

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: P775903

Luminaire Tested: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775903  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B027)  
Test Lab:  
Issue Date: 2/7/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K  
Description: 8 INCH SQUARE MEDIUM LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 939.5 lumens  
Efficiency: N/A  
Efficacy: 94.0 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.2 / 1.3  
Luminous Opening: Rectangular (W 0.67' x L: 0.67' x H: 0')  
CIE Type: Direct

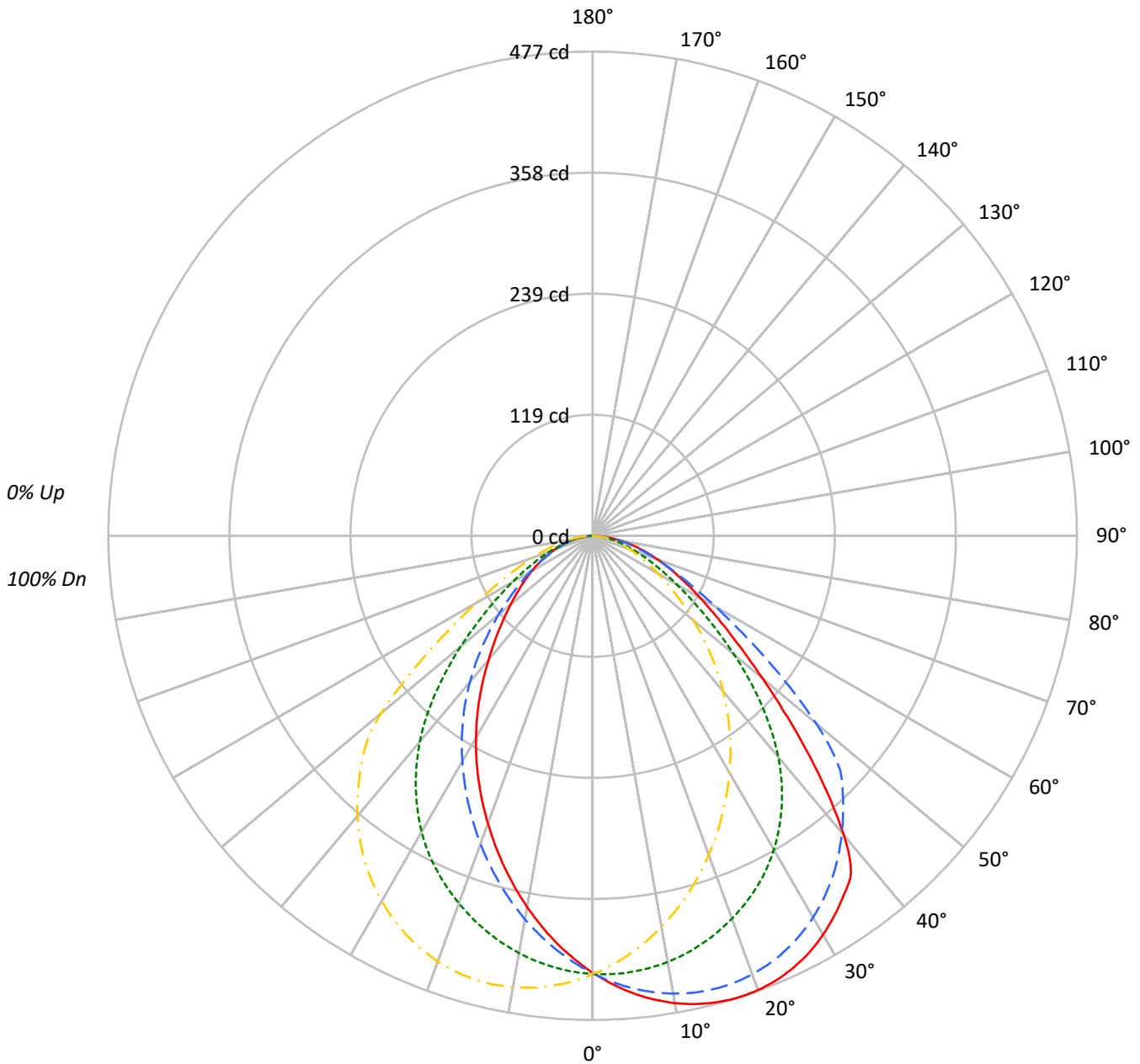
Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	110	106	102	99	108	104	101	98	100	97	94	96	94	92	92	91	89	87								
2	102	94	88	83	99	92	87	82	89	84	80	86	82	79	83	80	77	75								
3	94	84	77	71	91	83	76	70	80	74	69	77	72	68	75	70	67	65								
4	86	75	68	61	84	74	67	61	72	65	60	70	64	59	67	63	59	57								
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50								
6	74	62	54	48	72	61	53	47	59	52	47	58	51	47	56	51	46	44								
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40								
8	64	52	44	38	63	51	43	38	50	43	38	49	42	38	47	42	38	36								
9	60	48	40	35	59	47	40	35	46	39	34	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	30								

