

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: P775625

Luminaire Tested: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775625  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B034)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K  
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

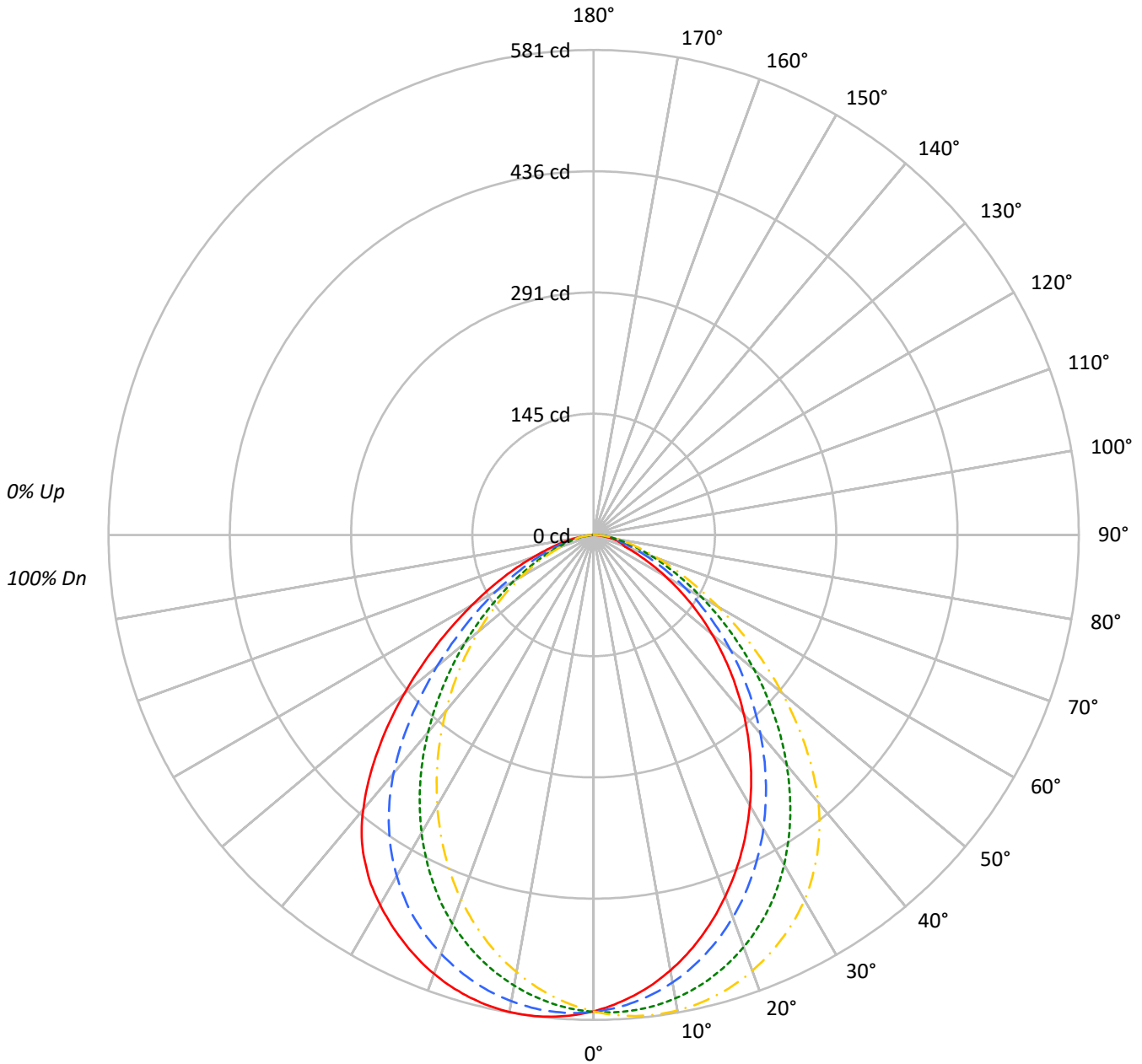
Lumens per Lamp: N/A  
Luminaire Lumens: 1198.0 lumens  
Efficiency: N/A  
Efficacy: 119.8 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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



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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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75																			
3	94	84	77	71	91	83	76	71	80	74	70	77	72	68	75	71	67	65																			
4	87	76	68	62	84	74	67	61	72	66	61	70	64	60	68	63	59	57																			
5	80	68	60	54	78	67	60	54	65	59	53	63	57	53	62	56	52	50																			
6	74	62	54	48	73	61	53	48	59	53	47	58	52	47	56	51	47	45																			
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40																			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36																			
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33																			
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																			

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

	0°	90°	180°	270°
0°	71860	71860	71860	71860
5°	69987	72198	73196	71200
10°	67691	72049	74157	70055
15°	64923	71438	74734	68454
20°	61740	70352	74919	66320
25°	58210	68722	74748	63445
30°	54393	66280	74345	59886
35°	50284	63051	73391	55616
40°	45885	59093	70544	50649
45°	41220	54408	65069	45171
50°	36240	49104	58012	39412
55°	30871	43356	50267	33438
60°	25019	37503	42411	27762
65°	19088	31982	35139	22691
70°	14424	27082	27671	18140
75°	15122	22659	21687	14442
80°	13843	19785	15437	11089
85°	6931	20071	4332	5920

