

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: P775670

Luminaire Tested: HCDJBL510CSD-HCD4TRH-1000lm-2700K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775670
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-HCD4TRH-1000lm-2700K
Description: 4 INCH ROUND MEDIUM HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

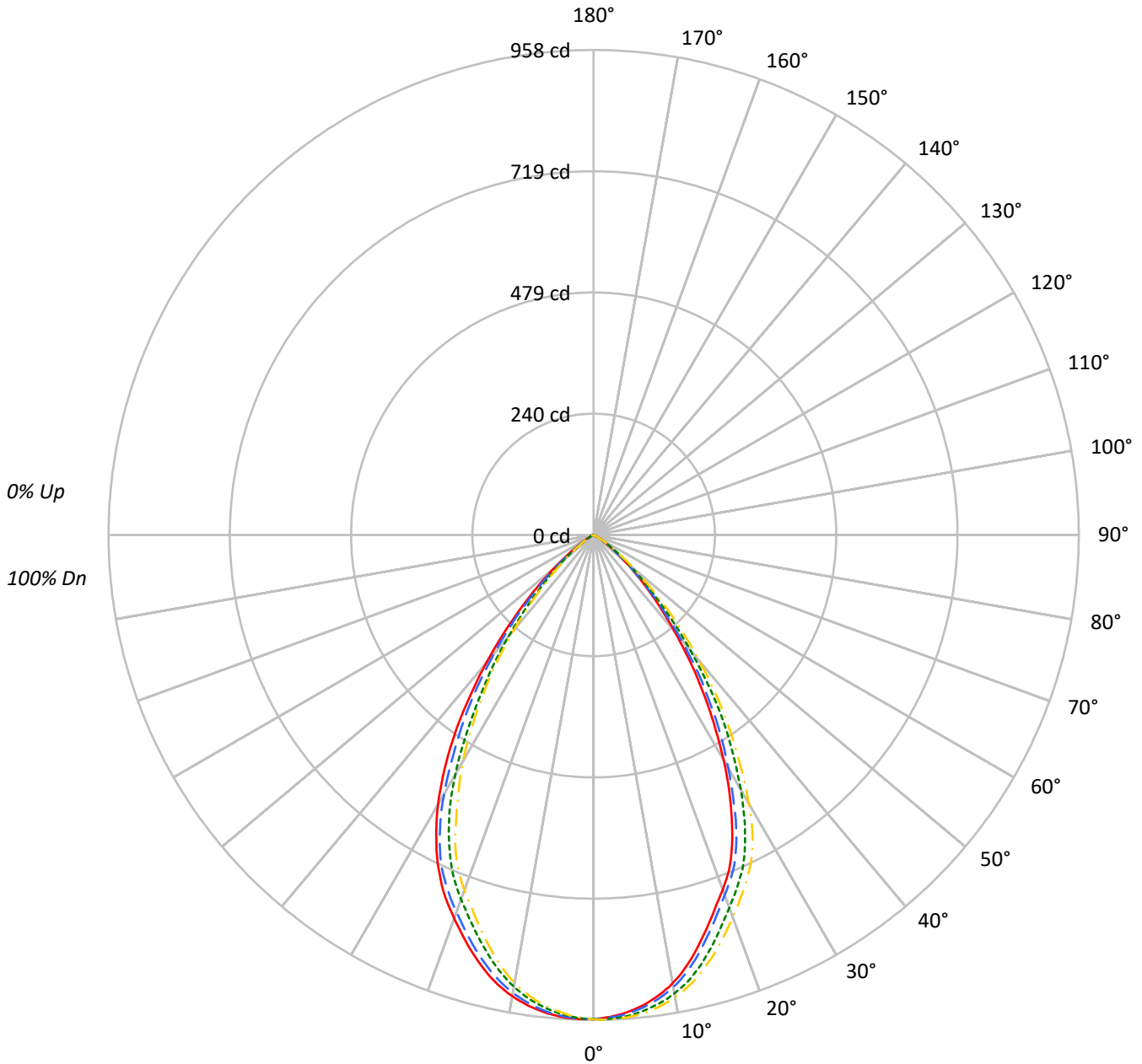
Lumens per Lamp: N/A
Luminaire Lumens: 1078.0 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 0.98 / 0.98 / 0.98
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P775670
CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	113	110	107	105	111	108	105	103	104	102	100	100	99	97	97	95	94	92								
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	91	88	86	85								
3	101	94	88	84	99	92	87	83	90	85	82	87	84	81	85	82	79	78								
4	95	87	81	76	93	85	80	75	83	78	75	81	77	74	79	76	73	71								
5	89	80	74	69	88	79	73	69	77	72	68	76	71	68	74	70	67	65								
6	84	75	68	63	83	74	68	63	72	67	63	71	66	62	69	65	62	60								
7	80	70	63	58	78	69	63	58	68	62	58	66	61	58	65	61	57	56								
8	75	65	58	54	74	64	58	54	63	58	54	62	57	53	61	57	53	52								
9	71	61	54	50	70	60	54	50	59	54	50	58	53	50	58	53	49	48								
10	68	57	51	47	67	57	51	47	56	50	46	55	50	46	54	50	46	45								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	120400	120400	120400	120400
5°	118763	119926	120153	119193
10°	114897	117530	118232	115830
15°	107593	112101	113938	109651
20°	99815	104905	107891	102561
25°	89926	97646	100701	93758
30°	74592	84488	89298	79417
35°	57398	67983	73130	60593
40°	40743	48743	54148	43010
45°	26394	31235	35436	26857
50°	15271	18169	19775	14645
55°	7504	9149	9259	6736
60°	3146	3574	3675	2618
65°	1638	1697	1757	1370
70°	957	993	1067	810
75°	583	632	632	486
80°	290	435	362	290
85°	144	289	144	144

