

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: P775825

Luminaire Tested: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775825
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B048)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K
Description: 8 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

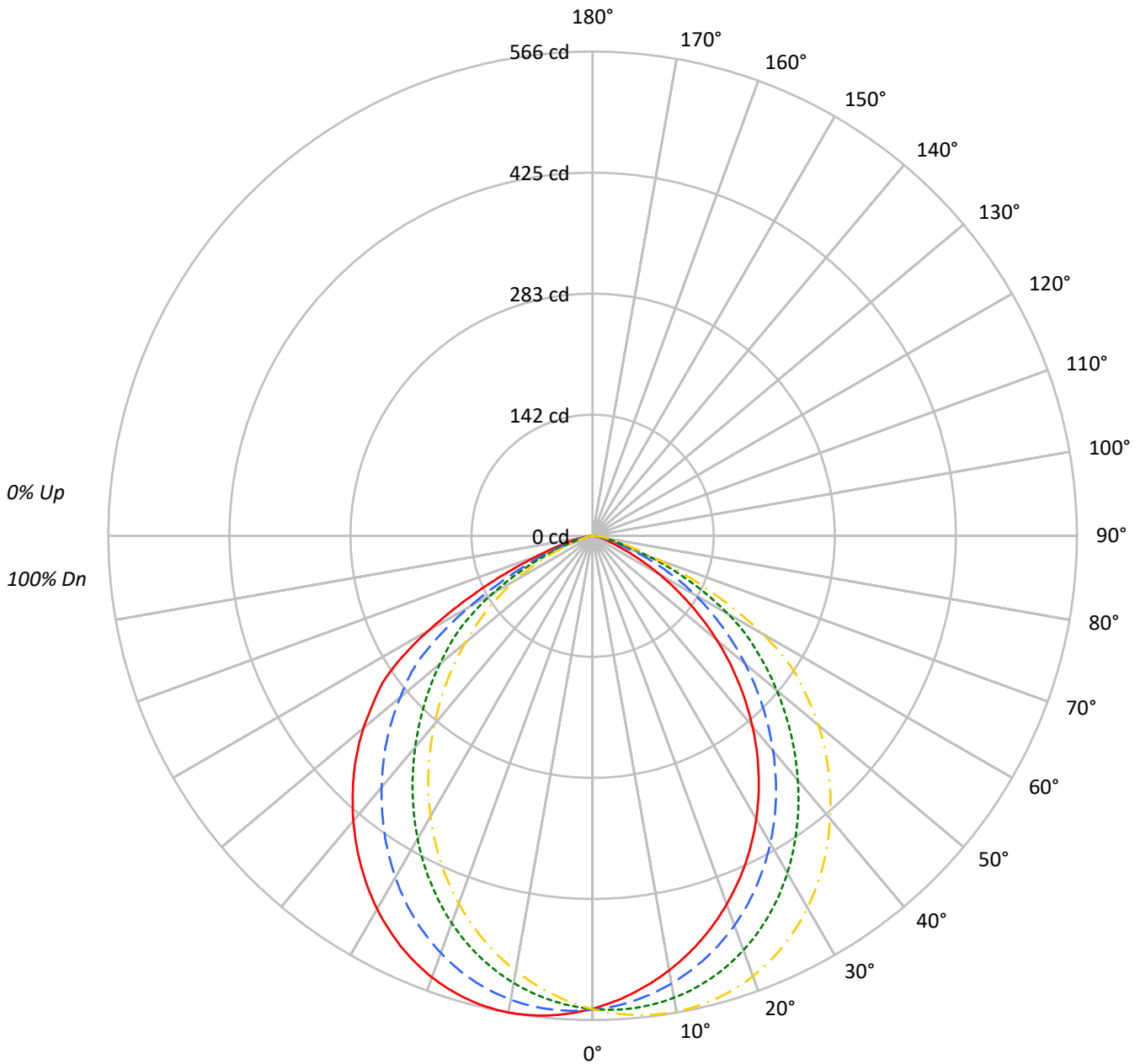
Lumens per Lamp: N/A
Luminaire Lumens: 1228.0 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.17 / 1.27
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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	103	100	108	105	101	98	100	98	95	97	94	92	93	91	90	88																			
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	83	80	78	76																			
3	94	85	77	72	92	83	76	71	80	74	70	77	73	69	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	59	54	65	58	53	63	57	52	61	56	52	50																			
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44																			
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39																			
8	64	52	44	38	63	51	43	38	50	43	38	48	42	37	47	42	37	35																			
9	60	47	40	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32																			
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	16899	16899	16899	16899
5°	16454	16988	17248	16718
10°	15987	16998	17544	16455
15°	15472	16926	17741	16107
20°	14893	16748	17843	15650
25°	14236	16459	17847	15081
30°	13481	16044	17757	14426
35°	12601	15512	17581	13671
40°	11574	14870	17337	12857
45°	10380	14145	17037	11990
50°	8986	13351	16595	11071
55°	7361	12439	15942	10055
60°	5514	11156	13494	8225
65°	3533	8987	9781	5880
70°	2000	6168	6043	3544
75°	1522	3610	3822	1923
80°	1072	1987	2180	914
85°	631	1086	560	385

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 17275 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.2	4.3
10°-20°	147.8	12.0
20°-30°	217.6	17.7
30°-40°	249.4	20.3
40°-50°	240.0	19.5
50°-60°	191.4	15.6
60°-70°	99.3	8.1
70°-80°	26.8	2.2
80°-90°	3.4	0.3
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°	417.5	34.0
0°-40°	667.0	54.3
0°-60°	1098.4	89.4
0°-90°	1228.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1228.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	554	554	554	554	554	
5°	537	554	563	546	537	51
15°	490	536	561	510	490	138
25°	423	489	530	448	423	194
35°	338	416	472	367	338	211
45°	240	328	395	278	240	185
