

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: P775735

Luminaire Tested: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775735  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B037)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD61TRMW-1000lm-2700K  
Description: 6 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

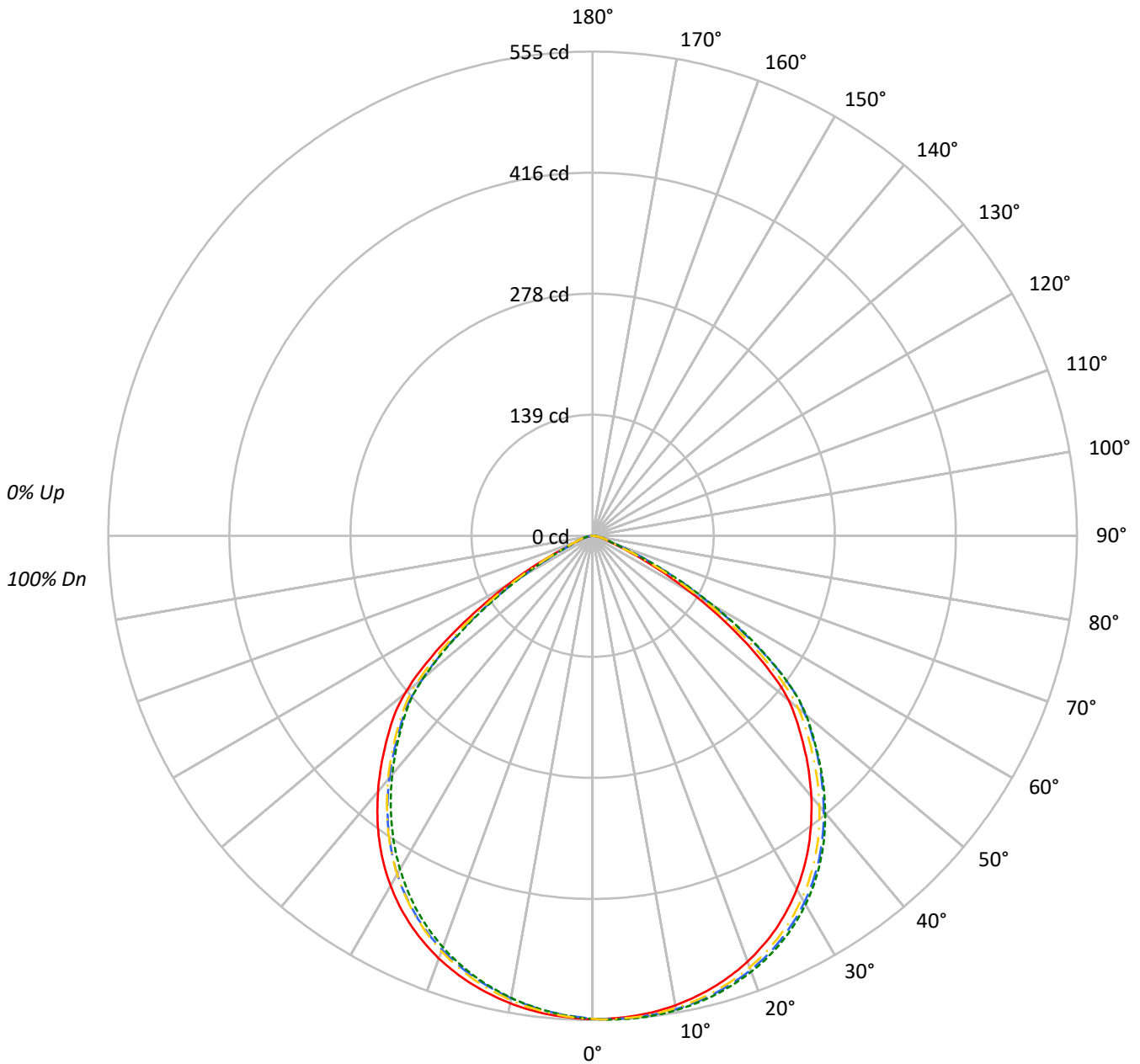
Lumens per Lamp: N/A  
Luminaire Lumens: 1222.0 lumens  
Efficiency: N/A  
Efficacy: 122.2 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.24 / 1.32  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89								
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77								
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67								
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46								
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41								
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37								
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	34								
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	30354	30354	30354	30354
5°	30398	30552	30332	30162
10°	30421	30739	30288	29937
15°	30397	30903	30216	29660
20°	30295	31024	30073	29274
25°	30062	31048	29802	28725
30°	29625	30891	29315	27947
35°	28917	30463	28529	26883
40°	27895	29677	27380	25562
45°	26576	28530	25933	24018
50°	25006	27240	23914	21526
55°	20616	23732	18781	16076
60°	14308	17455	12269	10131
65°	7744	10299	5850	5176
70°	3687	4376	3222	3206
75°	2965	3347	2457	2584
80°	2241	2747	1673	1957
85°	1384	2201	692	1132