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 36236 cd/sqm



TEST NUMBER: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.3	8.3
10°-20°	238.3	22.1
20°-30°	312.3	29.0
30°-40°	261.6	24.3
40°-50°	132.6	12.3
50°-60°	36.2	3.4
60°-70°	6.1	0.6
70°-80°	1.4	0.1
80°-90°	0.2	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°	639.9	59.4
0°-40°	901.5	83.6
0°-60°	1070.3	99.3
0°-90°	1078.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1078.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	957	957	957	957	957	
5°	940	949	951	944	940	88
15°	826	860	874	842	826	231
25°	648	703	725	675	648	294
35°	374	442	476	394	374	233
45°	148	176	199	151	148	117
55°	34	42	42	31	34	33
65°	6	6	6	5	6	6
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	956.7	956.7	956.7	956.7	956.7	956.7	956.7	956.7	956.7	956.7	956.7
0.5°	955.6	955.7	956.1	956.8	957.1	957.4	957.5	957.4	956.6	956.4	956.5
1°	954.8	954.9	955.6	956.4	957.1	957.5	957.7	957.6	956.9	956.5	956.5
1.5°	953.7	954.1	954.9	955.9	956.9	957.5	957.7	957.7	956.8	956.4	956.0
2°	952.5	953.1	953.9	955.2	956.4	957.2	957.7	957.6	956.6	956.0	955.7
2.5°	951.0	951.7	952.9	954.2	955.8	956.9	957.4	957.2	956.2	955.4	955.0
3°	949.3	950.2	951.4	953.1	954.8	956.1	956.8	956.8	955.5	954.7	954.1
3.5°	947.3	948.4	949.9	951.5	953.8	955.3	956.0	955.9	954.8	953.8	953.0
4°	945.2	946.4	947.9	949.8	952.6	954.2	955.2	955.0	953.8	952.7	951.8
4.5°	942.9	944.1	945.9	948.0	951.1	953.0	954.2	954.0	952.4	951.3	950.2
5°	940.1	941.8	943.5	945.7	949.3	951.6	952.8	952.6	951.1	949.8	948.6
5.5°	937.3	938.8	941.0	943.4	947.4	949.9	951.3	951.0	949.4	948.0	946.6
6°	934.0	935.8	938.3	940.9	945.1	948.0	949.6	949.4	947.6	946.1	944.6
6.5°	930.8	932.9	935.3	938.2	942.8	946.0	947.8	947.4	945.6	943.8	942.1
7°	927.1	929.3	932.1	935.3	940.1	943.7	945.6	945.4	943.3	941.5	939.4
7.5°	923.2	925.4	928.6	932.1	937.3	941.2	943.1	942.9	940.9	938.7	936.5
8°	919.0	921.5	924.9	928.7	934.3	938.3	940.4	939.9	938.2	935.9	933.4
8.5°	914.5	917.1	920.8	924.9	931.0	935.2	937.5	937.3	935.2	932.8	930.0
9°	909.6	912.4	916.3	920.9	927.6	932.0	934.3	934.1	932.1	929.5	926.4
9.5°	904.6	907.5	911.7	916.6	923.7	928.4	931.0	930.8	928.9	926.0	922.5
10°	899.1	902.3	906.8	912.0	919.7	924.6	927.1	927.2	925.2	922.3	918.4
10.5°	893.1	896.5	901.7	907.0	915.2	920.3	923.2	923.5	921.4	918.1	914.2
11°	887.1	890.6	895.8	901.8	910.5	915.9	919.1	919.2	917.2	913.9	909.5
11.5°	880.3	884.3	889.7	896.1	905.6	911.3	914.6	914.9	912.9	909.3	904.5
12°	873.2	877.3	883.1	890.1	900.3	906.1	909.7	910.2	908.3	904.5	899.5
12.5°	865.9	870.1	876.2	883.5	894.3	900.7	904.9	905.5	903.4	899.4	894.1
13°	858.4	862.8	869.0	877.0	888.2	895.2	899.3	900.1	898.1	893.9	888.4
13.5°	850.5	854.9	861.7	869.6	881.8	888.9	893.8	894.7	892.6	888.3	882.6
14°	842.3	847.1	853.8	862.2	875.0	882.7	887.7	888.7	886.7	882.5	876.2
14.5°	834.1	838.6	845.7	854.4	867.8	876.1	881.4	882.9	880.9	876.4	870.0
15°	825.8	830.6	837.5	846.8	860.4	869.3	875.0	876.3	874.5	869.9	863.5
15.5°	817.4	822.3	829.3	838.7	853.1	862.2	868.5	870.1	868.1	863.6	856.9
16°	809.2	814.0	821.3	830.6	845.5	855.2	861.8	863.5	861.7	856.9	850.1
16.5°	800.7	805.7	813.0	822.8	837.9	848.0	854.6	857.1	855.1	850.3	843.1
17°	792.6	797.3	804.8	814.5	829.9	840.6	847.5	850.1	848.2	843.5	835.8
17.5°	784.2	789.1	796.4	806.5	822.0	832.9	840.3	842.9	841.2	836.2	828.8
18°	776.0	781.0	788.4	798.5	814.3	825.5	832.9	835.6	834.1	829.2	821.3
18.5°	767.7	772.7	780.1	790.3	806.4	817.9	825.6	828.8	826.8	822.1	813.9
19°	760.1	764.9	772.2	782.4	798.6	810.1	818.2	821.0	819.7	814.9	806.7
19.5°	752.4	757.2	764.6	774.6	791.1	802.6	810.8	813.8	812.6	807.8	799.7
20°	745.3	749.8	757.0	767.1	783.3	795.0	803.2	806.8	805.6	800.8	792.5
20.5°	737.6	742.4	749.6	759.5	775.9	787.4	796.0	799.6	798.5	793.8	785.3
21°	730.2	734.8	742.2	752.0	768.5	780.1	788.6	792.1	791.4	786.7	778.2