55°	138	234	300	189	138	124
65°	49	124	135	81	49	50
75°	13	31	32	16	13	14
85°	2	3	2	1	2	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°	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5
0.5°	551.5	553.9	553.7	553.4	553.7	554.2	554.5	554.5	554.1	555.8	554.6
1°	550.1	552.9	553.1	553.3	554.1	555.1	555.7	555.7	555.3	556.6	555.1
1.5°	548.6	551.8	552.4	553.2	554.3	555.7	556.7	556.7	556.5	557.3	555.4
2°	547.1	550.7	551.7	552.9	554.5	556.4	557.7	558.1	557.6	558.0	555.7
2.5°	545.5	549.5	550.8	552.7	554.6	557.0	558.7	559.2	558.6	558.7	555.9
3°	543.9	548.2	550.0	552.3	554.7	557.6	559.6	560.2	559.5	559.3	556.0
3.5°	542.3	546.9	549.1	551.9	554.7	558.1	560.4	561.2	560.5	559.8	556.1
4°	540.5	545.5	548.1	551.4	554.6	558.5	561.1	562.1	561.3	560.2	556.1
4.5°	538.8	544.1	547.0	550.8	554.5	558.8	561.8	562.9	562.1	560.6	556.0
5°	536.9	542.6	545.9	550.2	554.3	559.0	562.4	563.7	562.8	560.9	555.9
5.5°	535.1	541.1	544.8	549.5	554.0	559.2	562.9	564.4	563.4	561.1	555.6
6°	533.1	539.5	543.5	548.7	553.7	559.3	563.4	565.0	564.0	561.2	555.4
6.5°	531.1	537.8	542.2	547.9	553.2	559.4	563.8	565.5	564.5	561.3	555.1
7°	529.1	536.1	540.9	547.0	552.7	559.4	564.2	566.1	564.9	561.3	554.7
7.5°	527.0	534.3	539.5	546.1	552.1	559.3	564.4	566.5	565.2	561.2	554.2
8°	524.8	532.5	538.0	545.0	551.6	559.2	564.6	566.8	565.5	561.1	553.6
8.5°	522.6	530.6	536.4	543.9	550.9	558.9	564.8	567.1	565.7	560.8	553.0
9°	520.3	528.7	534.8	542.7	550.1	558.7	564.8	567.3	565.9	560.6	552.3
9.5°	518.1	526.7	533.2	541.5	549.3	558.3	564.8	567.4	565.9	560.2	551.5
10°	515.7	524.7	531.4	540.2	548.3	557.8	564.7	567.5	565.9	559.7	550.7
10.5°	513.4	522.6	529.6	538.8	547.4	557.4	564.6	567.4	565.7	559.2	549.8
11°	510.9	520.4	527.8	537.3	546.3	556.8	564.3	567.3	565.5	558.6	548.8
11.5°	508.4	518.3	525.9	535.9	545.2	556.2	564.0	567.1	565.3	558.0	547.7
12°	505.8	516.0	524.0	534.3	544.0	555.5	563.7	566.9	564.9	557.2	546.6
12.5°	503.3	513.7	521.9	532.6	542.8	554.7	563.2	566.5	564.5	556.4	545.4
13°	500.6	511.3	519.9	530.9	541.5	553.9	562.7	566.1	564.0	555.5	544.1
13.5°	497.9	508.9	517.7	529.2	540.1	553.0	562.1	565.6	563.5	554.6	542.8
14°	495.2	506.5	515.5	527.3	538.6	552.0	561.4	565.1	562.9	553.5	541.3
14.5°	492.3	504.0	513.3	525.5	537.1	550.9	560.7	564.5	562.1	552.4	539.9
15°	489.5	501.5	511.0	523.5	535.5	549.7	559.9	563.7	561.3	551.2	538.3
15.5°	486.6	498.8	508.6	521.5	533.8	548.6	559.0	562.9	560.4	550.0	536.7