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 29329 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.4	4.3
10°-20°	150.6	12.3
20°-30°	227.5	18.6
30°-40°	267.6	21.9
40°-50°	260.6	21.3
50°-60°	183.8	15.0
60°-70°	61.6	5.0
70°-80°	14.9	1.2
80°-90°	3.0	0.2
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°	430.5	35.2
0°-40°	698.2	57.1
0°-60°	1142.6	93.5
0°-90°	1222.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1222.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	554	554	554	554	554	
5°	552	555	551	548	552	53
15°	536	544	532	523	536	151
25°	497	513	493	475	497	229
35°	432	455	426	402	432	270
45°	343	368	334	310	343	264
55°	216	248	196	168	216	191
65°	60	79	45	40	60	64
75°	14	16	12	12	14	15
85°	2	4	1	2	2	3
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°	553.7	553.7	553.7	553.7	553.7	553.7	553.7	553.7	553.7	553.7	553.7
0.5°	554.0	553.9	553.6	553.1	554.2	554.3	554.2	554.2	553.9	553.5	553.0
1°	554.0	554.0	553.9	553.5	554.5	554.5	554.4	554.2	553.8	553.3	552.6
1.5°	554.0	554.1	554.0	553.8	554.7	554.7	554.5	554.1	553.5	552.9	552.2
2°	553.9	554.1	554.2	554.1	554.9	554.8	554.5	554.0	553.3	552.6	551.7
2.5°	553.7	554.1	554.3	554.3	555.1	554.8	554.5	553.9	553.1	552.2	551.3
3°	553.6	554.1	554.4	554.5	555.1	554.9	554.5	553.7	552.7	551.8	550.7
3.5°	553.3	554.1	554.5	554.7	555.2	554.9	554.4	553.5	552.4	551.3	550.1
4°	553.1	553.9	554.4	554.8	555.2	554.9	554.3	553.3	552.1	550.8	549.5
4.5°	552.7	553.7	554.4	554.9	555.3	554.8	554.2	552.9	551.6	550.2	548.7
5°	552.4	553.5	554.3	554.9	555.2	554.7	553.9	552.6	551.2	549.6	548.1
5.5°	552.0	553.3	554.1	554.8	555.1	554.5	553.7	552.2	550.7	549.0	547.3
6°	551.6	552.9	554.0	554.8	554.9	554.3	553.5	551.8	550.1	548.3	546.5
6.5°	551.1	552.6	553.7	554.7	554.7	554.1	553.1	551.3	549.5	547.5	545.6
7°	550.6	552.2	553.4	554.5	554.5	553.7	552.8	550.8	548.9	546.8	544.7
7.5°	550.0	551.8	553.1	554.3	554.2	553.4	552.4	550.2	548.2	546.0	543.7
8°	549.4	551.3	552.7	554.1	553.9	553.0	551.9	549.6	547.5	545.1	542.8
8.5°	548.7	550.8	552.4	553.9	553.5	552.6	551.3	549.0	546.7	544.2	541.7
9°	548.0	550.2	551.9	553.5	553.1	552.1	550.8	548.3	545.9	543.2	540.7
9.5°	547.2	549.6	551.4	553.1	552.7	551.6	550.3	547.6	545.0	542.2	539.5
10°	546.5	548.9	550.9	552.7	552.2	551.0	549.6	546.7	544.1	541.2	538.4
10.5°	545.6	548.2	550.3	552.3	551.6	550.3	548.9	545.9	543.1	540.1	537.1
11°	544.7	547.4	549.6	551.7	551.0	549.7	548.2	545.0	542.1	539.0	535.9
11.5°	543.7	546.6	549.0	551.2	550.3	548.9	547.4	544.1	541.1	537.8	534.6
12°	542.7	545.7	548.2	550.6	549.6	548.2	546.6	543.1	540.0	536.6	533.3
12.5°	541.6	544.8	547.4	549.9	548.9	547.4	545.7	542.1	538.8	535.3	531.9
13°	540.5	543.8	546.6	549.2	548.1	546.6	544.8	541.0	537.6	534.0	530.4
13.5°	539.3	542.9	545.7	548.5	547.3	545.6	543.8	539.9	536.4	532.6	528.9
14°	538.1	541.8	544.8	547.7	546.4	544.7	542.8	538.7	535.1	531.2	527.4
14.5°	536.9	540.7	543.8	546.9	545.4	543.7	541.7	537.5	533.7	529.7	525.7
15°	535.6	539.5	542.8	545.9	544.5	542.7	540.6	536.2	532.4	528.3	524.1
15.5°	534.2	538.3	541.7	545.0	543.5	541.5	539.4	534.9	530.9	526.7	522.4
16°	532.8	537.0	540.6	544.0	542.4	540.4	538.1	533.5	529.5	525.1	520.7
16.5°	531.3	535.7	539.3	543.1	541.2	539.2	536.9	532.1	527.9	523.4	518.9
17°	529.7	534.3	538.2	541.9	540.1	537.9	535.6	530.6	526.3	521.7	517.0
17.5°	528.1	532.9	536.9	540.8	538.8	536.6	534.2	529.0	524.6	519.9	515.1
18°	526.5	531.4	535.6	539.6	537.5	535.3	532.7	527.4	522.9	518.1	513.2
18.5°	524.8	529.9	534.2	538.3	536.1	533.8	531.2	525.8	521.2	516.2	511.1
19°	523.0	528.3	532.7	537.0	534.8	532.4	529.7	524.1	519.3	514.3	509.1
19.5°	521.2	526.6	531.2	535.7	533.3	530.8	528.1	522.3	517.4	512.3	507.0
20°	519.3	524.9	529.6	534.3	531.8	529.2	526.5	520.5	515.5	510.2	504.8
20.5°	517.4	523.2	528.1	532.8	530.2	527.5	524.7	518.6	513.5	508.1	502.5
21°	515.4	521.3	526.4	531.3	528.6	525.8	522.9	516.6	511.5	506.0	500.3



