

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: P775839

Luminaire Tested: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775839
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B044)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD81TRMW-1000lm-5000K
Description: 8 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

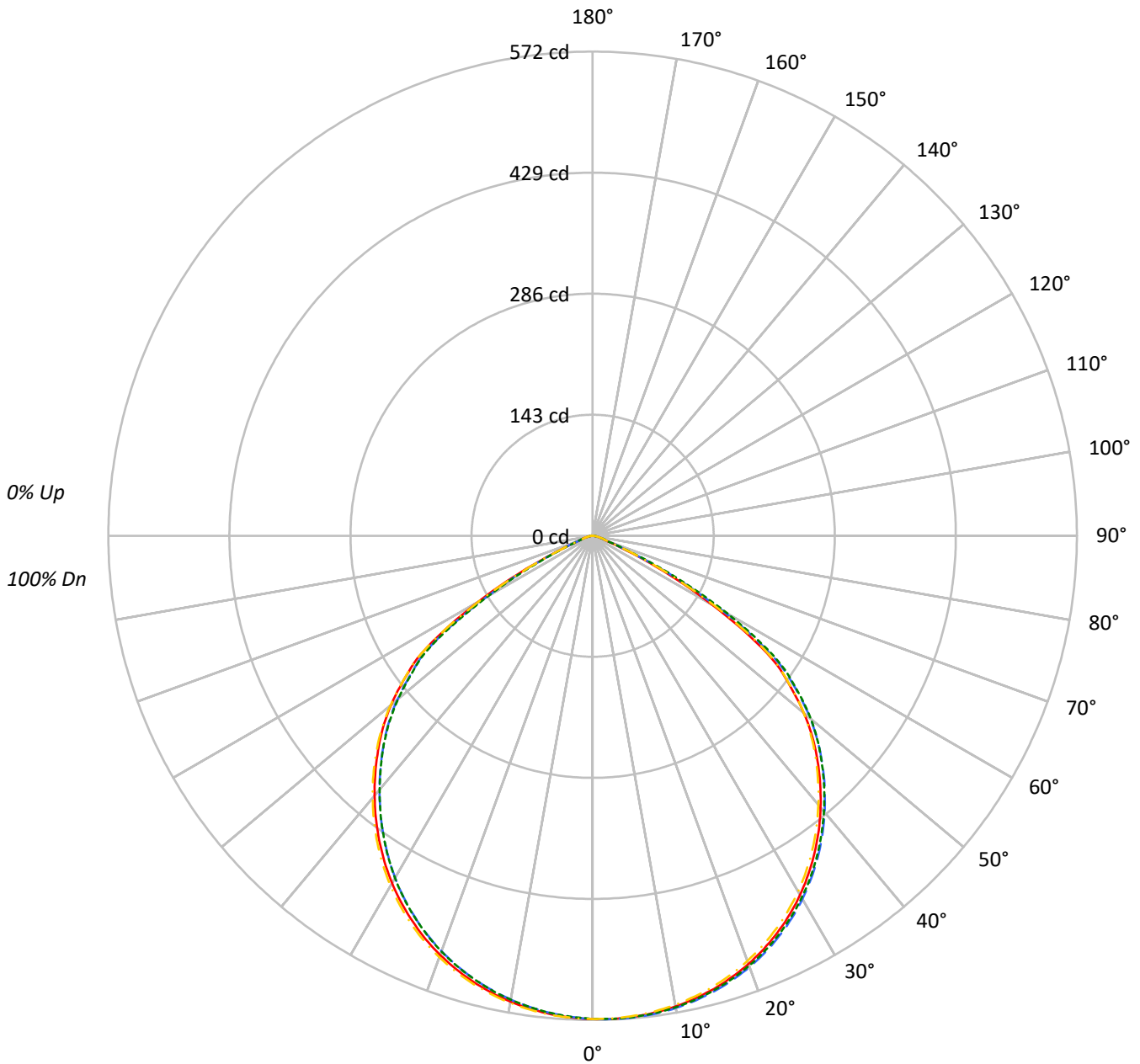
Lumens per Lamp: N/A
Luminaire Lumens: 1315.6 lumens
Efficiency: N/A
Efficacy: 131.6 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.35
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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	98	96	97	95	93	94	92	91	89																			
2	103	96	90	85	100	94	89	84	91	86	83	87	84	81	85	82	79	77																			
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67																			
4	87	77	69	63	85	75	68	63	73	67	62	71	65	61	69	64	60	58																			
5	81	69	61	55	79	68	60	55	66	59	54	64	58	54	62	57	53	51																			
6	75	63	54	48	73	62	54	48	60	53	48	58	52	47	57	51	47	45																			
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40																			
8	65	52	44	39	63	51	44	38	50	43	38	49	43	38	48	42	38	36																			
9	60	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	32																			
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17430	17430	17430	17430
5°	17478	17484	17389	17343
10°	17503	17534	17327	17252
15°	17514	17564	17235	17134
20°	17489	17564	17119	16976
25°	17413	17520	16941	16756
30°	17271	17408	16703	16456
35°	17040	17223	16380	16060
40°	16695	16942	15966	15599
45°	16226	16558	15474	15060
50°	15470	15978	14757	14225
55°	14127	14813	13461	12897
60°	9990	11247	9513	8707
65°	4905	5866	4428	3995
70°	1562	1723	1571	1544
75°	1132	1274	1144	1168
80°	791	932	791	844
85°	455	631	455	525