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 89.5°  
 Luminance: 73550 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	53.8	4.5
10°-20°	151.0	12.6
20°-30°	219.6	18.3
30°-40°	246.0	20.5
40°-50°	222.5	18.6
50°-60°	161.6	13.5
60°-70°	92.5	7.7
70°-80°	41.0	3.4
80°-90°	9.9	0.8
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°	424.4	35.4
0°-40°	670.4	56.0
0°-60°	1054.6	88.0
0°-90°	1198.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1198.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	571	571	571	571	571	
5°	554	572	579	564	554	52
15°	498	548	574	525	498	140
25°	419	495	538	457	419	193
35°	327	410	478	362	327	204
45°	232	306	366	254	232	179
55°	141	198	229	152	141	126
65°	64	107	118	76	64	65
75°	31	47	45	30	31	32
85°	5	14	3	4	5	8
90°	0	3	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°	571.0	571.0	571.0	571.0	571.0	571.0	571.0	571.0	571.0	571.0	571.0
0.5°	569.4	570.8	570.8	570.7	571.8	571.8	571.9	571.9	571.9	572.7	571.9
1°	567.9	569.7	570.1	570.5	572.1	572.5	572.9	573.1	573.0	573.5	572.4
1.5°	566.5	568.6	569.3	570.2	572.2	573.2	573.9	574.2	574.1	574.3	572.8
2°	564.9	567.3	568.5	569.8	572.4	573.7	574.8	575.3	575.1	575.0	573.1
2.5°	563.3	566.0	567.6	569.4	572.4	574.2	575.6	576.2	576.0	575.6	573.3
3°	561.5	564.6	566.6	568.9	572.4	574.6	576.3	577.1	576.9	576.1	573.4
3.5°	559.8	563.1	565.5	568.3	572.3	575.0	577.0	577.9	577.6	576.6	573.5
4°	557.9	561.6	564.4	567.6	572.1	575.3	577.6	578.6	578.3	576.9	573.4
4.5°	556.0	560.0	563.1	566.9	571.8	575.5	578.1	579.3	578.9	577.2	573.3
5°	554.0	558.2	561.8	566.1	571.5	575.6	578.5	579.9	579.4	577.4	573.2
5.5°	551.9	556.5	560.4	565.2	571.1	575.6	578.8	580.3	579.8	577.6	572.9
6°	549.7	554.6	558.9	564.2	570.6	575.5	579.1	580.8	580.2	577.6	572.6
6.5°	547.5	552.7	557.4	563.1	570.0	575.4	579.3	581.1	580.5	577.6	572.2
7°	545.2	550.7	555.8	562.0	569.3	575.2	579.4	581.3	580.7	577.5	571.7
7.5°	542.8	548.6	554.1	560.8	568.6	575.0	579.4	581.5	580.8	577.3	571.2
8°	540.3	546.4	552.3	559.5	567.8	574.6	579.4	581.6	580.9	577.1	570.5
8.5°	537.8	544.1	550.4	558.1	566.9	574.1	579.3	581.6	580.8	576.8	569.8
9°	535.2	541.8	548.5	556.7	566.0	573.6	579.0	581.6	580.7	576.3	569.1
9.5°	532.4	539.4	546.5	555.1	564.9	573.0	578.8	581.4	580.6	575.9	568.2
10°	529.7	536.9	544.4	553.5	563.8	572.4	578.4	581.2	580.3	575.3	567.3
10.5°	526.8	534.3	542.2	551.8	562.5	571.6	578.0	580.9	580.0	574.7	566.3
11°	524.0	531.8	540.0	550.1	561.2	570.8	577.5	580.5	579.5	574.0	565.2
11.5°	520.9	529.0	537.7	548.3	559.9	569.9	576.9	580.1	579.1	573.2	564.1
12°	517.9	526.4	535.3	546.3	558.5	568.9	576.3	579.6	578.5	572.4	562.9
12.5°	514.8	523.5	532.8	544.4	557.0	567.9	575.5	579.0	577.9	571.5	561.6
13°	511.6	520.6	530.3	542.3	555.4	566.8	574.7	578.3	577.2	570.5	560.3
13.5°	508.4	517.6	527.7	540.1	553.8	565.6	573.9	577.5	576.4	569.4	558.8
14°	505.1	514.6	525.0	537.9	552.0	564.3	572.9	576.7	575.5	568.3	557.3
14.5°	501.7	511.5	522.2	535.6	550.2	562.9	571.9	575.8	574.5	567.1	555.7
15°	498.3	508.4	519.5	533.3	548.3	561.5	570.8	574.9	573.6	565.8	554.2
15.5°	494.8	505.0	516.5	530.8	546.3	560.0	569.6	573.8	572.5	564.4	552.4
16°	491.2	501.8	513.6	528.3	544.2	558.4	568.3	572.7	571.3	563.0	550.6
16.5°	487.5	498.5	510.5	525.8	542.2	556.8	567.0	571.5	570.0	561.5	548.8
17°	483.9	495.1	507.5	523.2	540.0	555.1	565.6	570.3	568.8	559.9	546.9
17.5°	480.2	491.5	504.3	520.4	537.7	553.3	564.1	568.9	567.4	558.2	544.9
18°	476.5	488.0	501.1	517.6	535.4	551.4	562.6	567.5	565.9	556.6	542.9
18.5°	472.6	484.4	497.8	514.7	533.0	549.5	561.0	566.0	564.4	554.8	540.7
19°	468.7	480.7	494.5	511.7	530.5	547.5	559.3	564.5	562.8	552.9	538.6
19.5°	464.9	477.0	490.9	508.7	528.0	545.4	557.5	562.8	561.1	551.0	536.4
20°	461.0	473.3	487.5	505.7	525.3	543.3	555.7	561.1	559.4	549.1	534.1
20.5°	456.9	469.5	484.0	502.5	522.6	541.1	553.8	559.4	557.6	547.0	531.7
21°	452.9	465.6	480.4	499.3	519.8	538.8	551.8	557.5	555.7	544.9	529.3