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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°	508.9	515.5	521.0	526.5	523.3	520.3	517.2	510.5	504.9	499.1	493.1
23°	506.7	513.5	519.1	524.7	521.4	518.4	515.2	508.3	502.5	496.7	490.4
23.5°	504.4	511.3	517.1	522.9	519.5	516.4	513.1	506.0	500.2	494.2	487.9
24°	502.0	509.1	515.0	521.1	517.5	514.3	510.9	503.7	497.7	491.7	485.2
24.5°	499.6	506.8	512.9	519.1	515.4	512.1	508.7	501.3	495.2	489.0	482.5
25°	497.0	504.4	510.7	517.1	513.3	509.9	506.5	498.9	492.7	486.4	479.7
25.5°	494.4	502.0	508.5	515.0	511.1	507.6	504.1	496.3	490.0	483.7	476.7
26°	491.7	499.5	506.1	512.9	508.8	505.3	501.7	493.7	487.3	480.9	473.8
26.5°	489.1	497.0	503.8	510.7	506.5	502.8	499.3	491.1	484.5	477.9	470.8
27°	486.2	494.3	501.3	508.4	504.1	500.4	496.7	488.3	481.7	475.1	467.7
27.5°	483.4	491.7	498.8	506.1	501.6	497.8	494.0	485.5	478.8	472.1	464.6
28°	480.4	489.0	496.3	503.7	499.0	495.1	491.4	482.7	475.8	468.9	461.3
28.5°	477.5	486.1	493.6	501.3	496.4	492.4	488.6	479.8	472.7	465.8	458.1
29°	474.4	483.2	490.9	498.7	493.7	489.6	485.7	476.8	469.6	462.5	454.7
29.5°	471.2	480.3	488.0	496.1	490.9	486.7	482.8	473.7	466.3	459.2	451.3
30°	468.0	477.2	485.2	493.4	488.0	483.9	479.9	470.5	463.1	455.8	447.7
30.5°	464.8	474.1	482.3	490.6	485.1	480.8	476.7	467.3	459.7	452.3	444.1
31°	461.4	471.0	479.2	487.9	482.1	477.7	473.6	464.0	456.3	448.8	440.5
31.5°	458.0	467.7	476.1	484.9	479.0	474.5	470.5	460.6	452.8	445.2	436.7
32°	454.5	464.3	472.9	481.9	475.9	471.3	467.1	457.1	449.2	441.5	432.9
32.5°	450.9	461.0	469.7	478.8	472.6	468.0	463.7	453.6	445.6	437.7	428.9
33°	447.3	457.5	466.3	475.7	469.3	464.5	460.3	450.1	441.9	433.9	425.0
33.5°	443.6	453.9	462.9	472.4	465.9	461.0	456.8	446.4	438.0	429.9	421.1
34°	439.8	450.4	459.5	469.2	462.5	457.5	453.2	442.6	434.1	425.9	416.9
34.5°	436.1	446.7	455.9	465.8	458.9	453.9	449.5	438.8	430.2	421.9	412.8
35°	432.1	443.0	452.3	462.3	455.2	450.2	445.8	435.0	426.3	417.8	408.4
35.5°	428.2	439.1	448.6	458.8	451.5	446.5	441.9	431.0	422.2	413.5	404.1
36°	424.0	435.2	444.8	455.2	447.8	442.5	438.1	427.0	418.0	409.2	399.6
36.5°	420.0	431.3	441.0	451.5	443.9	438.5	434.1	422.9	413.7	404.8	395.2
37°	416.0	427.3	437.0	447.8	439.9	434.5	430.0	418.8	409.4	400.4	390.7
37.5°	411.6	423.3	433.2	443.9	435.8	430.4	425.9	414.5	405.1	396.0	386.2
38°	407.3	419.1	429.1	440.0	431.8	426.3	421.8	410.1	400.8	391.5	381.5
38.5°	403.0	414.9	425.0	436.0	427.5	422.1	417.5	405.8	396.2	386.9	376.7
39°	398.6	410.5	420.8	432.0	423.4	417.7	413.2	401.3	391.7	382.2	372.0
39.5°	394.3	406.2	416.6	427.8	419.0	413.4	408.7	396.8	387.2	377.4	367.2
40°	389.8	401.9	412.2	423.6	414.7	408.9	404.3	392.4	382.6	372.7	362.3
40.5°	385.2	397.4	407.9	419.3	410.1	404.4	399.8	387.8	378.0	367.9	357.6
41°	380.7	392.9	403.4	415.0	405.7	399.8	395.3	383.2	373.2	363.0	352.5
41.5°	376.1	388.4	398.9	410.4	401.2	395.3	390.6	378.4	368.5	358.2	347.6
42°	371.4	383.9	394.4	406.0	396.6	390.7	386.0	373.7	363.7	353.3	342.6
42.5°	366.7	379.3	389.9	401.5	391.9	386.0	381.5	369.0	358.9	348.4	337.6
43°	362.0	374.6	385.2	397.0	387.2	381.3	376.7	364.2	354.1	343.3	332.4