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 16597 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.0	4.1
10°-20°	155.0	11.8
20°-30°	234.6	17.8
30°-40°	279.7	21.3
40°-50°	282.3	21.5
50°-60°	224.2	17.0
60°-70°	72.7	5.5
70°-80°	11.2	0.8
80°-90°	1.9	0.1
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°	443.7	33.7
0°-40°	723.4	55.0
0°-60°	1229.8	93.5
0°-90°	1315.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1315.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	571	571	571	571	571	
5°	570	570	567	566	570	54
15°	554	556	545	542	554	156
25°	517	520	503	497	517	238
35°	457	462	440	431	457	286
45°	376	384	358	349	376	289
55°	265	278	253	242	265	229
65°	68	81	61	55	68	73
75°	10	11	10	10	10	11
85°	1	2	1	2	1	2
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°	570.9	570.9	570.9	570.9	570.9	570.9	570.9	570.9	570.9	570.9	570.9
0.5°	571.2	571.1	571.1	571.2	570.7	570.8	571.0	571.0	570.9	570.7	570.6
1°	571.2	571.2	571.3	571.4	570.9	570.9	570.9	570.9	570.7	570.4	570.3
1.5°	571.3	571.3	571.4	571.5	571.0	570.9	570.9	570.8	570.4	570.0	569.8
2°	571.2	571.3	571.5	571.6	571.1	570.9	570.8	570.6	570.2	569.6	569.4
2.5°	571.1	571.3	571.5	571.6	571.1	570.9	570.6	570.3	569.7	569.3	569.0
3°	571.1	571.3	571.5	571.6	571.0	570.8	570.5	569.9	569.4	568.8	568.6
3.5°	570.9	571.2	571.4	571.6	571.0	570.6	570.2	569.6	569.0	568.2	567.9
4°	570.8	571.1	571.3	571.4	570.9	570.5	569.8	569.2	568.4	567.7	567.4
4.5°	570.5	570.9	571.2	571.3	570.7	570.2	569.5	568.8	567.9	567.1	566.6
5°	570.3	570.7	571.1	571.1	570.5	569.9	569.1	568.2	567.4	566.4	566.0
5.5°	569.9	570.4	570.8	570.9	570.2	569.6	568.7	567.7	566.6	565.7	565.2
6°	569.5	570.0	570.5	570.6	569.8	569.2	568.1	567.2	566.0	564.9	564.5
6.5°	569.1	569.7	570.2	570.3	569.5	568.8	567.6	566.5	565.2	564.1	563.6
7°	568.6	569.3	569.8	569.8	569.1	568.2	567.1	565.9	564.5	563.2	562.7
7.5°	568.0	568.8	569.4	569.4	568.7	567.7	566.5	565.0	563.6	562.4	561.8
8°	567.5	568.2	568.9	569.0	568.1	567.2	565.8	564.3	562.8	561.4	560.8
8.5°	566.7	567.7	568.3	568.3	567.6	566.4	565.0	563.4	561.8	560.5	559.8
9°	566.1	567.2	567.8	567.8	567.0	565.8	564.2	562.6	560.9	559.4	558.7
9.5°	565.4	566.4	567.2	567.2	566.3	565.1	563.4	561.6	559.9	558.3	557.6
10°	564.6	565.8	566.4	566.4	565.6	564.3	562.6	560.7	558.9	557.1	556.4
10.5°	563.8	565.0	565.7	565.7	564.8	563.4	561.7	559.6	557.7	556.0	555.1
11°	562.9	564.2	564.9	564.9	564.0	562.6	560.7	558.5	556.5	554.7	553.8
11.5°	561.9	563.3	564.1	564.1	563.1	561.6	559.6	557.5	555.3	553.4	552.6
12°	561.0	562.5	563.2	563.2	562.2	560.7	558.5	556.2	554.1	552.1	551.2
12.5°	560.0	561.5	562.3	562.3	561.3	559.6	557.5	555.0	552.7	550.6	549.7
13°	558.9	560.5	561.3	561.2	560.2	558.5	556.3	553.7	551.3	549.3	548.3
13.5°	557.7	559.3	560.2	560.1	559.2	557.4	555.1	552.4	549.9	547.8	546.7
14°	556.5	558.2	559.2	559.1	558.0	556.2	553.8	551.1	548.4	546.3	545.1
14.5°	555.3	557.0	558.1	557.9	556.9	554.9	552.5	549.6	546.9	544.7	543.5
15°	554.1	556.0	556.9	556.7	555.7	553.7	551.1	548.1	545.3	543.0	541.9
15.5°	552.7	554.6	555.7	555.4	554.4	552.4	549.7	546.7	543.7	541.4	540.1
16°	551.3	553.3	554.4	554.1	553.0	551.0	548.2	545.0	542.0	539.6	538.3
16.5°	549.9	551.9	553.0	552.7	551.7	549.6	546.7	543.4	540.3	537.9	536.5
17°	548.3	550.5	551.6	551.3	550.3	548.1	545.1	541.7	538.6	536.0	534.6
17.5°	546.8	549.0	550.2	549.8	548.8	546.6	543.4	540.0	536.7	534.0	532.6
18°	545.2	547.4	548.6	548.3	547.3	545.0	541.8	538.2	534.9	532.1	530.6
18.5°	543.6	546.0	547.1	546.6	545.7	543.3	540.1	536.4	533.0	530.1	528.6
19°	541.8	544.4	545.4	545.1	544.0	541.6	538.3	534.4	530.9	527.9	526.4
19.5°	540.1	542.7	543.8	543.4	542.3	539.9	536.5	532.5	528.9	525.9	524.3
20°	538.3	540.8	542.1	541.7	540.6	538.1	534.6	530.6	526.9	523.8	522.1
20.5°	536.5	539.0	540.3	539.9	538.8	536.3	532.6	528.5	524.6	521.5	519.8
21°	534.4	537.2	538.4	538.1	536.9	534.3	530.5	526.3	522.5	519.2	517.5