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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°	440.5	453.8	469.3	489.1	511.0	531.5	545.5	551.6	549.7	538.2	521.6
23°	436.4	449.8	465.5	485.7	508.0	528.9	543.3	549.5	547.5	535.9	518.9
23.5°	432.1	445.6	461.6	482.1	504.8	526.2	541.0	547.4	545.4	533.5	516.2
24°	427.8	441.7	457.7	478.4	501.6	523.6	538.6	545.1	543.1	531.0	513.3
24.5°	423.5	437.5	453.7	474.7	498.3	520.7	536.2	542.8	540.8	528.5	510.3
25°	419.2	433.2	449.6	471.0	494.9	517.9	533.7	540.5	538.3	526.0	507.3
25.5°	414.8	429.0	445.5	467.1	491.3	514.9	531.2	538.0	535.9	523.4	504.2
26°	410.5	424.8	441.2	463.2	487.8	511.8	528.6	535.6	533.5	520.7	501.0
26.5°	406.0	420.5	437.1	459.1	484.1	508.7	525.9	533.1	530.9	517.9	497.7
27°	401.5	416.1	432.9	455.2	480.3	505.6	523.2	530.6	528.3	515.1	494.2
27.5°	397.0	411.7	428.6	451.1	476.5	502.2	520.4	528.0	525.7	512.3	490.6
28°	392.5	407.3	424.1	446.8	472.6	498.8	517.5	525.2	522.9	509.4	487.0
28.5°	388.0	402.8	419.9	442.5	468.6	495.3	514.4	522.6	520.2	506.2	483.2
29°	383.4	398.3	415.5	438.1	464.5	491.7	511.4	519.8	517.4	503.1	479.4
29.5°	378.8	393.8	411.1	433.8	460.3	487.9	508.2	517.0	514.6	499.8	475.6
30°	374.3	389.3	406.3	429.4	456.1	484.1	505.0	514.1	511.6	496.5	471.7
30.5°	369.6	384.8	401.8	424.8	451.9	480.1	501.6	511.1	508.7	492.9	467.6
31°	364.9	380.1	397.2	420.3	447.5	476.1	498.1	508.0	505.7	489.3	463.5
31.5°	360.3	375.6	392.6	415.7	443.0	472.0	494.6	504.9	502.7	485.7	459.4
32°	355.7	370.9	387.8	411.0	438.5	468.0	490.8	501.7	499.5	482.0	455.1
32.5°	351.0	366.2	383.2	406.5	434.0	463.7	486.9	498.3	496.4	478.1	450.8
33°	346.3	361.6	378.4	401.5	429.4	459.5	483.0	494.8	492.9	474.1	446.3
33.5°	341.6	356.9	373.8	396.8	424.7	455.1	479.0	491.2	489.2	470.0	441.8
34°	336.9	352.2	368.9	392.1	420.0	450.7	475.0	487.5	485.3	466.1	437.1
34.5°	332.1	347.5	364.2	387.3	415.1	446.2	470.9	483.7	481.5	461.7	432.4
35°	327.3	342.7	359.3	382.4	410.4	441.6	466.7	479.7	477.7	457.4	427.6
35.5°	322.6	338.0	354.5	377.4	405.5	437.0	462.4	475.8	473.9	452.9	422.5
36°	317.8	333.2	349.6	372.5	400.5	432.3	458.0	471.6	469.8	448.3	417.5
36.5°	313.0	328.5	344.9	367.6	395.6	427.4	453.5	467.5	465.5	443.2	412.2
37°	308.1	323.7	340.1	362.7	390.6	422.5	448.9	463.1	461.0	438.2	406.9
37.5°	303.4	318.8	335.0	357.7	385.4	417.6	444.1	458.7	456.4	433.0	401.4
38°	298.5	313.9	330.2	352.6	380.3	412.5	439.2	454.0	451.3	427.6	395.9
38.5°	293.9	309.2	325.2	347.6	375.2	407.3	434.3	449.1	446.2	422.0	390.3
39°	289.1	304.3	320.3	342.4	370.0	402.2	429.2	443.8	440.9	416.3	384.4
39.5°	284.2	299.6	315.4	337.6	364.8	396.9	424.1	438.4	435.1	410.4	378.6
40°	279.3	294.8	310.4	332.5	359.7	391.6	418.6	432.7	429.4	404.4	372.6
40.5°	274.7	290.0	305.5	327.3	354.3	386.1	413.1	427.1	423.5	398.1	366.5
41°	269.7	285.2	300.5	322.2	349.0	380.7	407.3	421.1	417.5	391.8	360.4
41.5°	265.0	280.4	295.7	317.2	343.7	375.2	401.7	415.3	411.3	385.4	354.3
42°	260.2	275.5	290.8	311.9	338.3	369.5	395.7	409.1	405.0	378.9	348.0
42.5°	255.5	270.8	285.8	306.8	332.9	363.9	389.8	403.1	398.6	372.5	341.7
43°	250.7	266.0	280.9	301.8	327.6	358.3	383.7	396.8	392.2	365.6	335.3