43.5°	357.3	369.9	380.6	392.3	382.5	376.6	371.8	359.4	349.2	338.3	327.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	342.8	355.6	366.4	378.3	368.0	362.0	357.3	344.6	334.5	323.4	312.6
45.5°	337.9	350.7	361.7	373.5	363.1	357.1	352.4	339.7	329.6	318.6	307.8
46°	333.0	345.8	356.8	368.7	358.3	352.1	347.4	334.8	324.6	313.7	303.1
46.5°	328.0	340.9	351.9	363.8	353.3	347.2	342.4	329.8	319.7	308.8	298.3
47°	323.2	336.1	347.0	358.9	348.3	342.4	337.6	325.0	315.0	304.1	293.2
47.5°	318.4	331.2	342.2	354.0	343.5	337.6	332.8	320.2	310.2	299.0	287.8
48°	313.6	326.3	337.2	349.0	338.8	332.7	328.0	315.4	305.0	293.5	281.9
48.5°	308.6	321.5	332.4	344.2	333.9	328.1	323.1	310.3	299.5	287.5	275.2
49°	303.9	316.7	327.5	339.3	329.1	323.1	318.3	304.6	293.7	280.9	268.1
49.5°	298.6	311.7	322.8	334.3	324.3	318.3	313.2	298.8	287.3	273.8	260.4
50°	293.2	306.7	317.9	329.5	319.4	312.9	307.6	292.6	280.4	266.3	252.7
50.5°	287.3	301.2	312.8	324.7	314.0	307.3	301.8	286.0	273.2	258.9	244.9
51°	280.6	295.3	307.3	319.8	308.3	301.1	295.5	278.9	265.8	251.0	236.8
51.5°	273.1	288.7	301.4	314.6	302.3	294.0	288.5	271.2	257.7	242.9	228.7
52°	265.5	281.7	295.2	309.0	295.5	286.8	281.0	263.0	249.4	234.7	220.4
52.5°	257.6	274.2	288.3	303.1	288.1	279.5	273.6	254.6	240.9	226.4	212.2
53°	249.5	266.3	281.1	296.8	280.7	271.7	265.5	245.9	232.3	217.7	203.9
53.5°	241.0	258.1	273.3	290.0	272.8	263.8	257.4	237.0	223.6	209.1	195.6
54°	232.7	250.0	265.1	282.6	264.8	255.8	249.0	228.2	214.6	200.6	187.4
54.5°	224.2	241.4	256.4	274.7	256.5	247.8	240.4	219.5	205.7	192.0	179.0
55°	215.7	232.8	247.7	266.3	248.3	239.4	231.6	210.3	196.5	183.1	170.5
55.5°	207.1	223.8	238.7	257.7	239.7	230.9	222.9	201.5	187.5	174.5	162.3
56°	198.7	214.9	229.6	248.8	231.1	222.2	214.1	192.5	178.4	165.9	154.0
56.5°	189.9	205.9	220.3	239.7	222.3	213.4	205.2	183.9	169.5	157.3	145.8
57°	181.4	196.7	210.9	230.6	213.4	204.6	196.2	175.2	160.8	148.9	137.8
57.5°	172.8	187.7	201.8	221.4	204.3	195.8	187.4	166.7	152.2	140.5	130.0
58°	164.1	178.5	192.7	212.4	195.4	186.8	178.6	158.1	143.7	132.2	122.2
58.5°	155.6	169.3	183.4	203.3	186.3	177.6	169.9	149.6	135.3	124.2	114.5
59°	147.2	160.5	174.3	194.3	177.2	168.5	161.1	141.1	127.3	116.1	107.1
59.5°	138.9	151.7	165.5	185.5	168.2	159.4	152.5	133.1	119.5	108.4	100.0
60°	130.5	143.0	156.9	176.6	159.2	150.5	144.0	124.9	111.9	100.8	93.2
60.5°	122.3	134.6	148.3	167.9	150.4	141.6	135.6	117.1	104.5	94.1	86.4
61°	114.6	126.3	139.5	159.1	141.8	132.9	127.4	109.2	97.2	87.4	79.5
61.5°	106.7	118.2	131.3	150.9	133.4	124.4	119.3	101.8	90.4	80.7	72.7
62°	99.3	110.3	123.3	142.2	125.0	116.0	111.2	94.9	83.6	74.0	65.9
62.5°	92.1	102.7	115.5	134.0	116.7	107.7	103.3	87.9	76.6	67.3	60.1
63°	85.2	95.4	107.8	125.9	108.7	99.9	96.2	80.9	69.8	61.6	54.6
63.5°	78.3	88.2	100.2	117.9	100.9	92.6	89.0	74.0	62.9	56.3	49.5
64°	71.9	81.3	93.0	110.0	93.7	85.4	81.7	67.1	56.6	51.2	44.8
64.5°	65.7	74.7	86.0	102.2	86.6	78.0	74.6	60.9	50.6	46.4	40.5
65°	59.7	68.5	79.2	94.8	79.4	70.8	67.4	55.1	45.1	42.0	36.7
65.5°	54.0	62.5	72.8	87.6	72.2	64.4	60.9	49.6	39.9	37.9	33.3
66°	48.6	57.1	66.6	80.4	65.1	58.2	54.9	44.5	35.5	34.4	30.5