16°	483.7	496.1	506.1	519.4	532.0	547.3	558.0	562.1	559.5	548.6	535.1
16.5°	480.7	493.4	503.6	517.2	530.2	545.9	557.0	561.1	558.5	547.2	533.3
17°	477.6	490.6	501.1	514.9	528.3	544.5	555.9	560.1	557.4	545.7	531.4
17.5°	474.5	487.8	498.5	512.7	526.4	543.0	554.7	559.0	556.2	544.1	529.5
18°	471.5	484.9	495.9	510.3	524.3	541.4	553.5	557.8	554.9	542.5	527.5
18.5°	468.3	482.0	493.1	507.9	522.2	539.7	552.2	556.6	553.5	540.8	525.5
19°	464.8	479.0	490.3	505.4	520.0	538.1	550.8	555.3	552.2	539.1	523.4
19.5°	461.6	475.9	487.5	502.8	517.8	536.3	549.3	553.9	550.7	537.2	521.2
20°	458.4	472.9	484.6	500.3	515.5	534.4	547.8	552.4	549.2	535.3	518.9
20.5°	455.0	469.7	481.7	497.6	513.0	532.5	546.2	550.9	547.6	533.3	516.7
21°	451.4	466.5	478.7	494.9	510.6	530.5	544.5	549.3	545.9	531.3	514.3



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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°	441.1	456.6	469.3	486.2	502.9	524.1	539.0	544.0	540.3	524.8	506.8
23°	437.5	453.2	466.0	483.2	500.2	521.8	537.0	542.2	538.3	522.4	504.1
23.5°	433.8	449.8	462.7	480.2	497.3	519.5	535.0	540.2	536.3	520.1	501.5
24°	430.1	446.3	459.3	477.1	494.5	517.0	532.9	538.2	534.2	517.6	498.7
24.5°	426.4	442.8	455.9	473.8	491.6	514.5	530.7	536.1	532.0	515.1	495.9
25°	422.6	439.2	452.5	470.6	488.6	512.0	528.4	533.9	529.8	512.5	493.0
25.5°	418.8	435.5	449.0	467.3	485.5	509.3	526.1	531.7	527.4	509.9	490.1
26°	414.9	431.9	445.4	463.8	482.4	506.6	523.7	529.4	525.0	507.2	487.1
26.5°	411.0	428.2	441.8	460.3	479.2	503.9	521.3	527.0	522.6	504.4	484.1
27°	407.0	424.5	438.2	456.9	476.0	501.1	518.7	524.5	520.1	501.6	480.9
27.5°	403.0	420.7	434.5	453.4	472.7	498.2	516.1	522.1	517.5	498.8	477.8
28°	399.0	416.8	430.8	449.8	469.2	495.1	513.5	519.5	514.9	495.8	474.5
28.5°	394.8	412.8	427.0	446.1	465.7	492.2	510.8	516.8	512.1	492.8	471.3
29°	390.7	408.9	423.1	442.3	462.2	489.0	507.9	514.1	509.4	489.7	467.9
29.5°	386.6	404.9	419.3	438.6	458.7	485.9	505.1	511.4	506.5	486.6	464.4
30°	382.4	401.0	415.3	434.8	455.1	482.7	502.2	508.6	503.7	483.5	460.9
30.5°	378.1	396.8	411.3	431.0	451.4	479.3	499.2	505.7	500.7	480.2	457.5
31°	373.8	392.7	407.3	427.2	447.8	476.0	496.2	502.7	497.7	477.0	454.0
31.5°	369.4	388.6	403.2	423.1	444.0	472.6	493.0	499.7	494.6	473.7	450.4
32°	365.1	384.4	399.1	419.1	440.1	469.1	489.9	496.6	491.5	470.4	446.8
32.5°	360.7	380.0	394.9	415.0	436.2	465.5	486.7	493.6	488.3	466.8	443.2