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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°	528.4	531.2	532.6	532.1	531.0	528.3	524.2	519.8	515.6	512.1	510.2
23°	526.1	529.2	530.5	530.1	529.0	526.1	522.1	517.4	513.1	509.7	507.7
23.5°	524.0	527.1	528.5	527.9	526.8	524.0	519.7	515.2	510.7	507.1	505.1
24°	521.7	524.9	526.2	525.8	524.6	521.8	517.4	512.7	508.2	504.6	502.5
24.5°	519.3	522.6	524.0	523.5	522.4	519.4	515.0	510.2	505.6	501.8	499.7
25°	516.9	520.3	521.7	521.1	520.1	517.0	512.7	507.7	502.9	499.2	496.9
25.5°	514.5	517.9	519.3	518.8	517.7	514.6	510.2	505.0	500.3	496.5	494.2
26°	512.1	515.5	516.9	516.4	515.3	512.2	507.7	502.5	497.6	493.6	491.4
26.5°	509.5	513.0	514.5	514.0	512.7	509.7	505.0	499.8	494.8	490.7	488.4
27°	506.8	510.5	511.8	511.4	510.1	507.2	502.5	497.0	491.9	487.9	485.4
27.5°	504.2	507.8	509.4	508.8	507.7	504.5	499.7	494.3	489.0	484.9	482.4
28°	501.4	505.1	506.7	506.1	505.0	501.8	496.9	491.3	486.1	481.9	479.4
28.5°	498.6	502.4	504.0	503.4	502.3	499.1	494.2	488.4	483.1	478.7	476.2
29°	495.9	499.7	501.2	500.7	499.5	496.2	491.2	485.4	480.1	475.7	473.0
29.5°	492.9	496.9	498.4	497.9	496.7	493.4	488.3	482.4	476.9	472.4	469.9
30°	489.9	493.9	495.4	495.0	493.8	490.4	485.3	479.3	473.8	469.2	466.5
30.5°	487.0	491.0	492.6	492.0	491.0	487.5	482.3	476.2	470.5	465.9	463.1
31°	483.8	488.0	489.6	489.0	487.9	484.5	479.1	473.0	467.3	462.6	459.8
31.5°	480.7	484.9	486.5	485.9	484.9	481.4	476.0	469.7	464.0	459.2	456.4
32°	477.5	481.7	483.4	482.9	481.8	478.3	472.8	466.5	460.6	455.8	453.0
32.5°	474.2	478.5	480.3	479.7	478.6	475.1	469.5	463.1	457.2	452.3	449.3
33°	471.0	475.3	477.1	476.5	475.5	471.9	466.2	459.8	453.6	448.7	445.9
33.5°	467.6	472.0	473.8	473.3	472.2	468.6	462.8	456.3	450.2	445.0	442.1
34°	464.1	468.6	470.5	469.9	468.8	465.3	459.5	452.8	446.6	441.4	438.5
34.5°	460.7	465.2	467.1	466.4	465.4	461.7	456.0	449.3	443.0	437.8	434.7
35°	457.2	461.6	463.7	463.0	462.1	458.3	452.5	445.8	439.5	434.0	431.1
35.5°	453.5	458.1	460.2	459.5	458.6	454.8	448.9	442.0	435.7	430.2	427.2
36°	449.9	454.6	456.5	456.1	455.1	451.3	445.3	438.3	431.9	426.5	423.4
36.5°	446.2	450.9	452.9	452.5	451.4	447.7	441.7	434.7	428.2	422.6	419.5
37°	442.5	447.1	449.3	448.9	447.9	444.1	438.0	431.1	424.2	418.7	415.7
37.5°	438.7	443.4	445.7	445.1	444.2	440.2	434.2	427.1	420.4	414.8	411.7
38°	434.8	439.6	441.8	441.4	440.4	436.6	430.4	423.3	416.6	410.8	407.7
38.5°	430.9	435.7	438.0	437.7	436.6	432.8	426.6	419.4	412.6	406.9	403.7
39°	427.0	431.8	434.1	433.7	432.9	428.9	422.7	415.5	408.7	402.8	399.7
39.5°	423.0	427.9	430.2	429.9	429.0	425.0	418.7	411.5	404.6	398.8	395.7
40°	418.9	423.8	426.4	425.9	425.1	421.1	414.7	407.4	400.6	394.7	391.5
40.5°	414.8	419.8	422.2	422.0	421.1	417.1	410.7	403.3	396.5	390.4	387.5
41°	410.6	415.6	418.2	417.9	417.0	413.0	406.6	399.3	392.4	386.4	383.2
41.5°	406.3	411.4	414.0	413.9	413.0	409.0	402.6	395.2	388.3	382.2	379.0
42°	402.2	407.3	409.9	409.8	409.0	404.8	398.4	391.2	384.0	378.0	374.8
42.5°	397.9	403.0	405.8	405.7	404.8	400.7	394.3	386.9	379.8	373.8	370.6
43°	393.6	398.6	401.5	401.5	400.8	396.5	390.1	382.8	375.6	369.4	366.4