TEST NUMBER: P775735

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	35.1	42.4	49.6	60.7	47.7	42.3	39.4	31.9	25.8	26.0	24.3
68°	32.4	38.2	44.6	54.9	42.5	37.8	35.3	28.8	24.0	24.1	22.9
68.5°	29.8	34.8	40.0	49.3	38.1	33.7	31.7	26.2	22.9	22.5	21.9
69°	27.1	32.1	36.0	44.2	33.9	30.2	28.7	24.1	22.0	21.4	21.0
69.5°	24.4	29.5	33.3	39.4	30.4	27.2	26.1	22.6	21.1	20.5	20.2
70°	23.0	26.8	30.6	35.0	27.3	24.9	24.1	21.5	20.1	19.6	19.3
70.5°	22.0	24.2	28.0	32.2	25.0	23.0	22.6	20.6	19.2	18.7	18.5
71°	21.1	22.5	25.4	29.3	23.1	21.9	21.6	19.7	18.2	17.9	17.7
71.5°	20.2	21.3	22.7	26.5	21.8	21.0	20.7	18.8	17.3	17.0	16.8
72°	19.3	20.4	21.6	23.7	20.9	20.1	19.9	17.9	16.4	16.1	16.0
72.5°	18.3	19.5	20.8	22.2	20.0	19.2	19.0	17.0	15.5	15.3	15.2
73°	17.4	18.6	19.9	21.3	19.2	18.4	18.1	16.1	14.7	14.5	14.4
73.5°	16.5	17.7	19.0	20.4	18.3	17.5	17.3	15.3	13.9	13.7	13.7
74°	15.7	16.8	18.1	19.6	17.4	16.7	16.4	14.4	13.1	12.9	12.9
74.5°	14.8	16.0	17.3	18.7	16.6	15.8	15.6	13.6	12.3	12.1	12.2
75°	14.0	15.1	16.4	17.8	15.8	15.0	14.8	12.8	11.6	11.4	11.5
75.5°	13.2	14.3	15.6	17.0	15.0	14.2	14.0	12.1	10.9	10.7	10.8
76°	12.4	13.5	14.7	16.1	14.2	13.5	13.2	11.3	10.2	10.0	10.2
76.5°	11.7	12.7	14.0	15.3	13.4	12.7	12.5	10.6	9.5	9.3	9.5
77°	10.9	12.0	13.2	14.5	12.7	12.0	11.8	9.9	8.8	8.7	8.9
77.5°	10.2	11.2	12.4	13.7	12.0	11.3	11.1	9.2	8.2	8.1	8.3
78°	9.6	10.5	11.7	13.0	11.3	10.6	10.4	8.6	7.6	7.5	7.7
78.5°	8.9	9.8	11.0	12.2	10.6	10.0	9.7	8.0	7.0	6.8	7.1
79°	8.3	9.2	10.3	11.5	9.9	9.3	9.1	7.4	6.4	6.2	6.6
79.5°	7.7	8.5	9.6	10.9	9.3	8.8	8.5	6.8	5.8	5.7	6.0
80°	7.1	7.9	9.0	10.2	8.7	8.2	7.9	6.2	5.3	5.1	5.4
80.5°	6.5	7.3	8.4	9.5	8.1	7.6	7.3	5.6	4.8	4.6	4.9
81°	6.0	6.7	7.8	8.9	7.5	7.0	6.7	5.1	4.3	4.1	4.5
81.5°	5.5	6.2	7.2	8.3	6.9	6.5	6.1	4.5	3.8	3.6	4.0
82°	4.9	5.6	6.6	7.7	6.3	5.9	5.6	4.1	3.4	3.1	3.5
82.5°	4.4	5.1	6.1	7.2	5.8	5.4	5.1	3.6	2.9	2.7	3.1
83°	4.0	4.6	5.6	6.6	5.3	4.9	4.6	3.1	2.5	2.3	2.7
83.5°	3.5	4.2	5.1	6.1	4.9	4.4	4.1	2.7	2.1	1.9	2.3
84°	3.1	3.7	4.6	5.6	4.4	4.0	3.7	2.3	1.7	1.5	1.9
84.5°	2.7	3.3	4.1	5.1	3.9	3.5	3.2	1.9	1.4	1.2	1.6
85°	2.2	2.8	3.7	4.6	3.5	3.1	2.8	1.6	1.1	1.0	1.3
85.5°	1.8	2.4	3.2	4.1	3.1	2.7	2.4	1.3	0.8	0.8	1.0
86°	1.5	2.0	2.8	3.7	2.7	2.3	2.1	1.1	0.7	0.6	0.7
86.5°	1.1	1.6	2.5	3.3	2.3	1.9	1.7	0.8	0.5	0.4	0.4
87°	0.9	1.3	2.1	2.9	1.9	1.6	1.4	0.6	0.3	0.2	0.2
87.5°	0.7	1.1	1.8	2.5	1.5	1.2	1.1	0.4	0.2	0.1	0.0
88°	0.5	0.9	1.4	2.1	1.2	0.9	0.8	0.2	0.1	0.0	0.0
88.5°	0.3	0.6	1.1	1.7	0.9	0.6	0.5	0.1	0.0	0.0	0.0