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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°	703.6	710.1	718.8	729.5	745.8	758.0	766.9	770.9	769.6	764.4	755.5
23°	693.9	700.3	709.7	721.3	738.1	749.9	759.6	763.3	761.7	755.5	747.5
23.5°	683.1	689.6	700.0	712.0	730.4	741.8	751.8	755.1	752.6	746.7	739.4
24°	671.6	678.6	689.4	702.1	722.7	733.7	743.9	746.9	743.5	737.7	731.3
24.5°	659.5	666.6	678.3	691.6	713.2	725.7	736.0	738.7	734.3	728.8	723.3
25°	647.6	654.6	666.8	680.1	703.2	717.7	728.2	730.5	725.2	719.9	713.4
25.5°	634.6	641.9	654.6	668.1	692.7	708.0	720.3	722.3	716.1	710.0	703.3
26°	622.1	630.0	641.9	655.0	681.5	697.8	711.0	712.2	705.7	698.9	692.7
26.5°	609.0	617.5	628.5	641.3	670.2	687.2	701.1	702.3	695.2	688.0	681.5
27°	596.2	604.8	614.8	627.5	658.5	676.0	690.7	691.0	684.2	677.1	669.9
27.5°	582.8	591.8	600.2	614.0	646.7	665.0	679.8	680.1	673.1	666.1	657.7
28°	569.6	578.7	586.2	600.8	634.2	653.5	667.8	668.1	661.9	654.8	645.2
28.5°	555.7	565.4	572.1	587.7	621.0	641.7	655.2	656.2	650.9	643.4	632.2
29°	541.8	551.8	558.0	574.9	607.9	629.5	642.2	643.6	639.0	631.4	618.9
29.5°	527.7	537.5	544.6	562.5	594.4	617.0	628.3	630.7	627.0	619.3	605.1
30°	513.3	522.9	531.3	549.8	581.4	604.0	613.8	617.0	614.5	606.5	590.4
30.5°	498.5	508.4	518.1	537.3	566.6	590.2	598.6	603.2	601.9	593.6	575.7
31°	484.1	493.9	505.0	523.9	552.7	576.0	584.0	588.9	588.6	580.6	561.0
31.5°	469.8	479.2	491.9	510.8	538.8	561.0	568.5	574.3	575.2	566.7	545.9
32°	455.6	464.8	478.6	496.7	525.9	546.3	553.5	559.4	561.4	552.7	531.2
32.5°	442.0	450.4	465.1	482.8	511.7	531.5	538.6	544.9	548.0	538.6	516.6
33°	428.5	436.6	451.7	468.3	498.0	516.2	524.2	530.2	533.7	524.9	502.1
33.5°	414.7	422.9	437.8	453.6	484.5	500.8	509.8	515.6	519.8	510.4	488.0
34°	401.2	409.0	423.6	438.6	471.3	484.8	495.6	501.2	505.2	495.5	474.0
34.5°	387.5	394.9	409.4	424.5	456.7	468.9	481.5	487.1	490.9	481.2	460.2
35°	373.6	380.6	395.5	410.6	442.5	453.0	467.1	473.2	476.0	466.4	446.2
35.5°	360.8	367.2	381.8	397.2	427.9	437.6	452.9	459.4	461.6	451.1	432.3
36°	347.8	354.1	368.3	384.1	414.1	422.4	438.5	445.2	446.3	436.0	418.5
36.5°	334.5	341.0	359.0	370.9	398.3	407.6	424.2	431.5	431.2	420.8	404.4
37°	321.4	327.9	345.1	355.8	383.6	392.9	409.5	417.2	416.0	406.0	390.1
37.5°	308.3	314.9	331.4	343.1	368.4	378.8	394.7	403.1	401.6	391.2	375.8
38°	295.2	301.9	317.7	330.4	354.0	365.1	380.1	388.8	386.8	376.6	361.3
38.5°	282.9	289.9	303.9	317.8	338.7	351.1	365.8	374.5	372.3	362.2	347.2
39°	271.1	278.1	291.2	305.2	324.6	337.5	351.6	360.2	358.2	348.2	333.3
39.5°	259.4	266.0	278.5	291.7	310.1	323.7	337.6	346.2	344.0	334.0	319.8
40°	248.0	254.0	265.9	278.2	296.7	310.6	323.7	332.1	329.6	320.2	306.1
40.5°	236.5	242.7	253.7	265.2	282.6	297.0	310.3	318.3	315.7	306.4	293.5
41°	225.6	231.4	241.3	252.4	269.7	284.1	297.3	305.2	301.8	292.2	280.2
41.5°	215.0	221.0	229.4	240.0	256.7	271.1	284.2	291.9	288.1	278.7	267.5
42°	204.8	210.5	217.9	228.0	244.2	258.7	271.5	278.9	274.3	265.5	254.7
42.5°	194.5	200.3	206.8	216.3	232.0	246.0	259.0	265.7	261.1	252.5	242.1
43°	184.7	190.3	195.7	204.7	220.1	233.9	246.5	253.1	248.1	240.0	229.7
43.5°	175.2	180.8	185.3	193.1	208.2	222.0	234.4	240.7	235.2	227.2	217.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	148.3	153.6	156.0	160.3	175.5	188.6	199.9	203.6	199.1	192.0	182.1
45.5°	140.1	145.1	146.8	150.3	165.6	177.8	189.0	191.7	187.8	181.0	171.0
46°	132.0	137.0	138.0	140.2	155.8	167.7	178.7	180.5	176.9	170.0	160.4
46.5°	124.3	129.2	129.4	130.9	146.4	157.9	168.1	169.0	166.2	159.3	150.1
47°	116.6	121.4	121.4	122.3	137.5	148.2	157.9	158.4	155.7	149.5	139.9
47.5°	109.7	114.1	113.7	114.1	128.9	139.0	147.8	147.9	145.5	139.8	130.5
48°	102.8	107.2	106.4	106.5	120.7	130.3	138.4	138.1	135.8	129.8	121.5
48.5°	96.2	100.5	99.6	99.7	113.0	122.0	129.0	128.5	126.5	120.8	112.9
49°	89.8	94.0	92.9	93.3	105.7	113.9	120.0	119.5	117.6	112.3	104.6
49.5°	83.8	87.8	86.8	87.2	98.7	106.3	111.5	111.1	108.9	104.0	97.6
50°	78.0	81.8	81.1	81.7	92.8	99.1	103.3	103.1	101.0	97.1	90.7
50.5°	72.5	76.1	75.7	76.4	86.8	92.8	96.4	96.2	94.2	90.2	83.8
51°	67.2	70.6	70.6	71.5	80.9	86.5	89.5	89.3	87.3	83.2	76.9
51.5°	62.1	65.4	65.6	66.7	74.9	80.3	82.6	82.5	80.4	76.3	70.0
52°	57.4	60.5	60.9	62.2	69.0	74.0	75.7	75.6	73.5	69.4	64.1
52.5°	52.8	55.8	56.4	57.7	63.9	67.7	68.8	68.8	66.7	63.2	58.6
53°	48.4	51.2	52.0	53.4	58.9	62.4	63.2	63.1	61.1	57.8	53.6
53.5°	44.3	46.8	47.8	49.2	54.4	57.3	58.0	57.6	55.9	52.8	48.7
54°	40.5	42.8	43.9	45.2	50.0	52.3	53.1	52.6	51.0	48.1	44.4
54.5°	37.2	39.2	40.2	41.5	45.6	47.6	48.3	47.8	46.2	43.6	40.3
55°	34.2	35.8	36.8	38.0	41.7	43.4	43.9	43.6	42.2	39.7	36.9
55.5°	31.3	32.9	33.8	35.0	38.0	39.4	39.9	39.7	38.4	36.3	33.6
56°	28.3	30.0	30.8	31.9	34.6	35.8	36.3	36.1	35.0	33.1	30.2
56.5°	25.3	27.1	27.8	28.8	31.4	32.5	33.0	32.7	31.7	29.6	27.0
57°	22.3	24.1	24.8	25.7	28.1	29.2	29.7	29.3	28.5	26.6	24.1
57.5°	20.1	21.2	21.8	22.6	25.0	26.0	26.4	26.3	25.4	23.7	21.5
58°	18.2	19.1	19.6	20.2	22.3	23.1	23.5	23.4	22.7	21.2	19.2
58.5°	16.5	17.3	17.6	18.0	19.9	20.6	20.9	20.9	20.3	19.0	17.2
59°	15.0	15.7	15.9	16.2	17.7	18.2	18.6	18.6	18.1	17.1	15.5
59.5°	13.7	14.3	14.3	14.6	15.8	16.3	16.6	16.6	16.2	15.3	13.9
60°	12.5	13.0	13.1	13.2	14.2	14.6	14.8	14.9	14.6	13.8	12.6
60.5°	11.4	11.9	11.9	11.9	12.8	13.1	13.3	13.5	13.2	12.6	11.5
61°	10.4	10.9	10.9	10.8	11.6	11.9	12.0	12.2	11.9	11.4	10.4
61.5°	9.6	10.0	10.0	9.9	10.5	10.8	10.9	11.1	10.8	10.4	9.6
62°	8.8	9.2	9.1	9.1	9.6	9.8	9.9	10.1	9.9	9.5	8.9
62.5°	8.2	8.5	8.4	8.3	8.9	9.1	9.1	9.2	9.0	8.8	8.3
63°	7.5	7.9	7.8	7.6	8.2	8.4	8.5	8.6	8.4	8.2	7.6
63.5°	6.9	7.3	7.1	7.0	7.5	7.7	7.8	7.9	7.8	7.5	7.0
64°	6.4	6.7	6.6	6.5	6.9	7.0	7.2	7.3	7.2	6.9	6.3
64.5°	5.9	6.2	6.1	6.0	6.2	6.3	6.6	6.7	6.6	6.2	5.8
65°	5.5	5.8	5.7	5.5	5.7	5.8	5.9	6.0	5.9	5.8	5.4
65.5°	5.1	5.3	5.3	5.1	5.3	5.4	5.5	5.6	5.5	5.4	5.0
66°	4.7	5.0	4.9	4.8	4.9	5.0	5.1	5.2	5.1	5.0	4.7