43.5°	389.3	394.4	397.3	397.4	396.5	392.3	385.9	378.5	371.4	365.2	362.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	375.8	381.0	384.2	384.4	383.5	379.2	373.0	365.7	358.4	352.1	349.1
45.5°	371.1	376.4	379.6	380.0	379.1	374.8	368.5	361.1	354.0	347.7	344.7
46°	366.6	371.9	375.1	375.5	374.7	370.3	364.1	356.8	349.5	343.2	340.2
46.5°	361.9	367.0	370.5	370.9	370.2	365.8	359.5	352.3	344.9	338.7	335.8
47°	357.0	362.3	365.8	366.4	365.7	361.1	354.8	347.6	340.3	334.2	331.1
47.5°	352.1	357.4	361.0	361.7	361.1	356.4	350.1	342.9	335.8	329.4	326.4
48°	347.2	352.4	356.2	356.9	356.2	351.7	345.8	338.3	331.1	324.7	321.7
48.5°	341.9	347.3	351.1	352.0	351.5	347.1	340.7	333.5	326.2	319.9	316.8
49°	336.8	342.3	346.1	347.2	346.6	341.9	335.8	328.5	321.1	314.8	311.7
49.5°	331.4	336.9	340.9	341.9	341.6	336.9	330.6	323.4	316.0	309.6	306.4
50°	325.7	331.4	335.5	336.7	336.4	331.8	325.6	318.3	310.7	304.3	301.0
50.5°	320.0	325.5	330.0	331.1	331.0	326.6	320.2	312.7	305.3	298.7	295.5
51°	314.3	319.9	324.2	325.6	325.5	320.8	314.4	307.1	299.5	293.0	289.8
51.5°	308.2	313.8	318.3	319.8	320.0	315.2	308.8	301.3	294.0	287.6	284.2
52°	302.1	307.9	312.4	313.9	314.0	309.3	302.9	295.4	287.9	281.6	278.2
52.5°	296.0	301.7	306.3	307.7	308.0	303.2	296.9	289.4	282.1	275.7	272.4
53°	289.9	295.5	300.2	301.9	302.0	297.3	290.8	283.4	276.3	270.0	266.8
53.5°	284.0	289.3	294.1	295.7	296.0	291.4	284.8	277.8	270.7	264.7	261.6
54°	278.2	283.6	288.2	290.0	290.1	285.4	279.2	272.1	265.4	259.2	256.0
54.5°	272.2	277.8	282.4	284.2	284.3	279.9	273.5	266.3	259.5	253.4	250.3
55°	265.4	270.8	275.7	277.7	278.3	273.6	267.2	259.9	252.9	246.9	243.8
55.5°	257.8	263.3	268.5	270.4	271.4	266.8	260.1	252.6	245.1	238.8	236.0
56°	249.0	255.2	260.0	262.0	263.6	259.1	252.0	243.9	236.2	230.1	227.1
56.5°	239.6	246.0	250.9	253.2	255.0	250.6	243.3	234.8	227.1	220.6	217.7
57°	229.6	235.9	241.3	243.7	245.8	241.0	233.8	225.3	217.3	210.8	207.6
57.5°	219.0	225.0	231.3	234.1	236.2	231.1	223.8	215.5	207.4	201.0	197.4
58°	208.1	214.1	221.0	224.3	226.4	220.6	213.2	205.1	197.3	190.7	187.1
58.5°	197.3	203.2	210.2	214.1	216.4	210.3	202.7	194.8	187.2	180.8	176.7
59°	185.9	192.3	199.5	203.8	205.7	199.0	191.6	184.0	176.6	170.3	166.1
59.5°	174.9	181.1	188.6	192.9	195.0	188.1	180.6	173.1	166.2	160.0	155.7
60°	163.6	170.3	177.6	182.3	184.2	177.2	169.5	162.0	155.8	149.9	145.7
60.5°	153.0	159.6	166.5	171.2	173.4	166.6	158.4	151.5	145.5	139.6	135.6
61°	142.2	149.0	155.4	160.1	162.2	155.8	147.6	140.5	135.0	129.8	125.8
61.5°	131.7	138.8	144.7	148.8	151.6	145.7	137.1	130.0	124.9	120.2	116.1
62°	121.6	128.3	134.3	137.8	141.0	135.0	126.8	119.7	115.0	110.9	106.9
62.5°	111.8	118.4	124.0	126.7	130.1	124.8	116.6	109.6	105.8	102.1	98.4
63°	102.3	108.6	113.8	116.2	119.8	114.8	107.7	100.5	96.7	93.4	89.7
63.5°	93.1	99.1	103.6	105.4	109.8	105.6	98.6	91.3	87.5	84.5	81.1
64°	84.1	89.7	94.0	95.4	100.3	96.4	89.5	82.2	78.3	75.8	72.6
64.5°	75.7	81.0	84.6	85.7	90.8	87.2	80.5	73.1	69.3	66.9	64.9
65°	67.9	72.5	75.6	76.5	81.2	77.9	71.5	65.1	61.3	59.3	57.9
65.5°	60.0	64.3	67.0	68.0	71.7	68.8	63.4	57.8	54.0	52.0	51.4
66°	52.0	56.4	58.7	59.7	63.0	60.3	56.1	51.1	47.1	45.4	45.3