43.5°	246.0	261.3	276.0	296.7	322.2	352.5	377.7	390.5	385.6	358.9	328.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	231.6	247.0	261.4	281.4	305.7	334.8	359.0	371.1	365.6	338.5	309.2
45.5°	227.1	242.2	256.5	276.2	300.3	328.9	352.8	364.6	358.8	331.7	302.7
46°	222.2	237.5	251.7	271.1	294.8	322.8	346.3	358.0	352.0	324.9	296.0
46.5°	217.5	232.9	246.9	266.1	289.2	316.9	340.0	351.3	345.0	318.0	289.5
47°	212.8	228.1	242.1	261.0	283.7	310.7	333.6	344.5	338.1	311.0	282.9
47.5°	208.2	223.3	237.3	256.0	278.2	304.7	327.1	337.7	331.1	304.2	276.5
48°	203.5	218.6	232.5	250.9	272.8	298.7	320.6	331.0	324.2	297.4	270.0
48.5°	198.9	214.0	227.7	245.9	267.3	292.6	314.1	324.3	317.3	290.7	263.6
49°	194.3	209.4	222.9	240.9	261.8	286.6	307.6	317.4	310.1	283.8	257.3
49.5°	189.8	204.7	218.3	236.0	256.3	280.6	301.1	310.5	303.2	277.2	251.0
50°	185.1	200.2	213.5	231.1	250.8	274.6	294.6	303.6	296.3	270.4	244.7
50.5°	180.6	195.6	208.8	226.0	245.4	268.6	288.2	296.7	289.3	263.9	238.4
51°	176.1	191.0	204.2	220.9	239.9	262.5	281.7	290.0	282.5	257.3	232.4
51.5°	171.6	186.4	199.6	216.1	234.5	256.7	275.3	283.2	275.5	250.7	226.3
52°	167.2	181.9	195.1	211.3	229.2	250.7	269.0	276.4	268.7	244.3	220.2
52.5°	162.8	177.4	190.5	206.5	223.8	244.8	262.5	269.5	261.9	237.9	214.3
53°	158.3	173.0	185.9	201.5	218.5	238.9	256.1	262.8	255.3	231.6	208.4
53.5°	153.7	168.4	181.4	196.8	213.1	233.2	249.8	256.1	248.6	225.2	202.6
54°	149.4	164.1	177.0	192.0	207.9	227.3	243.5	249.5	241.8	219.0	196.9
54.5°	145.0	159.6	172.5	187.2	202.8	221.6	237.4	242.7	235.4	212.9	191.3
55°	140.7	155.4	168.1	182.6	197.6	216.0	231.3	236.5	229.1	206.9	185.8
55.5°	136.4	151.0	163.7	177.9	192.5	210.4	225.1	229.8	222.4	200.9	180.1
56°	132.0	146.8	159.4	173.2	187.3	204.7	218.8	223.3	216.1	194.9	174.8
56.5°	127.7	142.5	155.1	168.6	182.4	199.2	212.8	216.9	209.8	189.1	169.6
57°	123.5	138.3	150.8	164.1	177.5	193.8	206.9	210.6	203.6	183.4	164.3
57.5°	119.4	134.0	146.5	159.5	172.6	188.5	201.1	204.4	197.5	177.8	159.2
58°	115.2	129.9	142.3	155.0	167.7	183.1	195.2	198.3	191.6	172.3	154.2
58.5°	111.2	125.8	138.2	150.6	163.0	177.9	189.5	192.3	185.6	166.7	149.2
59°	107.2	121.9	134.0	146.3	158.2	172.7	183.8	186.4	179.7	161.4	144.4
59.5°	103.2	117.8	129.7	142.0	153.6	167.6	178.2	180.6	174.0	156.1	139.6
60°	99.4	113.9	125.7	137.8	149.0	162.5	172.7	174.9	168.5	151.0	134.9
60.5°	95.5	109.9	121.6	133.4	144.5	157.6	167.2	169.2	162.8	145.9	130.1
61°	91.7	106.1	117.7	129.3	140.1	152.7	161.9	163.7	157.5	140.9	125.7
61.5°	88.0	102.3	113.7	125.2	135.9	147.9	156.7	158.3	152.1	136.0	121.3
62°	84.4	98.6	110.0	121.3	131.4	143.2	151.5	153.0	147.1	131.3	117.0
62.5°	80.7	94.9	106.2	117.3	127.3	138.5	146.4	147.7	141.9	126.5	112.7
63°	77.3	91.3	102.5	113.5	123.1	133.8	141.4	142.6	136.8	121.9	108.6
63.5°	73.9	87.7	98.8	109.8	119.1	129.3	136.5	137.6	131.9	117.4	104.5
64°	70.6	84.1	95.4	106.1	115.1	124.9	131.6	132.7	127.1	113.3	100.6
64.5°	67.2	80.6	91.8	102.4	111.3	120.6	126.9	127.9	122.4	108.9	96.8
65°	64.1	77.3	88.4	98.9	107.4	116.4	122.4	123.2	118.0	104.8	93.1
65.5°	60.9	74.0	85.0	95.5	103.7	112.2	117.9	118.7	113.4	100.6	89.4
66°	57.8	70.7	81.8	92.1	100.1	108.1	113.5	114.2	108.7	96.7	85.9