TEST NUMBER: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	3.8	4.0	3.9	3.8	3.9	4.0	4.1	4.1	4.1	4.0	3.7
68°	3.5	3.7	3.7	3.6	3.6	3.7	3.8	3.8	3.8	3.7	3.5
68.5°	3.3	3.5	3.5	3.4	3.4	3.4	3.5	3.6	3.5	3.5	3.2
69°	3.1	3.2	3.2	3.1	3.2	3.2	3.3	3.3	3.3	3.2	3.0
69.5°	2.8	3.0	3.0	2.9	3.0	3.0	3.1	3.1	3.1	3.0	2.8
70°	2.6	2.8	2.8	2.7	2.7	2.8	2.9	2.9	2.9	2.8	2.6
70.5°	2.4	2.6	2.6	2.5	2.6	2.6	2.7	2.7	2.7	2.6	2.4
71°	2.3	2.4	2.4	2.3	2.4	2.4	2.5	2.5	2.5	2.4	2.3
71.5°	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1
72°	1.9	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.0
72.5°	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.8
73°	1.6	1.8	1.8	1.7	1.8	1.8	1.9	1.9	1.8	1.8	1.7
73.5°	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6
74°	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5
74.5°	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.3
75°	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.2
75.5°	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.2	1.1
76°	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.0
76.5°	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.0
77°	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9
77.5°	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
78°	0.7	0.7	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.7
78.5°	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.7
79°	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6
79.5°	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6
80°	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5
80.5°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4
81°	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
81.5°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
82°	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
82.5°	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3
83°	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
83.5°	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
84°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
84.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2
85°	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
85.5°	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
86°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
86.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
87°	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.1	0.1	0.1	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: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