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

	0°	90°	180°	270°
0°	10337	10337	10337	10337
5°	10882	10384	9700	10275
10°	11383	10380	9041	10163
15°	11809	10329	8368	10014
20°	12154	10240	7699	9829
25°	12411	10109	7032	9617
30°	12565	9885	6360	9323
35°	12637	9508	5670	8890
40°	12048	8896	4986	8286
45°	10065	7969	4405	7409
50°	8162	6786	3932	6319
55°	6764	5564	3574	5251
60°	5860	4565	3304	4374
65°	5248	3813	3047	3688
70°	4774	3218	2755	3120
75°	4345	2705	2501	2640
80°	3894	2237	2196	2154
85°	3191	1733	1403	1596

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 11801 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.7	4.3
10°-20°	115.0	12.2
20°-30°	170.1	18.1
30°-40°	196.0	20.9
40°-50°	178.5	19.0
50°-60°	122.2	13.0
60°-70°	71.8	7.6
70°-80°	36.2	3.9
80°-90°	9.1	1.0
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°	325.8	34.7
0°-40°	521.8	55.5
0°-60°	822.5	87.5
0°-90°	939.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	939.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	431	431	431	431	431	
5°	452	431	403	427	452	44
15°	476	416	337	403	476	135
25°	469	382	266	364	469	216
35°	432	325	194	304	432	269
45°	297	235	130	218	297	229
55°	162	133	86	126	162	147
65°	92	67	54	65	92	92
75°	47	29	27	28	47	50
85°	12	6	5	6	12	13
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°	431.1	431.1	431.1	431.1	431.1	431.1	431.1	431.1	431.1	431.1	431.1
0.5°	432.8	432.9	432.9	432.4	431.9	431.1	430.5	428.0	427.9	428.1	429.0
1°	435.2	435.1	434.7	433.5	432.0	430.3	428.9	425.7	425.3	425.7	427.0
1.5°	437.5	437.4	436.4	434.5	432.2	429.5	427.2	423.4	422.7	423.2	425.0
2°	439.7	439.6	438.2	435.5	432.2	428.5	425.5	420.9	420.0	420.5	422.9
2.5°	442.1	441.7	439.8	436.5	432.2	427.6	423.7	418.5	417.3	418.0	420.8
3°	444.2	443.7	441.5	437.4	432.2	426.6	421.9	415.9	414.5	415.4	418.6
3.5°	446.3	445.7	443.1	438.3	432.1	425.6	420.0	413.4	411.7	412.7	416.4
4°	448.4	447.7	444.6	439.0	432.0	424.4	418.0	410.9	408.9	409.9	414.1
4.5°	450.2	449.6	445.9	439.7	431.8	423.4	416.1	408.2	405.9	407.1	411.8
5°	452.1	451.4	447.4	440.5	431.4	422.1	414.0	405.4	403.0	404.3	409.4
5.5°	454.0	453.2	448.8	441.1	431.1	420.9	411.9	402.8	399.9	401.4	407.0
6°	455.8	454.9	450.0	441.6	430.8	419.6	409.8	399.9	396.9	398.5	404.6
6.5°	457.5	456.4	451.2	442.2	430.4	418.3	407.6	397.2	394.0	395.5	402.2
7°	459.2	458.1	452.3	442.6	430.0	416.9	405.4	394.3	390.7	392.5	399.5
7.5°	460.7	459.6	453.5	443.1	429.5	415.5	403.1	391.3	387.7	389.6	397.0
8°	462.2	461.1	454.5	443.4	428.9	414.0	400.8	388.4	384.4	386.4	394.4
8.5°	463.6	462.4	455.5	443.7	428.4	412.4	398.4	385.5	381.2	383.4	391.8
9°	464.9	463.7	456.3	443.9	427.8	411.0	396.1	382.5	377.9	380.1	389.0
9.5°	466.3	464.9	457.3	444.2	427.0	409.3	393.6	379.5	374.6	377.1	386.4
10°	467.5	466.1	458.0	444.3	426.3	407.6	391.1	376.3	371.3	373.8	383.7
10.5°	468.6	467.1	458.7	444.4	425.5	405.9	388.6	373.3	368.0	370.5	380.8
11°	469.8	468.2	459.4	444.4	424.6	404.1	386.0	370.1	364.7	367.4	378.0
11.5°	470.7	469.1	460.0	444.4	423.8	402.4	383.5	367.0	361.3	364.0	375.1
12°	471.7	470.0	460.5	444.3	422.8	400.6	380.8	363.8	357.8	360.8	372.2
12.5°	472.5	470.8	461.0	444.2	421.9	398.7	378.2	360.6	354.5	357.5	369.4
13°	473.3	471.6	461.4	443.9	420.8	396.8	375.5	357.3	351.0	354.1	366.5
13.5°	474.0	472.2	461.7	443.6	419.7	394.8	372.8	354.1	347.6	350.7	363.5
14°	474.6	472.8	462.0	443.3	418.5	392.8	369.9	350.7	344.1	347.3	360.5
14.5°	475.2	473.3	462.2	443.0	417.4	390.8	367.2	347.4	340.6	344.0	357.4
15°	475.7	473.8	462.3	442.6	416.1	388.6	364.4	344.0	337.1	340.5	354.4
15.5°	476.1	474.2	462.4	442.1	414.9	386.5	361.5	340.7	333.6	337.2	351.3
16°	476.4	474.5	462.3	441.5	413.5	384.3	358.6	337.4	330.0	333.7	348.3
16.5°	476.7	474.7	462.2	440.9	412.2	382.1	355.6	334.0	326.6	330.3	345.2
17°	476.8	474.8	462.1	440.3	410.8	379.9	352.7	330.5	323.0	326.8	342.0
17.5°	476.9	474.8	461.9	439.5	409.3	377.6	349.7	327.2	319.4	323.4	338.9
18°	477.0	474.9	461.6	438.8	407.8	375.3	346.7	323.8	315.8	319.7	335.8
18.5°	476.9	474.8	461.3	438.0	406.2	373.0	343.7	320.4	312.3	316.4	332.5
19°	476.8	474.6	460.8	437.0	404.6	370.5	340.6	316.9	308.7	312.9	329.4
19.5°	476.6	474.4	460.3	436.1	403.0	368.1	337.6	313.5	305.2	309.4	326.2
20°	476.3	474.1	459.8	435.1	401.3	365.7	334.5	310.1	301.7	305.9	322.9
20.5°	476.0	473.8	459.2	434.1	399.6	363.2	331.4	306.6	298.0	302.3	319.6
21°	475.4	473.2	458.4	433.0	397.8	360.8	328.2	303.0	294.4	298.8	316.5