TEST NUMBER: P775625

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	49.4	61.3	72.2	82.1	89.7	96.5	101.1	101.5	95.4	85.5	75.6
68°	46.9	58.4	69.3	79.0	86.5	92.7	97.0	97.3	91.2	81.8	72.5
68.5°	44.5	55.5	66.3	75.9	83.3	89.1	93.2	93.3	87.2	78.1	69.4
69°	42.3	52.7	63.4	72.9	80.0	85.7	89.5	89.5	83.2	74.4	66.4
69.5°	40.4	50.0	60.6	69.9	76.8	82.3	86.0	85.8	79.2	70.9	63.5
70°	39.2	47.4	57.8	67.0	73.6	79.0	82.5	82.1	75.2	67.6	60.6
70.5°	38.5	44.8	55.2	64.1	70.5	75.6	79.0	78.5	71.8	64.3	57.9
71°	37.8	42.6	52.6	61.4	67.6	72.4	75.5	74.8	68.4	61.2	55.2
71.5°	37.1	40.5	50.2	58.6	64.7	69.3	72.3	71.3	64.9	58.2	52.6
72°	36.4	38.8	47.8	56.0	61.9	66.4	69.1	68.0	61.7	55.3	50.1
72.5°	35.5	37.6	45.5	53.5	59.2	63.4	66.0	64.8	58.6	52.5	47.6
73°	34.6	36.7	43.3	51.0	56.5	60.6	63.2	61.7	55.6	49.7	45.2
73.5°	33.8	35.9	41.2	48.6	53.9	57.8	60.2	58.7	52.7	47.0	42.8
74°	32.9	35.1	39.3	46.3	51.4	55.3	57.4	55.8	50.0	44.3	40.5
74.5°	32.1	34.4	37.4	44.0	49.0	52.7	54.7	53.0	47.3	41.8	38.3
75°	31.1	33.6	35.7	41.9	46.6	50.2	52.2	50.3	44.6	39.4	36.2
75.5°	30.1	32.8	34.5	39.8	44.2	47.7	49.5	47.7	42.1	37.0	34.1
76°	29.0	31.9	33.3	37.9	42.1	45.4	47.1	45.1	39.6	34.7	32.0
76.5°	27.8	30.9	32.1	36.0	39.9	43.1	44.6	42.5	37.3	32.4	30.0
77°	26.7	29.9	30.8	34.4	37.9	40.9	42.3	40.0	34.9	30.2	28.1
77.5°	25.5	28.9	29.9	32.9	36.0	38.8	40.0	37.7	32.6	28.0	26.2
78°	24.3	27.8	29.1	31.4	34.1	36.7	37.8	35.4	30.3	25.9	24.2
78.5°	23.0	26.8	28.3	29.9	32.3	34.8	35.7	33.2	28.0	23.8	22.4
79°	21.7	25.6	27.4	28.4	30.6	32.9	33.6	31.0	25.7	21.7	20.6
79.5°	20.4	24.5	26.5	27.1	28.9	31.1	31.6	28.8	23.5	19.7	18.8
80°	19.1	23.3	25.5	25.8	27.3	29.3	29.7	26.7	21.3	17.8	17.1
80.5°	17.7	22.1	24.5	24.7	25.8	27.6	27.8	24.8	19.1	15.8	15.5
81°	16.3	20.8	23.5	23.6	24.3	25.9	25.9	22.7	16.9	14.0	13.9
81.5°	14.9	19.6	22.4	22.5	22.9	24.3	24.1	20.8	14.7	12.2	12.3
82°	13.5	18.2	21.3	21.4	21.5	22.7	22.2	18.9	12.5	10.7	10.8
82.5°	12.1	16.9	20.2	20.4	20.2	21.2	20.4	17.1	10.8	9.3	9.5
83°	10.5	15.5	19.1	19.3	18.9	19.6	18.7	15.3	9.0	7.9	8.2
83.5°	9.0	14.1	17.9	18.4	17.6	18.1	17.0	13.7	7.2	6.5	6.9
84°	7.5	12.7	16.8	17.4	16.3	16.6	15.4	12.0	5.5	5.1	5.6
84.5°	6.1	11.3	15.6	16.4	15.1	15.2	13.9	10.6	3.7	4.1	4.4
85°	4.8	9.9	14.5	15.4	13.9	13.8	12.4	9.2	3.0	3.2	3.2
85.5°	3.9	8.6	13.4	14.4	12.8	12.5	11.0	7.9	2.4	2.3	2.3
86°	3.4	7.5	12.3	13.3	11.7	11.2	9.8	6.5	2.0	1.5	1.4
86.5°	2.8	6.6	11.2	12.2	10.6	10.0	8.5	5.1	1.6	0.8	0.8
87°	2.3	5.8	10.1	11.0	9.6	8.8	7.2	4.0	1.2	0.4	0.3
87.5°	1.8	5.0	8.9	9.9	8.5	7.6	5.9	2.9	1.0	0.2	0.0
88°	1.3	4.2	7.8	8.7	7.4	6.4	4.6	2.0	0.6	0.1	0.0
88.5°	0.8	3.4	6.6	7.6	6.4	5.2	3.5	1.2	0.3	0.0	0.0