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: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	956.7	956.7	956.7	956.7	956.7	956.7
0.5°	956.5	956.4	956.5	956.3	956.1	955.6
1°	956.3	955.8	955.6	955.3	955.1	954.8
1.5°	955.8	955.0	954.5	954.2	954.1	953.7
2°	955.1	954.0	953.4	953.0	952.8	952.5
2.5°	954.1	952.8	951.8	951.2	951.1	951.0
3°	953.1	951.3	950.2	949.4	949.2	949.3
3.5°	951.9	949.7	948.2	947.4	947.2	947.3
4°	950.4	947.8	946.1	945.0	944.9	945.2
4.5°	948.7	945.8	943.8	942.7	942.4	942.9
5°	946.8	943.5	941.3	939.9	939.5	940.1
5.5°	944.6	941.0	938.2	937.0	936.7	937.3
6°	942.3	938.2	935.3	933.7	933.5	934.0
6.5°	939.6	935.1	932.1	930.5	930.1	930.8
7°	936.7	931.9	928.5	926.8	926.2	927.1
7.5°	933.5	928.4	924.8	922.9	922.3	923.2
8°	930.2	924.6	920.9	918.7	918.1	919.0
8.5°	926.5	920.4	916.5	914.3	913.6	914.5
9°	922.6	916.0	911.9	909.4	908.6	909.6
9.5°	918.3	911.4	907.1	904.1	903.5	904.6
10°	913.9	906.4	901.7	898.8	897.8	899.1
10.5°	909.1	901.0	896.1	893.0	892.1	893.1
11°	904.0	895.5	890.2	886.6	885.4	887.1
11.5°	898.7	889.7	883.7	879.8	878.9	880.3
12°	893.3	883.4	877.0	872.8	871.7	873.2
12.5°	887.3	876.9	870.0	865.5	864.1	865.9
13°	881.3	870.2	862.8	857.9	856.4	858.4
13.5°	874.9	863.4	855.6	850.1	848.7	850.5
14°	868.4	856.3	847.8	842.3	840.5	842.3
14.5°	861.4	849.0	840.2	834.4	832.4	834.1
15°	854.8	841.6	832.0	826.1	823.9	825.8
15.5°	847.6	833.9	824.4	818.0	815.6	817.4
16°	840.4	826.4	816.3	809.6	807.3	809.2
16.5°	833.0	818.9	808.9	801.5	799.2	800.7
17°	825.8	810.9	800.8	793.0	790.9	792.6
17.5°	818.3	803.5	792.9	785.1	782.5	784.2
18°	810.7	795.7	784.8	776.9	774.4	776.0
18.5°	803.2	788.0	777.3	769.0	766.5	767.7
19°	795.9	780.4	769.7	761.7	758.9	760.1
19.5°	788.6	773.3	762.3	754.3	751.3	752.4
20°	781.5	765.8	754.8	746.8	743.8	745.3
20.5°	774.0	758.3	747.3	739.3	736.1	737.6
21°	767.1	750.7	739.1	731.1	728.5	730.2