TEST NUMBER: P775839

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	34.1	36.3	37.8	38.7	40.6	39.4	37.0	34.0	29.7	29.8	30.5
68°	30.2	32.2	33.9	34.6	34.6	33.6	31.7	29.6	25.7	26.2	26.8
68.5°	26.2	28.1	30.1	30.6	29.5	28.5	27.3	25.8	22.5	23.4	23.7
69°	22.4	24.1	26.2	26.6	25.3	24.3	23.8	22.6	20.1	21.1	21.1
69.5°	18.4	20.0	22.4	22.6	21.9	21.2	20.8	20.0	18.5	19.2	19.1
70°	17.5	18.1	18.5	18.5	19.3	19.0	18.7	18.2	17.6	17.7	17.8
70.5°	16.6	16.9	17.3	17.3	17.7	17.6	17.5	17.2	16.7	16.8	16.8
71°	15.7	16.1	16.4	16.4	16.7	16.7	16.6	16.3	15.9	16.0	16.1
71.5°	14.8	15.3	15.7	15.7	16.0	15.9	15.8	15.5	14.9	15.1	15.2
72°	14.0	14.5	14.8	14.8	15.1	15.1	15.0	14.7	14.2	14.4	14.5
72.5°	13.2	13.6	14.1	14.1	14.4	14.3	14.2	13.9	13.3	13.5	13.8
73°	12.4	12.9	13.2	13.3	13.6	13.5	13.4	13.1	12.6	12.8	13.0
73.5°	11.6	12.2	12.5	12.6	12.9	12.8	12.7	12.4	11.8	12.0	12.3
74°	11.0	11.4	11.8	11.8	12.2	12.0	12.0	11.6	11.1	11.3	11.5
74.5°	10.2	10.7	11.1	11.1	11.4	11.4	11.3	10.9	10.3	10.7	10.9
75°	9.6	10.0	10.4	10.4	10.8	10.7	10.7	10.2	9.7	9.9	10.2
75.5°	9.0	9.4	9.8	9.8	10.1	10.0	10.0	9.6	9.2	9.3	9.6
76°	8.3	8.7	9.2	9.2	9.5	9.5	9.4	9.0	8.5	8.7	9.1
76.5°	7.8	8.1	8.5	8.6	9.0	8.8	8.8	8.4	8.0	8.2	8.4
77°	7.2	7.6	8.0	8.1	8.3	8.3	8.2	7.9	7.4	7.6	7.9
77.5°	6.7	7.0	7.5	7.6	7.8	7.8	7.7	7.2	6.8	7.0	7.4
78°	6.2	6.5	6.9	7.0	7.2	7.2	7.1	6.7	6.3	6.5	6.7
78.5°	5.8	6.1	6.4	6.5	6.7	6.7	6.6	6.2	5.8	6.0	6.3
79°	5.3	5.5	6.0	6.1	6.2	6.2	6.1	5.6	5.3	5.4	5.8
79.5°	4.8	5.1	5.5	5.5	5.8	5.8	5.6	5.2	4.9	5.0	5.3
80°	4.5	4.7	5.0	5.1	5.3	5.3	5.2	4.8	4.5	4.6	4.9
80.5°	4.1	4.3	4.6	4.7	4.9	4.9	4.8	4.4	4.1	4.2	4.5
81°	3.6	3.8	4.3	4.4	4.5	4.5	4.4	3.9	3.6	3.7	4.1
81.5°	3.3	3.5	3.8	3.9	4.1	4.1	3.9	3.6	3.3	3.4	3.6
82°	3.0	3.2	3.5	3.5	3.7	3.7	3.6	3.2	3.0	3.0	3.3
82.5°	2.6	2.8	3.1	3.2	3.3	3.3	3.2	2.9	2.6	2.7	3.0
83°	2.2	2.5	2.8	2.9	3.0	3.0	2.9	2.6	2.2	2.3	2.7
83.5°	2.0	2.1	2.5	2.6	2.7	2.7	2.6	2.2	2.0	2.0	2.3
84°	1.7	1.8	2.1	2.2	2.3	2.3	2.2	1.9	1.7	1.8	2.0
84.5°	1.5	1.6	1.8	1.9	2.0	2.0	1.9	1.6	1.5	1.5	1.7
85°	1.3	1.4	1.6	1.7	1.8	1.8	1.7	1.4	1.3	1.3	1.5
85.5°	1.0	1.1	1.4	1.5	1.5	1.5	1.4	1.1	1.1	1.0	1.3
86°	0.9	0.9	1.2	1.2	1.3	1.3	1.2	0.9	0.9	0.7	1.1
86.5°	0.6	0.6	1.0	1.0	1.1	1.1	1.0	0.7	0.6	0.6	0.9
87°	0.4	0.5	0.7	0.9	0.9	0.9	0.7	0.5	0.4	0.4	0.6
87.5°	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.4	0.3	0.3	0.5
88°	0.2	0.3	0.4	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.3
88.5°	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.2