33°	356.3	375.8	390.6	411.0	432.3	461.8	483.4	490.5	485.1	463.4	439.4
33.5°	351.8	371.5	386.4	406.8	428.3	458.2	480.1	487.1	481.8	459.8	435.7
34°	347.2	367.2	382.2	402.7	424.4	454.6	476.6	483.8	478.5	456.3	431.9
34.5°	342.7	362.8	377.9	398.4	420.3	450.8	473.2	480.5	475.1	452.8	428.1
35°	338.1	358.3	373.6	394.3	416.2	447.0	469.7	477.2	471.7	449.1	424.2
35.5°	333.5	353.8	369.1	389.9	412.0	443.2	466.0	473.7	468.3	445.4	420.4
36°	328.8	349.3	364.7	385.6	407.9	439.3	462.5	470.1	464.6	441.6	416.3
36.5°	324.1	344.8	360.2	381.1	403.7	435.4	458.7	466.5	461.1	438.0	412.3
37°	319.4	340.2	355.8	376.9	399.5	431.3	455.0	463.0	457.4	434.1	408.4
37.5°	314.7	335.6	351.2	372.5	395.1	427.3	451.2	459.3	453.8	430.3	404.4
38°	309.8	331.0	346.6	368.0	390.8	423.2	447.4	455.6	450.1	426.4	400.3
38.5°	305.0	326.3	342.0	363.3	386.4	419.1	443.6	451.9	446.4	422.6	396.2
39°	300.3	321.5	337.4	359.0	382.2	415.0	439.7	448.3	442.6	418.6	392.1
39.5°	295.5	316.9	332.8	354.4	377.6	410.8	435.7	444.4	438.9	414.6	388.0
40°	290.4	312.2	328.1	349.9	373.1	406.5	431.8	440.5	435.0	410.6	383.7
40.5°	285.6	307.4	323.4	345.2	368.6	402.3	427.8	436.6	431.1	406.6	379.6
41°	280.6	302.6	318.7	340.7	364.1	398.0	423.6	432.8	427.2	402.5	375.3
41.5°	275.6	297.8	314.0	336.1	359.6	393.6	419.6	428.8	423.2	398.6	371.1
42°	270.5	293.0	309.1	331.5	355.1	389.2	415.4	424.7	419.2	394.4	366.9
42.5°	265.7	288.1	304.5	326.9	350.6	384.9	411.4	420.7	415.2	390.2	362.5
43°	260.6	283.2	299.7	322.3	346.0	380.5	407.1	416.7	411.2	385.9	358.2
43.5°	255.5	278.2	295.0	317.5	341.4	376.1	402.9	412.6	407.1	381.8	353.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	240.4	263.3	280.5	303.5	327.6	362.6	390.0	400.1	394.6	368.8	340.6
45.5°	235.3	258.4	275.7	298.9	323.0	358.1	385.6	395.9	390.4	364.3	336.1
46°	230.2	253.4	270.8	294.1	318.4	353.6	381.2	391.5	386.1	359.9	331.6
46.5°	225.1	248.4	266.1	289.4	313.8	349.0	376.8	387.2	381.8	355.4	327.0
47°	220.1	243.5	261.2	284.7	309.2	344.4	372.2	382.8	377.3	350.8	322.4
47.5°	214.9	238.5	256.4	279.9	304.4	339.8	367.8	378.3	372.8	346.2	317.6
48°	209.6	233.5	251.5	275.3	299.8	335.2	363.2	373.8	368.4	341.3	312.9
48.5°	204.6	228.4	246.7	270.5	295.2	330.6	358.6	369.2	363.8	336.5	308.1
49°	199.5	223.5	241.8	265.8	290.5	325.8	353.9	364.6	359.1	331.6	303.2
49.5°	194.4	218.5	237.1	261.1	285.7	321.1	349.3	359.9	354.2	326.6	298.3
50°	189.2	213.5	232.4	256.3	281.1	316.4	344.4	355.1	349.4	321.6	293.4