TEST NUMBER: P775735  
CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.1	0.3	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P775735

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	553.7	553.7	553.7	553.7	553.7	553.7
0.5°	552.3	553.5	553.7	553.7	554.0	554.0
1°	551.8	553.1	553.3	553.4	553.9	554.0
1.5°	551.2	552.6	552.9	553.1	553.7	554.0
2°	550.6	552.1	552.5	552.7	553.5	553.9
2.5°	550.0	551.5	552.0	552.3	553.2	553.7
3°	549.3	550.9	551.5	551.9	552.9	553.6
3.5°	548.6	550.3	550.9	551.3	552.6	553.3
4°	547.9	549.6	550.3	550.8	552.1	553.1
4.5°	547.1	548.9	549.6	550.2	551.7	552.7
5°	546.2	548.1	548.8	549.5	551.2	552.4
5.5°	545.3	547.3	548.1	548.8	550.7	552.0
6°	544.3	546.4	547.3	548.1	550.1	551.6
6.5°	543.3	545.5	546.5	547.3	549.5	551.1
7°	542.3	544.5	545.6	546.5	548.8	550.6
7.5°	541.2	543.5	544.6	545.6	548.1	550.0
8°	540.1	542.5	543.6	544.7	547.4	549.4
8.5°	538.9	541.4	542.6	543.7	546.6	548.7
9°	537.7	540.3	541.5	542.7	545.7	548.0
9.5°	536.5	539.1	540.4	541.6	544.8	547.2
10°	535.1	537.8	539.2	540.5	543.8	546.5
10.5°	533.8	536.6	538.0	539.3	542.8	545.6
11°	532.3	535.2	536.7	538.1	541.7	544.7
11.5°	530.9	533.8	535.3	536.8	540.7	543.7
12°	529.4	532.4	533.9	535.5	539.6	542.7
12.5°	527.8	530.9	532.5	534.1	538.3	541.6
13°	526.1	529.3	531.0	532.7	537.1	540.5
13.5°	524.5	527.7	529.4	531.2	535.7	539.3
14°	522.8	526.1	527.8	529.7	534.3	538.1
14.5°	521.0	524.4	526.1	528.0	532.9	536.9
15°	519.2	522.6	524.5	526.5	531.5	535.6
15.5°	517.3	520.8	522.7	524.7	529.9	534.2
16°	515.4	518.9	520.9	522.9	528.3	532.8
16.5°	513.4	517.0	518.9	521.1	526.6	531.3
17°	511.3	515.0	517.0	519.2	524.9	529.7
17.5°	509.3	512.9	515.0	517.3	523.2	528.1
18°	507.1	510.9	512.9	515.3	521.4	526.5
18.5°	504.9	508.6	510.8	513.2	519.5	524.8
19°	502.6	506.5	508.6	511.1	517.5	523.0
19.5°	500.2	504.2	506.4	508.9	515.5	521.2
20°	497.8	501.8	504.1	506.7	513.5	519.3
20.5°	495.4	499.5	501.6	504.4	511.4	517.4
21°	492.9	496.9	499.2	502.0	509.2	515.4