TEST NUMBER: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	744.3	725.8	712.3	704.4	701.8	703.6
23°	736.5	716.3	702.5	693.9	691.7	693.9
23.5°	728.7	706.9	692.1	683.0	681.0	683.1
24°	721.0	696.7	681.2	671.5	669.3	671.6
24.5°	711.7	686.2	670.1	658.9	657.0	659.5
25°	702.1	675.2	658.8	645.9	644.6	647.6
25.5°	691.6	664.0	647.1	632.3	630.9	634.6
26°	680.9	652.7	635.0	618.7	617.6	622.1
26.5°	668.9	640.9	622.4	605.5	603.5	609.0
27°	656.6	629.0	609.6	592.5	589.3	596.2
27.5°	643.1	616.3	596.4	579.5	575.2	582.8
28°	629.4	603.3	582.8	566.9	561.5	569.6
28.5°	614.8	589.9	568.9	554.5	547.6	555.7
29°	599.7	575.8	555.0	541.9	534.6	541.8
29.5°	584.4	561.4	540.8	529.1	520.9	527.7
30°	569.4	546.5	526.9	516.2	507.9	513.3
30.5°	553.9	531.5	512.8	502.5	495.0	498.5
31°	539.2	516.3	499.6	488.7	481.8	484.1
31.5°	524.9	500.8	485.8	474.3	468.4	469.8
32°	510.8	485.5	472.2	459.5	455.0	455.6
32.5°	497.0	470.0	458.5	444.8	441.2	442.0
33°	482.6	454.4	444.3	430.6	427.4	428.5
33.5°	468.6	438.6	429.7	416.5	413.6	414.7
34°	454.5	423.8	415.5	402.5	399.7	401.2
34.5°	440.2	409.0	400.8	388.5	385.4	387.5
35°	425.7	394.4	386.2	375.4	371.9	373.6
35.5°	411.2	380.7	371.3	362.6	358.5	360.8
36°	396.6	367.0	355.0	349.4	345.8	347.8
36.5°	382.1	353.6	341.1	336.2	333.2	334.5
37°	367.6	340.1	327.2	323.0	320.6	321.4
37.5°	353.4	326.8	313.4	309.9	308.1	308.3
38°	339.5	313.4	299.5	296.7	295.5	295.2
38.5°	326.0	300.1	285.8	283.5	283.2	282.9
39°	312.6	287.1	273.1	270.6	271.0	271.1
39.5°	299.6	274.2	260.2	257.7	258.3	259.4
40°	286.6	261.8	247.5	244.9	245.9	248.0
40.5°	273.9	249.4	235.2	232.5	234.0	236.5
41°	261.4	237.0	223.3	220.3	222.4	225.6
41.5°	249.1	225.0	211.5	208.6	211.0	215.0
42°	236.8	213.7	200.3	197.2	199.7	204.8
42.5°	225.1	202.2	189.5	186.0	189.1	194.5
43°	213.6	191.3	179.0	175.1	178.6	184.7
43.5°	202.3	180.6	168.8	164.3	168.5	175.2