TEST NUMBER: P775839
CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

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: P775839

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	570.9	570.9	570.9	570.9	570.9	570.9
0.5°	570.7	570.3	570.5	570.8	571.1	571.2
1°	570.4	569.9	570.3	570.7	571.1	571.2
1.5°	570.0	569.6	569.9	570.6	571.1	571.3
2°	569.6	569.3	569.6	570.4	571.0	571.2
2.5°	569.2	568.9	569.3	570.0	570.8	571.1
3°	568.7	568.3	568.9	569.7	570.6	571.1
3.5°	568.1	567.8	568.4	569.4	570.4	570.9
4°	567.5	567.3	567.9	569.0	570.0	570.8
4.5°	566.8	566.6	567.4	568.6	569.7	570.5
5°	566.2	565.9	566.8	568.0	569.3	570.3
5.5°	565.4	565.2	566.2	567.5	568.9	569.9
6°	564.6	564.5	565.5	567.0	568.3	569.5
6.5°	563.9	563.6	564.7	566.2	567.8	569.1
7°	562.9	562.8	564.1	565.6	567.3	568.6
7.5°	562.1	561.8	563.2	564.8	566.6	568.0
8°	561.0	560.9	562.3	564.0	566.0	567.5
8.5°	560.0	559.8	561.3	563.2	565.1	566.7
9°	559.0	558.7	560.2	562.3	564.4	566.1
9.5°	557.8	557.7	559.3	561.3	563.5	565.4
10°	556.6	556.5	558.2	560.3	562.7	564.6
10.5°	555.3	555.3	557.0	559.3	561.7	563.8
11°	554.2	554.1	555.9	558.2	560.8	562.9
11.5°	552.8	552.8	554.6	557.0	559.8	561.9
12°	551.4	551.4	553.3	555.9	558.6	561.0
12.5°	550.0	550.0	552.0	554.6	557.6	560.0
13°	548.5	548.5	550.6	553.3	556.4	558.9
13.5°	546.9	547.0	549.2	551.9	555.1	557.7
14°	545.3	545.3	547.7	550.5	553.8	556.5
14.5°	543.7	543.7	546.2	549.2	552.5	555.3
15°	542.1	542.1	544.6	547.7	551.1	554.1
15.5°	540.3	540.4	542.8	546.1	549.7	552.7
16°	538.5	538.6	541.1	544.5	548.2	551.3
16.5°	536.7	536.8	539.3	542.8	546.6	549.9
17°	534.9	535.0	537.5	541.1	545.0	548.3
17.5°	532.7	533.0	535.7	539.3	543.4	546.8
18°	530.8	531.0	533.7	537.5	541.6	545.2
18.5°	528.8	528.9	531.8	535.6	539.9	543.6
19°	526.7	526.9	529.8	533.7	538.1	541.8
19.5°	524.5	524.6	527.6	531.8	536.3	540.1
20°	522.3	522.5	525.5	529.8	534.2	538.3
20.5°	519.9	520.2	523.4	527.6	532.3	536.5
21°	517.6	517.8	521.0	525.5	530.3	534.4