50.5°	184.0	208.5	227.5	251.7	276.3	311.6	339.5	350.2	344.4	316.4	288.6
51°	178.9	203.4	222.7	247.0	271.6	306.8	334.6	345.2	339.4	311.4	283.8
51.5°	173.9	198.4	217.9	242.3	266.9	302.0	329.6	340.1	334.3	306.5	279.0
52°	168.7	193.5	213.1	237.6	262.1	297.0	324.5	334.9	329.1	301.8	274.5
52.5°	163.7	188.5	208.3	232.9	257.3	292.1	319.4	329.7	323.9	297.2	269.8
53°	158.5	183.5	203.6	228.2	252.5	287.0	314.2	324.7	319.0	292.3	265.1
53.5°	153.4	178.6	198.8	223.6	247.8	282.0	309.0	319.4	314.2	287.2	259.6
54°	148.4	173.7	194.1	218.7	243.0	276.9	304.0	314.6	309.5	281.4	254.0
54.5°	143.4	168.8	189.3	214.1	238.3	272.1	299.1	310.0	304.6	274.9	247.6
55°	138.3	163.9	184.6	209.4	233.7	267.3	294.4	305.3	299.5	267.7	241.0
55.5°	133.4	158.9	180.0	204.9	229.2	262.7	289.5	300.0	293.4	260.7	234.1
56°	128.4	154.2	175.2	200.3	224.6	257.9	284.4	294.1	286.7	252.9	227.0
56.5°	123.5	149.4	170.6	195.7	220.0	252.8	278.6	287.5	279.6	245.1	219.9
57°	118.6	144.5	166.1	191.3	215.0	247.3	272.5	280.8	272.1	237.1	212.7
57.5°	113.7	139.8	161.6	186.8	210.0	241.8	266.0	273.2	264.0	229.2	205.0
58°	109.1	135.1	156.9	182.3	204.7	235.8	259.3	265.5	255.8	220.6	197.4
58.5°	104.3	130.5	152.3	177.5	199.5	229.7	252.3	257.3	247.5	212.0	189.8
59°	99.6	125.9	147.8	172.7	193.9	223.4	244.7	249.0	238.8	203.6	182.2
59.5°	94.9	121.3	143.2	167.8	188.4	216.8	237.1	240.1	229.9	195.3	174.5
60°	90.3	116.6	138.6	162.9	182.7	210.3	229.3	231.5	221.0	186.6	167.0
60.5°	85.8	112.1	133.8	158.0	177.2	203.6	221.4	222.6	212.1	178.2	159.5
61°	81.4	107.7	129.2	152.9	171.3	196.8	213.2	214.0	203.3	169.9	152.1
61.5°	76.9	103.1	124.5	148.0	165.5	189.9	204.9	205.1	194.3	161.4	144.7
62°	72.7	98.6	119.8	142.9	159.8	182.9	196.9	196.5	185.6	153.2	137.3
62.5°	68.5	94.1	115.2	137.9	153.8	175.9	188.5	187.8	176.7	145.2	130.2
63°	64.4	89.6	110.4	132.9	147.9	168.7	180.3	179.1	168.2	137.7	123.3
63.5°	60.2	85.2	105.8	127.6	142.0	161.6	172.2	170.5	159.7	130.1	116.5
64°	56.4	81.0	101.2	122.6	136.2	154.6	164.4	162.2	151.5	122.9	109.9
64.5°	52.6	76.7	96.6	117.5	130.3	147.5	156.4	154.0	143.5	115.9	103.5
65°	48.9	72.4	92.0	112.5	124.4	140.5	148.8	146.0	135.4	109.1	97.4
65.5°	45.3	68.3	87.4	107.4	118.5	133.6	141.2	138.1	127.5	102.7	91.9
66°	41.9	64.3	82.9	102.4	112.6	126.8	133.7	130.4	119.7	96.5	86.6



TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	33.1	52.6	69.5	87.4	95.6	107.3	112.4	108.9	97.6	80.2	70.6
68°	30.6	48.9	65.2	82.5	90.2	101.1	105.7	102.2	91.3	74.7	65.9