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CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	473.7	471.3	455.9	429.3	392.4	353.0	318.7	292.7	283.7	288.3	306.6
23°	472.9	470.6	455.0	428.0	390.4	350.4	315.5	289.2	280.1	284.8	303.3
23.5°	472.1	469.8	453.9	426.6	388.4	347.8	312.4	285.6	276.6	281.3	300.1
24°	471.1	468.8	452.9	425.3	386.4	345.0	309.1	282.1	273.0	277.7	296.7
24.5°	470.2	467.8	451.6	423.8	384.3	342.3	305.9	278.7	269.3	274.3	293.4
25°	469.1	466.7	450.3	422.2	382.1	339.6	302.6	275.2	265.8	270.7	290.1
25.5°	467.9	465.6	449.0	420.5	379.9	336.6	299.4	271.7	262.3	267.1	286.9
26°	466.6	464.3	447.7	419.0	377.7	333.8	296.1	268.2	258.6	263.7	283.4
26.5°	465.4	462.9	446.3	417.2	375.4	331.0	292.8	264.6	254.9	260.1	280.1
27°	464.0	461.6	444.7	415.5	373.0	328.0	289.5	261.0	251.4	256.6	276.8
27.5°	462.5	460.1	443.1	413.6	370.4	325.1	286.2	257.6	247.9	252.9	273.4
28°	460.8	458.5	441.4	411.6	367.9	322.0	282.9	254.1	244.2	249.5	270.1
28.5°	459.3	456.9	439.7	409.6	365.3	319.0	279.6	250.5	240.6	245.9	266.8
29°	457.5	455.1	438.0	407.6	362.7	315.8	276.3	247.0	237.0	242.3	263.3
29.5°	455.7	453.3	436.2	405.5	359.8	312.8	272.9	243.5	233.4	238.8	260.0
30°	453.8	451.5	434.2	403.3	357.0	309.5	269.5	239.8	229.7	235.2	256.6
30.5°	451.9	449.5	432.2	401.0	354.1	306.3	266.3	236.4	226.1	231.6	253.3
31°	449.8	447.5	430.2	398.6	351.1	302.9	262.8	232.7	222.5	228.2	249.9
31.5°	447.7	445.4	428.1	396.2	348.1	299.7	259.4	229.2	218.9	224.6	246.5
32°	445.6	443.3	425.9	393.5	344.9	296.3	256.0	225.6	215.4	221.0	243.2
32.5°	443.3	441.0	423.6	390.9	341.7	292.7	252.5	222.1	211.7	217.5	239.8
33°	441.1	438.8	421.3	388.3	338.4	289.3	249.2	218.4	208.2	213.9	236.5
33.5°	438.8	436.4	418.8	385.5	335.2	285.8	245.7	215.0	204.5	210.4	233.1
34°	436.4	434.1	416.5	382.6	331.7	282.3	242.2	211.4	200.9	206.9	229.5
34.5°	434.0	431.6	413.9	379.7	328.2	278.8	238.8	207.8	197.3	203.3	226.2
35°	431.7	429.0	411.4	376.6	324.8	275.2	235.3	204.2	193.7	199.8	222.8
35.5°	429.3	426.5	408.7	373.4	321.1	271.5	231.7	200.8	190.2	196.2	219.3
36°	427.1	423.9	406.0	370.2	317.4	268.1	228.3	197.2	186.6	192.7	215.9
36.5°	424.6	421.4	403.3	366.9	313.5	264.4	224.8	193.5	183.0	189.1	212.4
37°	421.7	418.8	400.4	363.5	309.8	260.6	221.2	189.9	179.6	185.5	209.0
37.5°	418.0	416.3	397.5	360.2	305.8	256.8	217.6	186.5	176.1	182.1	205.5
38°	412.7	413.9	394.5	356.6	301.6	253.2	214.1	182.9	172.6	178.6	202.0
38.5°	407.1	411.1	391.4	352.9	297.5	249.4	210.5	179.3	169.3	175.0	198.6
39°	400.4	407.9	388.4	349.0	293.2	245.6	207.0	175.9	165.9	171.7	195.1
39.5°	392.9	403.4	385.2	345.2	288.9	241.7	203.4	172.4	162.5	168.2	191.5
40°	384.9	398.5	382.0	341.3	284.2	237.8	199.8	168.9	159.3	164.9	188.1
40.5°	376.2	392.2	378.8	337.1	279.7	234.0	196.2	165.5	156.1	161.5	184.6
41°	367.9	385.7	375.5	332.6	275.1	230.1	192.6	162.2	153.0	158.3	181.0
41.5°	358.9	377.5	372.1	328.2	270.4	226.2	189.0	158.9	149.9	155.0	177.5
42°	350.3	370.0	368.7	323.5	265.5	222.2	185.4	155.6	146.9	151.8	174.0
42.5°	341.3	361.4	365.2	318.7	260.6	218.3	181.9	152.4	144.0	148.7	170.5