TEST NUMBER: P775625  
CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	1.1	3.3	3.8	3.0	2.2	0.8	0.1	0.0	0.0	0.0



TEST NUMBER: P775625

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	571.0	571.0	571.0	571.0	571.0	571.0
0.5°	570.8	571.0	570.1	569.5	569.3	569.4
1°	570.8	570.5	569.2	568.2	567.8	567.9
1.5°	570.7	569.9	568.1	566.8	566.3	566.5
2°	570.5	569.2	567.0	565.4	564.7	564.9
2.5°	570.2	568.5	565.8	564.0	563.1	563.3
3°	569.9	567.7	564.5	562.3	561.4	561.5
3.5°	569.4	566.8	563.2	560.7	559.6	559.8
4°	569.0	565.8	561.8	558.9	557.6	557.9
4.5°	568.4	564.8	560.2	557.1	555.6	556.0
5°	567.7	563.6	558.7	555.2	553.6	554.0
5.5°	567.0	562.4	557.0	553.2	551.5	551.9
6°	566.2	561.2	555.2	551.1	549.3	549.7
6.5°	565.3	559.8	553.5	549.0	547.0	547.5
7°	564.3	558.4	551.6	546.8	544.6	545.2
7.5°	563.3	556.9	549.6	544.5	542.2	542.8
8°	562.2	555.3	547.6	542.1	539.6	540.3
8.5°	561.0	553.7	545.4	539.7	537.0	537.8
9°	559.8	551.9	543.3	537.2	534.4	535.2
9.5°	558.4	550.1	540.9	534.6	531.6	532.4
10°	557.0	548.2	538.6	531.9	528.8	529.7
10.5°	555.6	546.3	536.2	529.2	526.0	526.8
11°	554.0	544.2	533.7	526.4	523.0	524.0
11.5°	552.4	542.2	531.2	523.6	520.0	520.9
12°	550.7	539.9	528.5	520.6	516.9	517.9
12.5°	549.0	537.7	525.8	517.5	513.8	514.8
13°	547.1	535.4	523.0	514.5	510.6	511.6
13.5°	545.2	533.0	520.2	511.3	507.2	508.4
14°	543.2	530.5	517.2	508.1	504.0	505.1
14.5°	541.2	528.0	514.3	504.8	500.6	501.7
15°	539.1	525.4	511.2	501.5	497.1	498.3
15.5°	536.9	522.6	508.0	498.0	493.5	494.8
16°	534.6	519.9	504.8	494.6	489.9	491.2
16.5°	532.3	517.2	501.6	491.0	486.3	487.5
17°	529.9	514.2	498.3	487.4	482.5	483.9
17.5°	527.5	511.2	494.8	483.7	478.7	480.2
18°	524.9	508.2	491.3	480.0	475.0	476.5
18.5°	522.4	505.1	487.7	476.2	471.1	472.6
19°	519.7	501.9	484.1	472.4	467.2	468.7
19.5°	517.0	498.7	480.4	468.4	463.2	464.9
20°	514.2	495.2	476.6	464.5	459.3	461.0
20.5°	511.3	491.7	472.8	460.5	455.3	456.9
21°	508.2	488.1	468.9	456.4	451.2	452.9