TEST NUMBER: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	170.3	150.9	140.5	135.1	140.0	148.3
45.5°	160.3	141.5	132.0	126.3	131.2	140.1
46°	150.4	132.7	123.8	117.9	122.8	132.0
46.5°	140.6	124.3	115.8	110.0	114.9	124.3
47°	131.3	116.2	108.4	102.9	107.5	116.6
47.5°	122.1	108.2	101.3	96.3	100.4	109.7
48°	113.4	100.9	94.6	89.9	93.9	102.8
48.5°	105.4	94.0	88.2	84.0	87.7	96.2
49°	97.5	87.3	82.0	78.4	81.8	89.8
49.5°	90.7	81.0	76.2	73.4	76.6	83.8
50°	83.9	74.8	70.7	68.5	71.3	78.0
50.5°	77.1	69.0	65.4	63.7	66.5	72.5
51°	70.3	63.6	60.4	59.2	61.8	67.2
51.5°	64.6	58.4	55.7	55.0	57.3	62.1
52°	59.3	53.6	51.2	50.9	53.0	57.4
52.5°	54.1	48.7	46.9	46.8	48.9	52.8
53°	49.4	44.3	42.9	42.9	45.0	48.4
53.5°	45.0	40.3	39.2	39.4	41.3	44.3
54°	40.9	36.7	35.7	36.1	37.8	40.5
54.5°	37.3	33.7	32.8	33.2	35.0	37.2
55°	34.0	30.7	29.9	30.3	32.0	34.2
55.5°	30.7	27.6	26.9	27.4	29.0	31.3
56°	27.4	24.6	24.0	24.5	26.0	28.3
56.5°	24.5	21.6	21.1	21.6	23.0	25.3
57°	21.8	19.2	18.8	19.3	20.6	22.3
57.5°	19.4	17.2	16.9	17.4	18.6	20.1
58°	17.3	15.5	15.2	15.7	16.9	18.2
58.5°	15.6	13.9	13.8	14.2	15.3	16.5
59°	14.0	12.6	12.5	13.0	14.0	15.0
59.5°	12.7	11.4	11.3	11.8	12.7	13.7
60°	11.5	10.4	10.3	10.8	11.7	12.5
60.5°	10.5	9.5	9.4	9.9	10.7	11.4
61°	9.6	8.7	8.6	9.1	9.8	10.4
61.5°	8.9	8.0	7.9	8.4	9.1	9.6
62°	8.2	7.3	7.3	7.7	8.4	8.8
62.5°	7.6	6.7	6.7	7.1	7.7	8.2
63°	6.9	6.2	6.2	6.6	7.1	7.5
63.5°	6.3	5.7	5.8	6.1	6.6	6.9
64°	5.8	5.3	5.3	5.6	6.1	6.4
64.5°	5.4	4.9	4.9	5.2	5.6	5.9
65°	5.0	4.6	4.6	4.8	5.2	5.5
65.5°	4.6	4.2	4.3	4.5	4.9	5.1
66°	4.3	3.9	4.0	4.2	4.5	4.7