TEST NUMBER: P775735

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	484.9	489.1	491.6	494.5	502.3	508.9
23°	482.2	486.5	488.8	491.8	499.9	506.7
23.5°	479.3	483.7	486.1	489.1	497.4	504.4
24°	476.4	480.8	483.3	486.3	494.9	502.0
24.5°	473.5	477.9	480.4	483.5	492.3	499.6
25°	470.4	474.9	477.4	480.7	489.5	497.0
25.5°	467.3	471.9	474.3	477.7	486.7	494.4
26°	464.2	468.7	471.3	474.7	483.9	491.7
26.5°	460.9	465.6	468.1	471.5	481.0	489.1
27°	457.6	462.3	464.9	468.3	478.0	486.2
27.5°	454.3	459.0	461.5	465.2	475.0	483.4
28°	450.9	455.6	458.2	461.9	471.9	480.4
28.5°	447.3	452.1	454.8	458.5	468.7	477.5
29°	443.7	448.6	451.2	455.0	465.5	474.4
29.5°	440.1	445.0	447.7	451.6	462.1	471.2
30°	436.3	441.5	444.0	447.9	458.7	468.0
30.5°	432.6	437.7	440.3	444.4	455.3	464.8
31°	428.7	433.9	436.6	440.6	451.8	461.4
31.5°	424.7	430.2	432.9	436.9	448.2	458.0
32°	420.7	426.3	429.0	433.0	444.5	454.5
32.5°	416.7	422.3	425.0	429.2	440.8	450.9
33°	412.4	418.4	421.2	425.3	437.0	447.3
33.5°	408.2	414.4	417.2	421.3	433.1	443.6
34°	404.0	410.1	413.1	417.2	429.2	439.8
34.5°	399.6	405.9	408.8	413.2	425.2	436.1
35°	395.3	401.7	404.7	408.8	421.2	432.1
35.5°	390.8	397.4	400.5	404.6	417.1	428.2
36°	386.4	393.1	396.2	400.3	412.9	424.0
36.5°	381.8	388.8	392.0	396.0	408.6	420.0
37°	377.3	384.4	387.6	391.7	404.2	416.0
37.5°	372.6	379.9	383.2	387.3	400.0	411.6
38°	368.0	375.4	378.8	382.8	395.6	407.3
38.5°	363.1	371.0	374.3	378.2	391.2	403.0
39°	358.5	366.3	369.9	373.8	386.6	398.6
39.5°	353.6	361.7	365.4	369.3	382.1	394.3
40°	348.8	357.2	360.8	364.7	377.6	389.8
40.5°	344.0	352.6	356.2	360.0	373.0	385.2
41°	339.1	347.8	351.5	355.4	368.4	380.7
41.5°	334.1	343.1	346.9	350.7	363.6	376.1
42°	329.2	338.4	342.2	346.0	359.0	371.4
42.5°	324.2	333.7	337.5	341.3	354.2	366.7
43°	319.4	329.0	332.8	336.6	349.5	362.0
43.5°	314.4	324.1	328.1	331.7	344.7	357.3



TEST NUMBER: P775735

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	300.3	309.8	313.8	317.3	330.2	342.8
45.5°	295.6	305.1	309.0	312.5	325.2	337.9
46°	290.6	300.3	304.3	307.8	320.4	333.0
46.5°	285.4	295.6	299.5	302.9	315.5	328.0
47°	279.8	290.8	294.9	298.2	310.8	323.2
47.5°	273.4	285.5	290.0	293.4	306.0	318.4
48°	266.4	280.2	284.7	288.2	301.2	313.6
48.5°	258.8	274.2	279.2	282.8	296.3	308.6
49°	251.0	267.5	273.6	277.3	291.1	303.9
49.5°	243.0	260.2	266.7	270.9	285.8	298.6
50°	235.1	252.4	259.5	263.8	280.0	293.2
50.5°	226.8	244.2	251.4	256.0	273.4	287.3
51°	218.5	236.1	243.3	248.0	266.0	280.6
51.5°	210.2	227.7	234.8	239.7	258.1	273.1
52°	201.8	219.4	226.6	231.3	250.1	265.5
52.5°	193.6	210.8	218.2	222.8	241.9	257.6
53°	185.2	202.0	209.5	214.3	233.8	249.5
53.5°	177.1	193.5	200.5	205.5	225.4	241.0
54°	168.9	184.9	192.0	196.9	217.0	232.7
54.5°	160.7	176.7	183.3	188.3	208.5	224.2
55°	152.7	168.2	174.5	180.1	199.9	215.7
55.5°	144.7	159.9	166.1	171.6	191.4	207.1
56°	137.0	151.8	157.7	163.3	182.9	198.7
56.5°	129.6	143.7	149.4	155.2	174.5	189.9
57°	121.9	135.8	141.3	147.3	166.1	181.4
57.5°	114.5	128.1	133.3	139.1	157.9	172.8
58°	107.1	120.4	125.5	131.3	149.7	164.1
58.5°	100.3	113.1	118.2	123.9	141.6	155.6
59°	93.6	106.0	111.0	116.4	133.9	147.2
59.5°	87.0	99.0	104.1	109.2	126.2	138.9
60°	80.2	92.4	97.3	102.2	118.7	130.5
60.5°	73.6	85.7	90.8	95.3	111.4	122.3
61°	66.9	79.3	84.5	88.7	104.0	114.6
61.5°	61.1	73.4	78.5	82.1	96.9	106.7
62°	55.5	67.8	72.7	76.1	90.0	99.3
62.5°	50.4	62.3	67.2	70.2	83.3	92.1
63°	45.6	57.2	62.0	64.5	76.7	85.2
63.5°	41.4	52.4	57.1	59.3	70.6	78.3
64°	37.4	47.9	52.5	54.3	64.6	71.9
64.5°	34.0	43.7	48.0	49.7	58.8	65.7
65°	31.2	39.9	44.0	45.3	53.4	59.7
65.5°	28.7	36.3	40.2	41.3	48.4	54.0
66°	26.6	33.8	36.7	37.6	43.9	48.6