68.5°	28.2	45.3	61.0	77.6	84.9	95.0	99.1	95.7	85.1	69.3	61.6
69°	25.7	41.7	56.7	72.8	79.6	89.3	93.3	89.8	78.9	64.7	57.5
69.5°	23.8	38.2	52.5	67.9	74.4	83.8	87.6	84.1	72.8	60.4	53.6
70°	22.4	35.1	48.4	63.4	69.1	78.2	82.0	78.3	67.7	56.3	50.0
70.5°	21.5	32.1	44.4	58.8	64.4	72.6	76.3	72.6	62.9	52.5	46.6
71°	20.5	29.2	40.6	54.3	59.9	67.8	70.6	67.7	58.4	48.9	43.3
71.5°	19.5	26.3	36.9	50.0	55.5	62.9	65.7	63.0	54.2	45.5	40.3
72°	18.5	23.4	33.9	45.9	51.3	58.4	61.0	58.6	50.4	42.4	37.5
72.5°	17.5	21.3	31.0	42.0	47.2	54.1	56.7	54.5	46.8	39.4	34.7
73°	16.5	19.8	28.1	38.4	43.4	50.1	52.7	50.6	43.5	36.6	32.2
73.5°	15.6	18.8	25.2	34.9	39.9	46.3	48.9	47.0	40.5	34.0	29.8
74°	14.7	17.8	22.2	32.1	36.6	42.8	45.3	43.7	37.6	31.5	27.5
74.5°	13.8	16.9	20.1	29.2	33.4	39.5	42.0	40.6	34.9	29.2	25.4
75°	12.9	16.0	18.2	26.4	30.6	36.4	38.9	37.7	32.4	27.0	23.3
75.5°	12.1	15.1	16.7	23.6	27.9	33.5	36.0	35.0	29.9	24.8	21.4
76°	11.3	14.2	15.3	21.3	25.4	30.8	33.3	32.4	27.6	22.8	19.5
76.5°	10.6	13.4	14.1	19.2	23.0	28.2	30.8	30.1	25.4	20.9	17.8
77°	9.9	12.5	13.1	17.4	21.0	26.0	28.4	27.8	23.2	19.1	16.1
77.5°	9.2	11.7	12.2	15.7	19.0	23.7	26.2	25.7	21.2	17.3	14.5
78°	8.5	11.0	11.5	14.2	17.2	21.6	24.0	23.6	19.3	15.7	13.0
78.5°	7.9	10.3	10.7	12.9	15.5	19.7	22.0	21.6	17.4	14.2	11.6
79°	7.3	9.6	10.1	11.7	14.0	17.9	20.1	19.8	15.6	12.7	10.3
79.5°	6.7	8.9	9.4	10.6	12.6	16.2	18.3	18.0	14.0	11.4	9.3
80°	6.1	8.2	8.8	9.6	11.3	14.6	16.6	16.3	12.4	10.3	8.2
80.5°	5.6	7.6	8.1	8.7	10.1	13.2	15.0	14.8	10.9	9.1	7.1
81°	5.1	7.0	7.6	7.9	9.2	11.7	13.5	13.3	9.7	8.0	6.1
81.5°	4.6	6.5	7.0	7.2	8.2	10.5	12.0	11.9	8.5	6.9	5.0
82°	4.1	5.9	6.5	6.5	7.3	9.4	10.7	10.5	7.3	5.8	4.2
82.5°	3.7	5.4	5.9	5.9	6.3	8.4	9.6	9.4	6.0	4.7	3.5
83°	3.2	4.8	5.4	5.3	5.4	7.4	8.5	8.3	4.8	3.9	2.8
83.5°	2.8	4.4	5.0	4.9	4.7	6.3	7.4	7.2	3.9	3.1	2.2
84°	2.5	3.9	4.5	4.4	4.1	5.3	6.3	6.1	3.0	2.4	1.7
84.5°	2.1	3.5	4.0	4.0	3.6	4.6	5.2	5.0	2.3	1.8	1.3
85°	1.8	3.1	3.6	3.6	3.1	3.9	4.4	4.1	1.6	1.2	0.9
85.5°	1.5	2.7	3.3	3.2	2.6	3.2	3.6	3.3	1.0	0.8	0.6
86°	1.2	2.3	2.9	2.9	2.3	2.7	2.9	2.6	0.6	0.5	0.3
86.5°	0.9	1.9	2.5	2.5	1.9	2.2	2.3	1.9	0.4	0.2	0.1
87°	0.7	1.6	2.1	2.2	1.6	1.7	1.8	1.4	0.3	0.1	0.0
87.5°	0.5	1.3	1.8	1.9	1.3	1.4	1.3	1.0	0.2	0.0	0.0
88°	0.4	1.0	1.5	1.6	1.1	1.0	0.9	0.6	0.1	0.0	0.0
88.5°	0.2	0.8	1.2	1.3	0.8	0.7	0.6	0.3	0.1	0.0	0.0



TEST NUMBER: P775825
CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.3	0.5	0.6	0.3	0.2	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	553.5	553.5	553.5	553.5	553.5	553.5