TEST NUMBER: P775625

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	498.9	477.2	456.7	443.8	438.6	440.5
23°	495.5	473.2	452.5	439.5	434.4	436.4
23.5°	492.0	469.4	448.2	435.1	430.1	432.1
24°	488.4	465.3	443.9	430.7	425.7	427.8
24.5°	484.9	461.2	439.5	426.2	421.3	423.5
25°	481.1	456.9	435.0	421.7	416.8	419.2
25.5°	477.4	452.8	430.6	417.2	412.4	414.8
26°	473.4	448.6	425.9	412.6	407.9	410.5
26.5°	469.5	444.3	421.5	407.9	403.2	406.0
27°	465.5	439.7	416.7	403.2	398.7	401.5
27.5°	461.4	435.3	412.1	398.5	394.1	397.0
28°	457.2	430.7	407.2	393.7	389.4	392.5
28.5°	453.1	426.2	402.5	389.0	384.7	388.0
29°	448.7	421.6	397.6	384.2	380.1	383.4
29.5°	444.3	416.9	392.9	379.4	375.4	378.8
30°	440.0	412.1	387.9	374.6	370.7	374.3
30.5°	435.6	407.3	383.0	369.7	365.9	369.6
31°	431.0	402.4	378.0	364.8	361.2	364.9
31.5°	426.3	397.5	373.1	359.9	356.4	360.3
32°	421.6	392.5	368.1	354.9	351.6	355.7
32.5°	416.8	387.6	363.0	350.2	346.7	351.0
33°	412.0	382.6	358.0	345.1	342.0	346.3
33.5°	407.0	377.6	353.0	340.2	337.1	341.6
34°	401.9	372.4	348.0	335.1	332.3	336.9
34.5°	396.9	367.2	342.9	330.1	327.5	332.1
35°	391.8	362.0	337.6	325.2	322.6	327.3
35.5°	386.5	356.9	332.5	320.2	317.8	322.6
36°	381.2	351.7	327.5	315.2	312.8	317.8
36.5°	375.9	346.3	322.4	310.2	308.0	313.0
37°	370.4	340.9	317.2	305.1	303.2	308.1
37.5°	364.9	335.6	311.9	300.1	298.3	303.4
38°	359.2	330.2	306.7	295.1	293.4	298.5
38.5°	353.9	324.8	301.6	290.2	288.6	293.9
39°	348.1	319.4	296.5	285.2	283.8	289.1
39.5°	342.3	313.8	291.3	280.4	279.0	284.2
40°	336.6	308.3	286.1	275.3	274.0	279.3
40.5°	330.8	302.8	280.9	270.4	269.3	274.7
41°	325.0	297.4	275.8	265.4	264.5	269.7
41.5°	319.2	291.9	270.6	260.6	259.7	265.0
42°	313.3	286.5	265.5	255.8	254.8	260.2
42.5°	307.5	281.1	260.4	250.8	250.2	255.5
43°	301.4	275.6	255.4	246.0	245.5	250.7
43.5°	295.5	270.1	250.2	241.1	240.6	246.0



TEST NUMBER: P775625

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	277.7	253.8	235.2	226.8	226.5	231.6
45.5°	271.9	248.6	230.3	221.9	221.7	227.1
46°	265.8	243.3	225.4	217.3	217.1	222.2
46.5°	260.0	237.9	220.4	212.6	212.4	217.5
47°	254.0	232.6	215.4	208.0	207.9	212.8
47.5°	248.1	227.3	210.5	203.3	203.3	208.2
48°	242.2	222.0	205.7	198.6	198.7	203.5
48.5°	236.4	216.7	200.8	194.1	194.1	198.9
49°	230.7	211.6	196.2	189.6	189.6	194.3
49.5°	224.9	206.5	191.4	184.9	185.2	189.8
50°	218.9	201.3	186.6	180.4	180.8	185.1
50.5°	213.2	196.2	181.9	176.0	176.2	180.6
51°	207.8	191.1	177.4	171.6	171.8	176.1
51.5°	202.1	186.1	172.9	167.0	167.5	171.6
52°	196.6	181.2	168.3	162.9	163.2	167.2
52.5°	191.1	176.3	163.8	158.5	158.9	162.8
53°	185.8	171.3	159.5	154.2	154.6	158.3
53.5°	180.4	166.6	155.1	149.9	150.3	153.7
54°	175.4	161.7	150.8	145.8	146.1	149.4
54.5°	170.2	157.1	146.6	141.7	142.0	145.0
55°	165.1	152.4	142.4	137.6	137.9	140.7
55.5°	160.0	148.0	138.3	133.5	133.7	136.4
56°	155.2	143.4	134.1	129.6	129.6	132.0
56.5°	150.4	139.2	130.2	125.7	125.6	127.7
57°	145.7	134.6	126.2	121.8	121.6	123.5
57.5°	141.1	130.4	122.3	118.0	117.6	119.4
58°	136.5	126.2	118.5	114.3	113.9	115.2
58.5°	131.9	122.2	114.7	110.6	109.9	111.2
59°	127.5	118.1	111.1	107.1	106.2	107.2
59.5°	123.2	114.3	107.4	103.5	102.4	103.2
60°	119.0	110.3	103.8	100.1	98.8	99.4
60.5°	114.8	106.6	100.3	96.5	95.1	95.5
61°	110.9	102.9	96.8	93.2	91.6	91.7
61.5°	106.9	99.3	93.5	89.9	88.1	88.0
62°	103.1	95.8	90.1	86.7	84.8	84.4
62.5°	99.3	92.3	86.7	83.4	81.4	80.7
63°	95.6	88.9	83.5	80.2	78.2	77.3
63.5°	92.1	85.7	80.3	77.1	75.0	73.9
64°	88.6	82.3	77.2	74.0	71.9	70.6
64.5°	85.3	79.3	74.1	71.0	68.9	67.2
65°	82.1	76.2	71.2	68.0	66.0	64.1
65.5°	78.8	73.2	68.2	65.1	63.1	60.9
66°	75.5	70.2	65.3	62.2	60.3	57.8