TEST NUMBER: P775839

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	510.2	510.6	514.1	518.7	523.9	528.4
23°	507.8	508.0	511.5	516.3	521.7	526.1
23.5°	505.1	505.5	509.1	514.0	519.3	524.0
24°	502.5	502.8	506.5	511.4	517.0	521.7
24.5°	499.8	500.1	503.7	509.0	514.5	519.3
25°	497.0	497.4	501.1	506.3	512.1	516.9
25.5°	494.2	494.6	498.4	503.7	509.5	514.5
26°	491.4	491.7	495.6	501.0	506.9	512.1
26.5°	488.4	488.8	492.9	498.3	504.2	509.5
27°	485.4	485.8	489.9	495.4	501.5	506.8
27.5°	482.4	482.7	486.9	492.6	498.7	504.2
28°	479.3	479.7	483.9	489.7	496.0	501.4
28.5°	476.1	476.6	480.9	486.7	493.1	498.6
29°	472.9	473.4	477.6	483.7	490.1	495.9
29.5°	469.6	470.2	474.5	480.6	487.1	492.9
30°	466.2	466.8	471.3	477.4	484.1	489.9
30.5°	462.9	463.5	467.9	474.2	480.9	487.0
31°	459.6	460.0	464.7	471.0	477.7	483.8
31.5°	456.1	456.6	461.3	467.7	474.5	480.7
32°	452.6	453.0	457.8	464.4	471.3	477.5
32.5°	449.0	449.5	454.3	460.9	468.0	474.2
33°	445.4	446.0	450.9	457.5	464.7	471.0
33.5°	441.8	442.2	447.1	454.1	461.2	467.6
34°	438.1	438.5	443.5	450.5	457.7	464.1
34.5°	434.2	434.9	439.9	446.8	454.2	460.7
35°	430.5	430.9	436.2	443.2	450.6	457.2
35.5°	426.8	427.3	432.3	439.5	446.9	453.5
36°	423.0	423.4	428.6	435.7	443.2	449.9
36.5°	419.0	419.6	424.8	432.0	439.6	446.2
37°	415.2	415.7	420.8	428.2	435.7	442.5
37.5°	411.1	411.7	416.9	424.2	431.9	438.7
38°	407.2	407.6	412.8	420.3	428.0	434.8
38.5°	403.2	403.7	408.9	416.3	424.0	430.9
39°	399.1	399.6	404.8	412.4	420.1	427.0
39.5°	395.0	395.5	400.8	408.2	416.1	423.0
40°	391.0	391.4	396.6	404.2	412.1	418.9
40.5°	386.8	387.2	392.4	400.0	408.0	414.8
41°	382.8	383.1	388.3	395.9	403.8	410.6
41.5°	378.5	378.7	383.9	391.6	399.6	406.3
42°	374.3	374.7	379.8	387.6	395.5	402.2
42.5°	370.2	370.3	375.5	383.3	391.1	397.9
43°	365.8	366.1	371.4	378.9	386.8	393.6
43.5°	361.6	361.8	366.9	374.6	382.4	389.3



TEST NUMBER: P775839

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	348.7	348.8	353.7	361.3	369.2	375.8
45.5°	344.3	344.3	349.2	356.9	364.5	371.1
46°	339.8	339.7	344.6	352.3	360.0	366.6
46.5°	335.3	335.0	340.0	347.6	355.3	361.9
47°	330.7	330.5	335.2	342.8	350.5	357.0
47.5°	326.0	325.6	330.2	337.9	345.6	352.1
48°	321.2	320.7	325.3	332.9	340.4	347.2
48.5°	316.3	315.6	320.3	327.8	335.3	341.9
49°	311.1	310.5	315.1	322.4	330.2	336.8
49.5°	305.9	305.2	309.6	317.2	324.8	331.4
50°	300.5	299.5	304.1	311.5	319.2	325.7
50.5°	294.9	294.1	298.5	305.8	313.4	320.0
51°	289.3	288.3	292.8	300.2	307.6	314.3
51.5°	283.5	282.6	286.8	294.4	301.8	308.2
52°	277.6	276.8	281.2	288.4	295.7	302.1
52.5°	271.8	271.1	275.4	282.5	289.3	296.0
53°	266.3	265.6	269.9	276.8	283.6	289.9
53.5°	260.8	260.4	264.7	271.4	278.0	284.0
54°	255.6	255.1	259.2	266.0	272.4	278.2
54.5°	249.7	249.1	253.4	260.0	266.4	272.2
55°	243.5	242.3	246.9	253.5	259.9	265.4
55.5°	236.0	234.2	238.8	245.4	251.9	257.8
56°	226.9	225.2	229.9	236.4	243.0	249.0
56.5°	217.4	215.6	220.2	227.0	233.4	239.6
57°	207.6	205.5	210.2	217.0	223.7	229.6
57.5°	197.4	195.0	200.1	206.9	213.4	219.0
58°	187.1	184.3	189.7	196.7	202.9	208.1
58.5°	176.3	173.8	179.3	186.3	191.5	197.3
59°	165.5	163.1	168.7	175.4	181.0	185.9
59.5°	155.0	153.0	158.4	165.0	170.1	174.9
60°	144.4	142.6	148.2	154.3	158.9	163.6
60.5°	134.2	132.5	137.9	143.7	147.7	153.0
61°	124.0	122.4	127.7	133.0	137.2	142.2
61.5°	114.5	113.1	117.9	122.9	126.8	131.7
62°	105.8	103.5	108.5	112.6	116.3	121.6
62.5°	97.3	94.5	99.1	102.6	106.5	111.8
63°	88.8	85.9	90.0	93.1	96.7	102.3
63.5°	80.3	77.6	81.3	83.9	87.5	93.1
64°	71.7	69.6	72.7	75.0	78.5	84.1
64.5°	64.6	62.4	64.7	66.8	70.3	75.7
65°	57.9	55.3	57.1	58.9	62.5	67.9
65.5°	51.6	49.0	50.0	51.7	55.1	60.0
66°	45.6	43.1	43.3	45.1	48.4	52.0