0.5°	553.4	552.9	552.4	552.1	551.7	551.5
1°	553.3	552.3	551.4	550.8	550.2	550.1
1.5°	553.1	551.7	550.3	549.3	548.7	548.6
2°	552.9	551.0	549.2	547.9	547.1	547.1
2.5°	552.5	550.2	548.0	546.4	545.5	545.5
3°	552.1	549.4	546.7	544.8	543.8	543.9
3.5°	551.7	548.6	545.4	543.2	542.1	542.3
4°	551.1	547.6	544.0	541.5	540.2	540.5
4.5°	550.6	546.6	542.5	539.7	538.4	538.8
5°	549.9	545.5	541.0	537.9	536.4	536.9
5.5°	549.2	544.3	539.4	536.0	534.5	535.1
6°	548.4	543.1	537.7	534.1	532.5	533.1
6.5°	547.5	541.8	536.0	532.1	530.4	531.1
7°	546.6	540.5	534.2	530.1	528.3	529.1
7.5°	545.6	539.0	532.4	528.0	526.1	527.0
8°	544.5	537.5	530.5	525.8	523.9	524.8
8.5°	543.4	535.9	528.5	523.6	521.6	522.6
9°	542.1	534.3	526.5	521.3	519.2	520.3
9.5°	540.9	532.6	524.4	519.0	516.8	518.1
10°	539.5	530.8	522.2	516.6	514.4	515.7
10.5°	538.1	529.1	520.0	514.1	511.9	513.4
11°	536.6	527.1	517.7	511.7	509.4	510.9
11.5°	535.1	525.1	515.3	509.1	506.8	508.4
12°	533.4	523.1	512.9	506.5	504.1	505.8
12.5°	531.7	521.0	510.4	503.8	501.4	503.3
13°	529.9	518.9	507.9	501.1	498.7	500.6
13.5°	528.1	516.6	505.3	498.3	496.0	497.9
14°	526.2	514.3	502.6	495.6	493.1	495.2
14.5°	524.3	512.0	500.0	492.7	490.2	492.3
15°	522.2	509.6	497.2	489.7	487.3	489.5
15.5°	520.1	507.1	494.3	486.7	484.2	486.6
16°	517.9	504.5	491.5	483.7	481.3	483.7
16.5°	515.7	501.9	488.5	480.6	478.2	480.7
17°	513.4	499.2	485.5	477.5	475.1	477.6
17.5°	511.0	496.4	482.4	474.2	471.9	474.5
18°	508.5	493.6	479.3	471.1	468.7	471.5
18.5°	506.0	490.7	476.1	467.7	465.2	468.3
19°	503.5	487.8	472.8	464.4	462.0	464.8
19.5°	500.8	484.8	469.5	460.9	458.6	461.6
20°	498.1	481.7	466.0	457.5	455.2	458.4
20.5°	495.3	478.6	462.6	453.9	451.8	455.0
21°	492.5	475.4	459.1	450.4	448.2	451.4

TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	483.7	465.4	448.4	439.4	437.4	441.1
23°	480.6	462.0	444.8	435.7	433.7	437.5
23.5°	477.5	458.5	441.1	432.0	430.0	433.8
24°	474.2	454.9	437.3	428.2	426.2	430.1
24.5°	471.0	451.4	433.5	424.2	422.4	426.4
25°	467.7	447.7	429.5	420.3	418.5	422.6
25.5°	464.2	444.2	425.7	416.4	414.6	418.8
26°	460.8	440.4	421.8	412.4	410.7	414.9
26.5°	457.3	436.7	417.8	408.3	406.7	411.0
27°	453.8	432.8	413.8	404.2	402.7	407.0
27.5°	450.2	429.0	409.7	400.1	398.6	403.0
28°	446.6	425.1	405.6	396.0	394.4	399.0
28.5°	442.9	421.1	401.5	391.8	390.3	394.8
29°	439.2	417.2	397.3	387.5	386.2	390.7
