	0.5	0.5
62.5°	0.6	0.5	0.5	0.5	0.5	0.5
63°	0.5	0.5	0.5	0.5	0.5	0.5
63.5°	0.5	0.5	0.5	0.5	0.5	0.5
64°	0.5	0.5	0.5	0.5	0.4	0.4
64.5°	0.5	0.4	0.4	0.4	0.4	0.4
65°	0.4	0.4	0.4	0.4	0.4	0.4
65.5°	0.4	0.4	0.4	0.4	0.4	0.4
66°	0.4	0.4	0.4	0.4	0.4	0.3



TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.3	0.3	0.3	0.3	0.3	0.3
68°	0.3	0.3	0.3	0.3	0.3	0.3
68.5°	0.3	0.3	0.3	0.3	0.3	0.3
69°	0.3	0.3	0.3	0.3	0.3	0.3
69.5°	0.3	0.3	0.3	0.3	0.3	0.2
70°	0.3	0.3	0.3	0.3	0.2	0.2
70.5°	0.3	0.3	0.3	0.2	0.2	0.2
71°	0.3	0.2	0.2	0.2	0.2	0.2
71.5°	0.2	0.2	0.2	0.2	0.2	0.2
72°	0.2	0.2	0.2	0.2	0.2	0.2
72.5°	0.2	0.2	0.2	0.2	0.2	0.2
73°	0.2	0.2	0.2	0.2	0.2	0.2
73.5°	0.2	0.2	0.2	0.2	0.2	0.2
74°	0.2	0.2	0.2	0.2	0.2	0.1
74.5°	0.2	0.2	0.2	0.2	0.1	0.1
75°	0.2	0.2	0.2	0.2	0.1	0.1
75.5°	0.2	0.2	0.2	0.1	0.1	0.1
76°	0.2	0.1	0.1	0.1	0.1	0.1
76.5°	0.1	0.1	0.1	0.1	0.1	0.1
77°	0.1	0.1	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.1	0.1	0.1
79.5°	0.1	0.1	0.1	0.1	0.1	0.1
80°	0.1	0.1	0.1	0.1	0.1	0.0
80.5°	0.1	0.1	0.1	0.1	0.0	0.0
81°	0.1	0.1	0.1	0.1	0.0	0.0
81.5°	0.1	0.1	0.1	0.1	0.0	0.0
82°	0.1	0.1	0.1	0.0	0.0	0.0
82.5°	0.1	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775682

CATALOG NUMBER: HCDJBL510CSD-HCD4TRMB-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°	493.8	497.1	501.1	506.3	514.7	520.1	524.0	525.0	523.2	519.7	515.4
22°	487.6	490.8	494.7	500.7	509.6	514.7	518.5	519.8	518.2	514.5	510.2



44°	68.6	68.5	73.0	81.9	97.0	104.1	107.3	110.2	111.1	105.5	94.5
44.5°	61.6	61.6	66.4	75.0	89.8	95.8	99.5	102.1	102.7	98.2	87.3



66.5°	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
67°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4



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

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21.5°	510.0	501.5	495.8	492.5	491.6	493.8
22°	504.8	496.0	489.9	486.3	485.4	487.6

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44°	86.8	78.4	74.6	72.5	70.4	68.6
44.5°	79.2	70.7	68.2	66.5	64.6	61.6



66.5°	0.4	0.4	0.4	0.4	0.3	0.3
67°	0.4	0.4	0.3	0.3	0.3	0.3

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

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(END OF REPORT)