TEST NUMBER: P775839

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	31.1	30.7	30.5	31.9	32.9	34.1
68°	27.2	27.2	27.1	28.1	29.1	30.2
68.5°	23.9	23.7	23.7	24.4	25.4	26.2
69°	21.2	20.1	20.3	20.7	21.5	22.4
69.5°	19.1	18.3	18.4	18.8	19.2	18.4
70°	17.7	17.3	17.4	17.6	17.7	17.5
70.5°	16.8	16.5	16.6	16.7	16.7	16.6
71°	16.1	15.7	15.8	16.0	16.0	15.7
71.5°	15.2	14.9	15.0	15.1	15.1	14.8
72°	14.5	14.1	14.2	14.4	14.3	14.0
72.5°	13.6	13.3	13.4	13.6	13.5	13.2
73°	12.9	12.6	12.7	12.8	12.7	12.4
73.5°	12.3	11.9	11.9	12.2	11.9	11.6
74°	11.5	11.2	11.3	11.4	11.3	11.0
74.5°	10.9	10.6	10.7	10.8	10.6	10.2
75°	10.2	9.9	10.0	10.0	9.9	9.6
75.5°	9.6	9.3	9.4	9.5	9.3	9.0
76°	9.1	8.7	8.7	8.8	8.6	8.3
76.5°	8.4	8.1	8.2	8.2	8.0	7.8
77°	7.9	7.6	7.7	7.7	7.5	7.2
77.5°	7.4	7.0	7.1	7.1	6.9	6.7
78°	6.8	6.6	6.6	6.7	6.4	6.2
78.5°	6.3	6.1	6.2	6.2	6.0	5.8
79°	5.9	5.6	5.6	5.8	5.4	5.3
79.5°	5.4	5.2	5.2	5.2	5.0	4.8
80°	5.0	4.8	4.8	4.8	4.6	4.5
80.5°	4.6	4.4	4.4	4.4	4.2	4.1
81°	4.2	4.1	4.1	4.1	3.8	3.6
81.5°	3.7	3.6	3.7	3.6	3.4	3.3
82°	3.4	3.3	3.3	3.3	3.1	3.0
82.5°	3.1	3.0	3.0	3.0	2.7	2.6
83°	2.8	2.6	2.7	2.6	2.3	2.2
83.5°	2.5	2.3	2.3	2.2	2.0	2.0
84°	2.1	2.0	2.0	2.0	1.8	1.7
84.5°	1.8	1.7	1.8	1.7	1.5	1.5
85°	1.6	1.5	1.5	1.5	1.3	1.3
85.5°	1.4	1.3	1.3	1.3	1.0	1.0
86°	1.1	1.1	1.1	1.1	0.9	0.9
86.5°	1.0	0.9	0.9	0.9	0.6	0.6
87°	0.7	0.6	0.6	0.6	0.5	0.4
87.5°	0.5	0.4	0.4	0.4	0.4	0.3
88°	0.3	0.3	0.3	0.3	0.2	0.2
88.5°	0.2	0.1	0.1	0.1	0.1	0.1



TEST NUMBER: P775839
CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-5000K

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°	532.4	535.3	536.6	536.1	535.0	532.3	528.5	524.2	520.3	516.9	515.2
22°	530.4	533.4	534.6	534.2	533.1	530.3	526.3	522.1	518.0	514.6	512.7



44°	384.8	390.0	392.9	393.0	392.1	388.0	381.6	374.3	367.0	360.8	357.8
44.5°	380.3	385.4	388.4	388.7	388.0	383.5	377.2	370.0	362.7	356.5	353.5



66.5°	44.7	49.4	51.2	52.1	55.0	52.8	49.0	44.7	40.6	39.4	39.9
67°	38.1	42.5	44.1	45.0	47.6	45.8	42.6	39.1	34.6	34.2	34.9



89°	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	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°	515.3	515.6	518.8	523.4	528.2	532.4
22°	512.8	513.1	516.4	521.0	526.0	530.4



44°	357.3	357.5	362.6	370.3	378.1	384.8
44.5°	353.0	353.1	358.1	365.9	373.7	380.3



66.5°	40.3	37.8	37.4	39.2	42.5	44.7
67°	35.6	34.3	33.9	35.5	36.8	38.1

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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)