43°	332.3	353.4	361.8	313.6	255.7	214.3	178.3	149.2	141.0	145.6	167.1
43.5°	323.2	344.5	358.3	308.8	250.6	210.2	174.7	146.0	138.1	142.5	163.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	296.8	318.6	348.0	292.3	235.0	198.2	164.0	136.9	129.9	133.8	153.2
45.5°	287.7	309.6	344.5	286.8	229.7	194.1	160.4	134.0	127.2	130.9	149.8
46°	279.7	301.2	340.5	281.0	224.5	190.2	156.9	131.0	124.6	128.1	146.4
46.5°	270.8	292.2	336.4	275.0	219.1	186.1	153.4	128.2	122.0	125.4	143.0
47°	263.3	284.2	330.5	268.9	213.8	182.1	149.8	125.5	119.5	122.7	139.8
47.5°	254.5	275.4	325.0	262.6	208.3	178.0	146.4	122.9	117.1	120.1	136.5
48°	247.6	267.8	317.8	256.2	203.2	174.0	142.9	120.0	114.7	117.6	133.4
48.5°	239.3	258.9	311.1	249.8	197.7	170.0	139.4	117.4	112.2	115.1	130.1
49°	232.8	251.8	303.0	243.4	192.4	166.0	136.1	114.9	109.9	112.6	126.9
49.5°	224.9	243.5	295.5	236.9	187.1	162.0	132.7	112.4	107.7	110.1	123.9
50°	218.8	236.7	286.9	230.4	181.9	158.0	129.4	109.8	105.4	107.7	120.9
50.5°	211.5	229.0	278.6	223.7	176.4	154.0	126.1	107.4	103.2	105.4	117.8
51°	205.8	222.2	270.0	216.9	171.4	150.2	123.0	105.0	101.2	103.2	114.9
51.5°	199.0	215.0	261.7	210.3	166.2	146.4	119.8	102.6	99.1	100.9	112.0
52°	193.5	208.7	252.8	203.8	161.2	142.5	116.7	100.4	97.0	98.7	109.2
52.5°	187.4	202.2	244.8	197.3	156.1	138.6	113.6	98.1	94.9	96.6	106.4
53°	182.3	196.0	236.3	190.7	151.4	134.8	110.7	95.9	92.9	94.4	103.6
53.5°	176.6	189.9	228.3	184.2	146.6	131.1	107.7	93.7	91.0	92.4	100.9
54°	171.6	184.0	220.0	177.8	142.0	127.5	104.8	91.7	89.1	90.4	98.4
54.5°	166.5	178.5	212.2	171.6	137.3	123.8	102.0	89.7	87.4	88.5	95.8
55°	161.8	172.7	204.6	165.4	133.1	120.2	99.2	87.6	85.5	86.5	93.2
55.5°	157.3	168.2	197.0	159.5	128.7	116.7	96.5	85.6	83.7	84.6	90.7
56°	152.7	162.4	189.9	153.7	124.5	113.2	93.8	83.6	81.8	82.7	88.4
56.5°	148.7	158.3	182.7	148.2	120.4	109.8	91.2	81.6	80.2	80.9	86.1
57°	144.1	153.0	176.2	142.7	116.6	106.5	88.7	79.9	78.5	79.1	83.8
57.5°	140.6	149.2	169.3	137.6	112.7	103.2	86.3	78.1	76.9	77.3	81.5
58°	136.3	144.3	163.1	132.4	109.0	100.1	83.8	76.3	75.2	75.5	79.2
58.5°	133.1	140.4	157.0	127.7	105.4	96.9	81.4	74.6	73.5	73.8	77.0
59°	128.9	136.1	151.0	123.1	101.9	93.9	78.9	72.8	71.9	72.1	74.8
59.5°	126.1	132.3	145.5	118.7	98.5	91.0	76.5	71.1	70.4	70.5	72.7
60°	122.2	128.3	139.9	114.3	95.2	88.2	74.2	69.4	68.9	68.9	70.6
60.5°	119.1	124.3	135.0	110.3	92.0	85.4	72.1	67.7	67.3	67.3	68.6
61°	115.7	121.0	129.6	106.3	89.0	82.5	69.9	66.0	65.8	65.7	66.6
61.5°	112.6	117.0	125.2	102.6	86.1	79.7	67.7	64.5	64.4	64.3	64.7
62°	109.5	113.9	120.4	99.0	83.1	77.0	65.7	63.0	62.9	62.7	62.7
62.5°	106.5	110.4	115.8	95.6	80.1	74.4	63.7	61.4	61.3	61.2	60.9
63°	103.5	107.2	111.8	92.2	77.5	71.8	61.7	60.0	59.7	59.7	59.1
63.5°	100.7	104.0	107.6	89.0	74.8	69.4	59.7	58.5	58.3	58.3	57.3
64°	98.0	100.7	103.8	85.8	72.2	67.0	57.9	57.0	56.7	56.8	55.7
64.5°	95.1	97.9	100.1	82.8	69.7	64.7	56.1	55.5	55.1	55.2	54.0
65°	92.5	94.8	96.3	80.0	67.2	62.4	54.3	54.1	53.7	53.8	52.3
65.5°	89.9	92.1	93.0	77.2	64.8	60.2	52.6	52.5	52.2	52.3	50.7
66°	87.3	89.3	89.6	74.4	62.5	58.0	50.9	51.0	50.7	50.9	49.1





TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	79.8	81.1	80.2	66.8	55.9	51.7	46.1	46.8	46.4	46.7	44.7
68°	77.5	78.5	77.3	64.5	53.8	49.8	44.6	45.5	44.9	45.4	43.4
68.5°	75.1	76.0	74.6	62.2	51.8	47.9	43.2	44.2	43.6	44.0	41.9
69°	72.8	73.6	71.7	59.9	49.8	46.0	41.7	42.8	42.1	42.6	40.5
69.5°	70.6	71.2	69.1	57.6	47.8	44.1	40.3	41.5	40.7	41.4	39.3
70°	68.1	68.8	66.6	55.4	45.9	42.3	39.0	40.2	39.3	40.0	37.9
70.5°	65.9	66.4	64.1	53.3	44.0	40.6	37.7	39.0	38.0	38.7	36.6
71°	63.7	64.1	61.6	51.3	42.2	39.1	36.3	37.6	36.5	37.4	35.4
71.5°	61.5	61.8	59.2	49.4	40.4	37.4	35.1	36.3	35.3	36.0	34.1
72°	59.4	59.6	56.9	47.4	38.7	35.7	33.8	35.0	34.0	34.8	33.0
72.5°	57.3	57.4	54.7	45.4	37.1	34.2	32.6	33.7	32.9	33.5	31.8
73°	55.2	55.3	52.5	43.6	35.4	32.7	31.4	32.4	31.7	32.3	30.7
73.5°	53.0	53.1	50.3	41.7	33.8	31.2	30.2	31.3	30.5	31.1	29.5
74°	51.0	51.0	48.2	39.9	32.2	29.7	29.1	30.1	29.3	29.9	28.4
74.5°	49.0	48.9	46.1	38.1	30.8	28.4	27.9	28.9	28.1	28.7	27.2
75°	46.9	46.9	44.1	36.5	29.2	27.0	26.9	27.8	27.0	27.5	26.0
75.5°	45.0	44.9	42.1	34.9	27.7	25.6	25.7	26.6	25.8	26.4	25.0
76°	43.1	42.9	40.2	33.3	26.4	24.4	24.7	25.4	24.7	25.2	23.8
76.5°	41.1	41.0	38.3	31.6	25.0	23.1	23.6	24.3	23.6	24.0	22.7
77°	39.2	39.1	36.5	30.0	23.6	21.8	22.6	23.1	22.5	22.9	21.7
77.5°	37.4	37.2	34.8	28.5	22.3	20.7	21.4	21.9	21.4	21.7	20.6
78°	35.6	35.4	33.0	26.9	21.0	19.5	20.4	20.8	20.3	20.6	19.5
78.5°	33.7	33.6	31.2	25.4	19.7	18.4	19.3	19.7	19.2	19.5	18.5
79°	31.9	31.7	29.4	23.9	18.6	17.3	18.4	18.6	18.1	18.4	17.4
79.5°	30.0	29.9	27.6	22.5	17.3	16.3	17.3	17.4	17.0	17.3	16.4
80°	28.2	28.1	25.9	21.1	16.2	15.2	16.3	16.3	15.9	16.3	15.3
80.5°	26.5	26.4	24.3	19.6	15.0	14.3	15.3	15.1	14.8	15.1	14.3
81°	24.8	24.7	22.7	18.4	14.0	13.3	14.3	14.0	13.8	14.1	13.3
81.5°	23.0	22.9	21.1	17.0	12.9	12.4	13.2	12.8	12.6	12.9	12.3
82°	21.3	21.3	19.5	15.8	11.9	11.4	12.2	11.8	11.6	11.9	11.3
82.5°	19.6	19.6	18.0	14.5	10.8	10.6	11.2	10.6	10.5	10.8	10.3
83°	18.0	18.0	16.5	13.2	10.0	9.8	10.2	9.6	9.3	9.7	9.3
83.5°	16.3	16.4	14.9	12.0	9.0	8.9	9.2	8.4	8.3	8.6	8.4
84°	14.7	14.8	13.4	10.9	8.1	8.1	8.3	7.4	7.2	7.6	7.5
84.5°	13.1	13.2	12.1	9.8	7.1	7.2	7.5	6.3	6.2	6.5	6.6
85°	11.6	11.7	10.7	8.7	6.3	6.4	6.5	5.1	5.1	5.4	5.7
85.5°	10.0	10.1	9.5	7.6	5.4	5.6	5.6	4.2	4.1	4.4	4.8
86°	8.4	8.6	8.2	6.6	4.5	4.8	4.7	3.4	3.3	3.5	4.0
86.5°	6.8	7.1	7.0	5.6	3.8	4.0	3.9	2.6	2.5	2.7	3.2
87°	5.4	5.8	5.8	4.6	3.0	3.2	3.0	1.9	1.9	2.1	2.4
87.5°	4.3	4.6	4.6	3.6	2.3	2.4	2.3	1.3	1.3	1.4	1.6
88°	3.5	3.6	3.6	2.7	1.6	1.7	1.5	0.6	0.6	0.7	0.8
88.5°	2.6	2.7	2.7	1.9	0.9	0.8	0.7	0.2	0.2	0.2	0.2



TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

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



TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	431.1	431.1	431.1	431.1	431.1	431.1
0.5°	430.1	431.4	432.5	433.7	432.4	432.8
1°	428.8	431.1	433.1	435.1	434.5	435.2
1.5°	427.6	430.7	433.8	436.5	436.5	437.5
2°	426.2	430.4	434.3	437.9	438.5	439.7
2.5°	424.8	429.9	434.8	439.2	440.5	442.1
3°	423.4	429.5	435.2	440.4	442.5	444.2
3.5°	421.9	428.8	435.5	441.6	444.3	446.3
4°	420.4	428.3	435.9	442.8	446.0	448.4
4.5°	418.8	427.7	436.2	443.8	447.7	450.2
5°	417.2	426.9	436.4	444.8	449.4	452.1
5.5°	415.6	426.2	436.6	445.7	450.9	454.0
6°	413.9	425.5	436.7	446.7	452.4	455.8
6.5°	412.1	424.6	436.7	447.5	453.9	457.5
7°	410.3	423.7	436.7	448.4	455.3	459.2
7.5°	408.5	422.8	436.7	449.0	456.6	460.7
8°	406.6	421.8	436.6	449.6	457.9	462.2
8.5°	404.7	420.8	436.5	450.2	459.1	463.6
9°	402.8	419.7	436.2	450.8	460.2	464.9
9.5°	400.8	418.6	436.0	451.2	461.3	466.3
10°	398.7	417.4	435.6	451.6	462.2	467.5
10.5°	396.7	416.2	435.3	451.9	463.2	468.6
11°	394.6	415.0	434.9	452.2	464.0	469.8
11.5°	392.4	413.7	434.4	452.4	464.7	470.7
12°	390.2	412.3	433.9	452.7	465.5	471.7
12.5°	388.0	411.0	433.3	452.8	466.1	472.5
13°	385.8	409.5	432.6	452.8	466.6	473.3
13.5°	383.5	408.0	432.0	452.7	467.1	474.0
14°	381.2	406.6	431.2	452.6	467.6	474.6
14.5°	378.7	405.0	430.4	452.4	467.9	475.2
15°	376.3	403.4	429.6	452.1	468.1	475.7
15.5°	373.9	401.7	428.6	451.8	468.3	476.1
16°	371.5	400.1	427.7	451.5	468.5	476.4
16.5°	369.0	398.4	426.7	451.1	468.5	476.7
17°	366.5	396.6	425.7	450.6	468.5	476.8
17.5°	363.8	394.8	424.5	450.0	468.4	476.9
18°	361.3	392.9	423.4	449.4	468.2	477.0
18.5°	358.7	391.0	422.2	448.7	468.0	476.9
19°	356.1	389.1	420.9	447.9	467.7	476.8
19.5°	353.4	387.2	419.6	447.1	467.3	476.6
20°	350.7	385.2	418.3	446.3	466.7	476.3
20.5°	348.0	383.3	416.9	445.3	466.2	476.0
21°	345.2	381.2	415.4	444.2	465.6	475.4

TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	336.9	374.9	410.8	440.8	463.3	473.7
23°	334.1	372.6	409.2	439.5	462.3	472.9
23.5°	331.3	370.4	407.5	438.2	461.4	472.1
24°	328.4	368.2	405.8	436.8	460.3	471.1
24.5°	325.5	365.9	404.0	435.3	459.2	470.2
25°	322.7	363.5	402.3	433.9	457.9	469.1
25.5°	319.7	361.1	400.4	432.3	456.5	467.9
26°	316.8	358.7	398.5	430.6	455.3	466.6
26.5°	313.7	356.2	396.5	428.9	453.8	465.4
27°	310.8	353.6	394.5	427.1	452.2	464.0
27.5°	307.8	351.0	392.4	425.4	450.7	462.5
28°	304.7	348.3	390.2	423.5	449.0	460.8
28.5°	301.5	345.6	388.0	421.6	447.2	459.3
29°	298.4	342.7	385.7	419.6	445.4	457.5
29.5°	295.2	339.8	383.4	417.6	443.4	455.7
30°	291.9	336.7	380.8	415.5	441.5	453.8
30.5°	288.6	333.7	378.2	413.4	439.5	451.9
31°	285.3	330.6	375.7	411.1	437.4	449.8
31.5°	282.0	327.4	373.0	408.9	435.2	447.7
32°	278.7	324.1	370.1	406.6	433.0	445.6
32.5°	275.2	320.9	367.2	404.1	430.7	443.3
33°	271.8	317.5	364.2	401.7	428.3	441.1
33.5°	268.3	314.2	361.2	399.1	425.9	438.8
34°	264.7	310.6	358.1	396.6	423.5	436.4
34.5°	261.2	307.2	354.8	394.0	420.9	434.0
35°	257.9	303.7	351.5	391.2	418.3	431.7
35.5°	254.2	300.1	348.2	388.5	415.7	429.3
36°	250.6	296.3	344.8	385.7	413.1	427.1
36.5°	247.1	292.6	341.3	382.7	410.3	424.6
37°	243.6	288.9	337.7	379.7	407.6	421.7
37.5°	239.9	285.0	334.0	376.6	404.9	418.0
38°	236.4	281.0	330.2	373.5	402.3	412.7
38.5°	232.7	277.0	326.3	370.2	399.6	407.1
39°	229.2	273.0	322.5	367.0	397.1	400.4
39.5°	225.3	269.0	318.3	363.6	394.1	392.9
40°	221.8	264.7	314.2	360.2	390.9	384.9
40.5°	218.1	260.4	309.9	356.7	386.0	376.2
41°	214.4	256.1	305.3	353.2	381.2	367.9
41.5°	210.7	251.7	300.7	349.5	374.9	358.9
42°	207.1	247.2	296.1	345.9	368.3	350.3
42.5°	203.4	242.6	291.3	342.2	360.7	341.3
43°	199.7	237.8	286.2	338.5	353.5	332.3
43.5°	195.9	233.1	281.0	334.6	345.3	323.2



TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	184.7	218.5	264.3	322.8	321.3	296.8
45.5°	180.8	213.5	258.5	318.7	312.9	287.7
46°	177.0	208.6	252.4	314.8	304.8	279.7
46.5°	173.3	203.7	246.4	310.6	296.5	270.8
47°	169.5	198.7	240.2	306.6	288.5	263.3
47.5°	165.8	193.7	234.2	302.1	280.1	254.5
48°	161.9	188.8	228.0	297.5	272.4	247.6
48.5°	158.2	183.9	221.7	292.3	264.3	239.3
49°	154.5	179.0	215.5	285.7	256.8	232.8
49.5°	150.8	174.3	209.4	279.4	249.1	224.9
50°	147.1	169.4	203.2	272.0	242.0	218.8
50.5°	143.3	164.6	197.0	264.4	234.4	211.5
51°	139.8	159.9	190.8	256.5	227.4	205.8
51.5°	136.1	155.4	184.8	248.3	220.5	199.0
52°	132.5	150.8	178.9	240.0	214.1	193.5
52.5°	128.9	146.4	173.1	232.3	207.3	187.4
53°	125.4	142.1	167.3	224.2	200.8	182.3
53.5°	122.0	137.9	161.7	216.3	194.9	176.6
54°	118.5	133.6	156.3	208.4	188.7	171.6
54.5°	115.2	129.6	151.1	201.0	183.1	166.5
55°	111.8	125.6	146.1	193.7	176.9	161.8
55.5°	108.6	121.8	141.0	186.4	172.0	157.3
56°	105.3	118.0	136.2	179.6	166.1	152.7
56.5°	102.3	114.3	131.7	172.7	161.6	148.7
57°	99.1	110.7	127.2	166.3	155.9	144.1
57.5°	96.1	107.2	122.9	160.0	151.7	140.6
58°	93.1	103.8	118.7	154.0	146.6	136.3
58.5°	90.4	100.6	114.8	148.3	142.5	133.1
59°	87.7	97.4	111.0	142.5	138.0	128.9
59.5°	84.9	94.3	107.3	137.4	133.8	126.1
60°	82.2	91.2	103.6	132.2	129.8	122.2
60.5°	79.4	88.2	100.3	127.3	125.8	119.1
61°	76.8	85.4	96.9	122.4	122.2	115.7
61.5°	74.3	82.6	93.8	117.9	118.2	112.6
62°	71.8	79.9	90.7	113.6	115.1	109.5
62.5°	69.4	77.2	87.8	109.5	111.4	106.5
63°	67.0	74.7	84.7	105.5	108.2	103.5
63.5°	64.8	72.1	82.0	101.7	104.9	100.7
64°	62.6	69.6	79.3	97.9	101.5	98.0
64.5°	60.4	67.2	76.7	94.5	98.6	95.1
65°	58.2	65.0	74.0	91.0	95.4	92.5
65.5°	56.1	62.6	71.5	87.9	92.7	89.9
66°	54.1	60.4	69.1	84.6	89.8	87.3