TEST NUMBER: P775735

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	22.1	26.4	29.1	29.1	33.6	35.1
68°	21.3	23.9	26.6	27.4	31.3	32.4
68.5°	20.4	22.5	24.1	25.6	28.9	29.8
69°	19.6	21.6	22.6	23.8	26.6	27.1
69.5°	18.8	20.8	21.6	22.0	24.2	24.4
70°	18.0	20.0	20.8	21.2	22.7	23.0
70.5°	17.2	19.1	20.0	20.3	21.6	22.0
71°	16.4	18.3	19.2	19.5	20.7	21.1
71.5°	15.6	17.5	18.4	18.7	19.8	20.2
72°	14.8	16.7	17.5	17.9	18.9	19.3
72.5°	14.1	15.9	16.7	17.1	18.1	18.3
73°	13.4	15.1	15.9	16.3	17.2	17.4
73.5°	12.6	14.4	15.2	15.5	16.4	16.5
74°	11.9	13.6	14.4	14.7	15.5	15.7
74.5°	11.3	12.9	13.7	13.9	14.7	14.8
75°	10.6	12.2	13.0	13.2	13.9	14.0
75.5°	10.0	11.5	12.3	12.5	13.1	13.2
76°	9.3	10.9	11.6	11.8	12.4	12.4
76.5°	8.7	10.2	10.9	11.1	11.6	11.7
77°	8.2	9.6	10.3	10.4	10.9	10.9
77.5°	7.6	9.0	9.6	9.7	10.2	10.2
78°	7.1	8.4	9.0	9.1	9.5	9.6
78.5°	6.5	7.8	8.4	8.5	8.9	8.9
79°	6.0	7.3	7.8	7.9	8.3	8.3
79.5°	5.5	6.7	7.3	7.3	7.6	7.7
80°	5.0	6.2	6.7	6.8	7.1	7.1
80.5°	4.5	5.7	6.2	6.2	6.5	6.5
81°	4.1	5.2	5.7	5.7	5.9	6.0
81.5°	3.6	4.7	5.2	5.2	5.4	5.5
82°	3.2	4.3	4.7	4.7	4.9	4.9
82.5°	2.8	3.8	4.3	4.3	4.4	4.4
83°	2.4	3.4	3.8	3.8	3.9	4.0
83.5°	2.0	3.0	3.4	3.4	3.4	3.5
84°	1.6	2.6	3.0	3.0	3.0	3.1
84.5°	1.2	2.2	2.6	2.6	2.6	2.7
85°	0.9	1.8	2.2	2.2	2.1	2.2
85.5°	0.6	1.4	1.8	1.8	1.8	1.8
86°	0.3	1.0	1.4	1.5	1.5	1.5
86.5°	0.1	0.7	1.1	1.1	1.2	1.1
87°	0.0	0.4	0.7	0.8	0.9	0.9
87.5°	0.0	0.2	0.4	0.5	0.7	0.7
88°	0.0	0.0	0.2	0.2	0.5	0.5
88.5°	0.0	0.0	0.0	0.1	0.3	0.3



TEST NUMBER: P775735  
CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-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°	513.3	519.4	524.6	529.8	526.9	524.0	521.1	514.7	509.3	503.7	497.9
22°	511.1	517.5	522.8	528.2	525.2	522.3	519.2	512.6	507.1	501.5	495.5



44°	352.6	365.2	376.0	387.8	377.7	371.7	367.0	354.5	344.3	333.3	322.4
44.5°	347.6	360.3	371.1	383.1	372.8	367.0	362.1	349.6	339.3	328.4	317.5



66.5°	43.7	51.8	60.7	73.8	58.9	52.6	49.2	39.9	31.6	31.2	28.1
67°	39.3	46.9	55.0	67.0	53.0	47.2	44.1	35.6	28.4	28.4	26.0



89°	0.2	0.4	0.8	1.4	0.6	0.3	0.2	0.0	0.0	0.0	0.0
89.5°	0.1	0.2	0.5	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0



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21.5°	490.3	494.4	496.7	499.5	507.0	513.3
22°	487.6	491.9	494.2	497.0	504.7	511.1



44°	309.7	319.3	323.3	327.0	339.9	352.6
44.5°	305.0	314.5	318.5	322.1	335.0	347.6

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66.5°	24.8	31.3	34.2	34.2	39.7	43.7
67°	23.3	28.8	31.6	31.3	36.0	39.3

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89°	0.0	0.0	0.0	0.0	0.1	0.2
89.5°	0.0	0.0	0.0	0.0	0.0	0.1

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(END OF REPORT)