TEST NUMBER: P775670

CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	3.4	3.2	3.2	3.4	3.6	3.8
68°	3.2	3.0	3.0	3.2	3.4	3.5
68.5°	3.0	2.8	2.8	2.9	3.1	3.3
69°	2.8	2.6	2.6	2.7	2.9	3.1
69.5°	2.6	2.4	2.4	2.5	2.7	2.8
70°	2.4	2.2	2.2	2.4	2.5	2.6
70.5°	2.3	2.1	2.1	2.2	2.3	2.4
71°	2.1	1.9	1.9	2.0	2.1	2.3
71.5°	2.0	1.8	1.8	1.9	2.0	2.1
72°	1.8	1.7	1.7	1.8	1.8	1.9
72.5°	1.7	1.5	1.5	1.6	1.7	1.8
73°	1.6	1.4	1.4	1.5	1.6	1.6
73.5°	1.5	1.3	1.3	1.4	1.4	1.5
74°	1.4	1.2	1.2	1.3	1.3	1.4
74.5°	1.3	1.1	1.1	1.2	1.2	1.3
75°	1.2	1.0	1.0	1.1	1.1	1.2
75.5°	1.1	1.0	1.0	1.0	1.0	1.1
76°	1.0	0.9	0.9	0.9	0.9	1.0
76.5°	0.9	0.8	0.8	0.8	0.8	0.9
77°	0.8	0.7	0.7	0.7	0.8	0.8
77.5°	0.8	0.7	0.7	0.7	0.7	0.7
78°	0.7	0.6	0.6	0.6	0.6	0.7
78.5°	0.6	0.6	0.6	0.6	0.6	0.6
79°	0.6	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.4	0.5
80°	0.5	0.4	0.4	0.4	0.4	0.4
80.5°	0.4	0.4	0.4	0.4	0.3	0.4
81°	0.4	0.3	0.3	0.3	0.3	0.3
81.5°	0.3	0.3	0.3	0.3	0.3	0.3
82°	0.3	0.3	0.3	0.2	0.2	0.2
82.5°	0.3	0.2	0.2	0.2	0.2	0.2
83°	0.2	0.2	0.2	0.2	0.2	0.1
83.5°	0.2	0.2	0.2	0.2	0.1	0.1
84°	0.2	0.1	0.1	0.1	0.1	0.1
84.5°	0.1	0.1	0.1	0.1	0.1	0.1
85°	0.1	0.1	0.1	0.1	0.1	0.1
85.5°	0.1	0.1	0.1	0.1	0.0	0.0
86°	0.1	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: P775670
CATALOG NUMBER: HCDJBL510CSD-HCD4TRH-1000lm-2700K

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°	721.9	727.1	734.7	744.6	761.2	772.7	781.3	785.0	784.3	779.5	771.0
22°	713.3	719.3	727.0	737.2	753.5	765.5	773.9	777.9	777.1	772.1	763.6



44°	165.9	171.3	175.2	182.0	197.0	210.5	222.6	228.0	222.9	214.9	205.4
44.5°	157.1	162.3	165.4	171.0	186.2	199.1	211.1	215.5	210.8	203.5	193.7



66.5°	4.4	4.6	4.6	4.4	4.5	4.6	4.7	4.8	4.7	4.6	4.3
67°	4.1	4.3	4.2	4.1	4.2	4.3	4.4	4.4	4.4	4.3	4.0



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°	759.8	742.8	730.7	722.4	720.3	721.9
22°	752.0	734.3	721.7	713.7	711.3	713.3



44°	191.4	170.4	159.1	154.4	158.8	165.9
44.5°	180.9	160.5	149.6	144.5	149.4	157.1

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66.5°	4.0	3.7	3.7	3.9	4.2	4.4
67°	3.7	3.4	3.5	3.7	3.9	4.1

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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)