TEST NUMBER: P775903

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	48.3	54.0	62.2	76.0	81.5	79.8
68°	46.5	52.1	59.9	73.1	79.0	77.5
68.5°	44.7	50.1	57.8	70.6	76.4	75.1
69°	43.1	48.2	55.7	67.9	73.8	72.8
69.5°	41.3	46.3	53.7	65.4	71.4	70.6
70°	39.7	44.5	51.7	63.0	69.0	68.1
70.5°	38.0	42.6	49.7	60.6	66.6	65.9
71°	36.4	41.0	47.7	58.3	64.4	63.7
71.5°	35.0	39.2	45.9	56.0	62.1	61.5
72°	33.5	37.7	44.0	53.8	59.7	59.4
72.5°	32.0	36.1	42.2	51.7	57.5	57.3
73°	30.6	34.5	40.4	49.5	55.3	55.2
73.5°	29.2	33.0	38.6	47.5	53.2	53.0
74°	27.8	31.4	37.1	45.5	51.1	51.0
74.5°	26.6	29.9	35.5	43.4	49.0	49.0
75°	25.3	28.5	33.9	41.5	46.9	46.9
75.5°	24.0	27.0	32.2	39.6	44.9	45.0
76°	22.8	25.6	30.7	37.4	43.1	43.1
76.5°	21.6	24.3	29.1	35.7	41.1	41.1
77°	20.6	23.0	27.6	34.0	39.1	39.2
77.5°	19.5	21.6	26.1	32.3	37.2	37.4
78°	18.4	20.4	24.7	30.6	35.4	35.6
78.5°	17.3	19.2	23.3	28.9	33.6	33.7
79°	16.4	18.0	21.8	27.2	31.8	31.9
79.5°	15.4	16.8	20.5	25.5	29.9	30.0
80°	14.5	15.6	19.1	23.8	28.1	28.2
80.5°	13.5	14.6	17.9	22.3	26.4	26.5
81°	12.6	13.4	16.6	20.7	24.7	24.8
81.5°	11.7	12.4	15.3	19.1	23.0	23.0
82°	10.8	11.4	14.1	17.5	21.2	21.3
82.5°	9.9	10.4	12.9	16.1	19.6	19.6
83°	9.0	9.5	11.8	14.6	18.0	18.0
83.5°	8.2	8.5	10.6	13.1	16.4	16.3
84°	7.4	7.6	9.5	11.8	14.7	14.7
84.5°	6.5	6.7	8.4	10.4	13.1	13.1
85°	5.7	5.8	7.4	9.1	11.7	11.6
85.5°	4.8	5.0	6.3	8.0	10.1	10.0
86°	4.0	4.2	5.4	6.7	8.6	8.4
86.5°	3.3	3.5	4.4	5.6	7.2	6.8
87°	2.4	2.7	3.6	4.5	6.0	5.4
87.5°	1.6	2.0	2.7	3.4	4.8	4.3
88°	0.8	1.3	1.9	2.5	3.8	3.5
88.5°	0.2	0.5	1.1	1.7	2.8	2.6



TEST NUMBER: P775903  
CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-4000K

**CANDELA DISTRIBUTION (continued):**

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



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

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21.5°	474.9	472.7	457.7	431.9	396.1	358.2	325.1	299.6	291.0	295.4	313.2
22°	474.4	472.1	456.9	430.6	394.3	355.6	321.9	296.1	287.3	291.9	309.9



44°	314.4	335.9	354.8	303.5	245.5	206.2	171.2	143.0	135.3	139.5	160.0
44.5°	305.3	327.1	351.3	298.0	240.3	202.2	167.6	139.9	132.5	136.6	156.7



66.5°	84.8	86.4	86.3	71.8	60.3	55.8	49.2	49.7	49.2	49.5	47.7
67°	82.3	83.8	83.3	69.3	58.1	53.8	47.7	48.3	47.8	48.1	46.2



89°	1.8	1.8	1.8	1.1	0.3	0.2	0.2	0.1	0.0	0.1	0.1
89.5°	0.9	0.9	0.9	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0



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21.5°	342.5	379.1	413.9	443.1	464.9	474.9
22°	339.8	377.0	412.3	442.1	464.1	474.4



44°	192.2	228.3	275.6	330.8	337.7	314.4
44.5°	188.5	223.4	270.1	326.8	329.3	305.3

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66.5°	52.2	58.3	66.7	81.7	86.9	84.8
67°	50.2	56.2	64.4	78.8	84.3	82.3

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89°	0.0	0.1	0.2	0.8	1.9	1.8
89.5°	0.0	0.0	0.0	0.1	1.1	0.9

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(END OF REPORT)