TEST NUMBER: P775625

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	66.6	61.9	57.2	54.1	52.0	49.4
68°	63.7	59.2	54.7	51.6	49.3	46.9
68.5°	61.0	56.6	52.2	49.2	46.7	44.5
69°	58.3	54.1	49.8	46.9	44.1	42.3
69.5°	55.7	51.6	47.5	44.5	41.7	40.4
70°	53.2	49.3	45.3	42.4	39.5	39.2
70.5°	50.8	47.0	43.0	40.5	37.6	38.5
71°	48.3	44.7	40.9	38.6	36.1	37.8
71.5°	46.0	42.5	39.0	36.8	35.4	37.1
72°	43.7	40.4	37.1	35.4	34.6	36.4
72.5°	41.6	38.4	35.9	34.0	33.9	35.5
73°	39.4	36.5	34.2	32.6	33.1	34.6
73.5°	37.4	34.8	32.5	31.3	32.3	33.8
74°	35.5	33.1	30.8	29.9	31.3	32.9
74.5°	33.6	31.4	29.1	28.9	30.4	32.1
75°	31.7	29.7	27.7	27.9	29.4	31.1
75.5°	30.0	27.9	26.4	27.0	28.3	30.1
76°	28.2	26.4	25.1	26.1	27.2	29.0
76.5°	26.5	24.9	23.8	25.2	26.1	27.8
77°	24.9	23.4	22.7	24.2	24.9	26.7
77.5°	23.3	22.0	21.5	23.1	23.8	25.5
78°	21.7	20.6	20.4	22.1	22.6	24.3
78.5°	20.1	19.2	19.2	21.0	21.3	23.0
79°	18.6	17.9	18.1	19.9	20.0	21.7
79.5°	17.1	16.5	17.1	18.8	18.7	20.4
80°	15.7	15.3	16.1	17.6	17.3	19.1
80.5°	14.3	14.1	15.1	16.5	16.0	17.7
81°	12.9	12.9	14.1	15.3	14.7	16.3
81.5°	11.6	11.8	13.1	14.1	13.3	14.9
82°	10.4	10.6	12.0	13.0	12.0	13.5
82.5°	9.2	9.5	10.9	11.8	10.7	12.1
83°	7.9	8.5	9.7	10.7	9.4	10.5
83.5°	6.7	7.4	8.6	9.6	8.2	9.0
84°	5.5	6.3	7.4	8.5	7.1	7.5
84.5°	4.3	5.2	6.2	7.4	6.1	6.1
85°	3.2	4.1	5.0	6.2	5.3	4.8
85.5°	2.2	3.1	3.7	5.0	4.5	3.9
86°	1.3	2.1	2.8	3.8	3.7	3.4
86.5°	0.5	1.1	1.9	2.9	3.0	2.8
87°	0.0	0.2	1.0	2.0	2.3	2.3
87.5°	0.0	0.0	0.1	1.0	1.5	1.8
88°	0.0	0.0	0.0	0.1	0.8	1.3
88.5°	0.0	0.0	0.0	0.1	0.2	0.8



TEST NUMBER: P775625  
CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.1	0.1	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°

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21.5°	448.8	461.7	476.7	496.0	517.0	536.4	549.8	555.6	553.8	542.7	526.8
22°	444.7	457.8	473.1	492.6	514.0	534.0	547.7	553.7	551.8	540.5	524.2



44°	241.1	256.5	271.1	291.5	316.6	346.6	371.5	384.0	379.0	352.1	322.2
44.5°	236.5	251.7	266.2	286.4	311.1	340.7	365.3	377.6	372.4	345.5	315.8



66.5°	54.9	67.4	78.5	88.7	96.5	104.1	109.2	109.9	104.1	92.9	82.5
67°	52.1	64.3	75.3	85.5	93.0	100.3	105.1	105.7	99.8	89.2	79.1



89°	0.3	2.6	5.3	6.3	5.3	4.2	2.4	0.6	0.1	0.0	0.0
89.5°	0.1	1.9	4.1	5.1	4.1	3.1	1.5	0.3	0.0	0.0	0.0



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21.5°	505.1	484.6	464.9	452.3	447.0	448.8
22°	502.1	480.9	460.7	448.1	442.9	444.7



44°	289.5	264.7	245.3	236.4	235.9	241.1
44.5°	283.8	259.3	240.2	231.5	231.2	236.5

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66.5°	72.5	67.3	62.6	59.5	57.4	54.9
67°	69.5	64.5	59.8	56.8	54.7	52.1

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89°	0.0	0.0	0.0	0.1	0.1	0.3
89.5°	0.0	0.0	0.0	0.1	0.1	0.1

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(END OF REPORT)