29.5°	435.4	413.2	393.1	383.2	381.9	386.6
30°	431.6	409.2	388.9	379.0	377.6	382.4
30.5°	427.8	405.0	384.6	374.6	373.4	378.1
31°	424.0	400.9	380.3	370.3	369.0	373.8
31.5°	420.0	396.7	375.9	365.9	364.7	369.4
32°	416.1	392.5	371.5	361.4	360.2	365.1
32.5°	412.0	388.3	367.2	357.0	355.8	360.7
33°	408.0	384.1	362.8	352.5	351.3	356.3
33.5°	403.9	379.7	358.4	348.0	346.8	351.8
34°	399.8	375.5	353.8	343.5	342.2	347.2
34.5°	395.8	371.1	349.4	339.0	337.7	342.7
35°	391.6	366.8	344.8	334.4	333.0	338.1
35.5°	387.4	362.5	340.3	329.7	328.5	333.5
36°	383.2	358.0	335.9	325.2	323.7	328.8
36.5°	379.0	353.7	331.3	320.6	319.2	324.1
37°	374.7	349.3	326.8	315.9	314.4	319.4
37.5°	370.4	344.9	322.3	311.2	309.7	314.7
38°	366.1	340.4	317.7	306.5	304.9	309.8
38.5°	361.8	335.9	313.2	301.9	300.2	305.0
39°	357.6	331.5	308.5	297.2	295.4	300.3
39.5°	353.2	327.1	304.0	292.5	290.6	295.5
40°	348.8	322.6	299.4	287.8	285.8	290.4
40.5°	344.5	318.1	294.9	283.1	281.0	285.6
41°	340.1	313.5	290.3	278.3	275.9	280.6
41.5°	335.8	309.2	285.6	273.6	271.1	275.6
42°	331.4	304.8	281.1	268.8	266.3	270.5
42.5°	326.9	300.2	276.5	264.1	261.4	265.7
43°	322.5	295.7	272.0	259.3	256.4	260.6
43.5°	318.1	291.3	267.3	254.7	251.6	255.5

TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	304.7	277.7	253.7	240.5	236.7	240.4
45.5°	300.2	273.4	249.1	235.9	231.9	235.3
46°	295.8	269.0	244.7	231.2	227.0	230.2
46.5°	291.2	264.4	240.1	226.5	222.0	225.1
47°	286.6	259.9	235.7	221.8	217.1	220.1
47.5°	282.0	255.5	231.0	217.1	212.1	214.9
48°	277.2	251.0	226.7	212.5	207.2	209.6
48.5°	272.6	246.5	222.1	207.8	202.3	204.6
49°	267.9	242.1	217.7	203.2	197.4	199.5
49.5°	263.1	237.6	213.2	198.5	192.6	194.4
50°	258.5	233.1	208.7	193.9	187.6	189.2
50.5°	253.9	228.5	204.2	189.4	182.7	184.0
51°	249.4	224.0	199.8	184.8	177.9	178.9
51.5°	244.9	219.7	195.4	180.1	173.1	173.9
52°	240.7	215.5	191.1	175.7	168.3	168.7
52.5°	236.2	211.3	186.8	171.2	163.4	163.7
53°	231.5	207.1	182.7	166.8	158.6	158.5
53.5°	226.5	202.8	178.4	162.3	153.9	153.4
54°	221.1	198.3	174.2	157.9	149.1	148.4
54.5°	215.7	193.7	169.9	153.7	144.4	143.4
55°	209.7	188.9	165.5	149.4	139.8	138.3
55.5°	203.7	183.8	160.9	144.9	135.2	133.4
56°	197.4	178.7	156.4	140.6	130.7	128.4
56.5°	191.2	173.5	151.8	136.1	126.1	123.5
57°	184.6	168.1	147.2	131.7	121.6	118.6
57.5°	178.2	162.6	142.5	127.2	117.1	113.7
58°	171.6	157.1	137.9	122.9	112.7	109.1
58.5°	165.0	151.6	133.0	118.5	108.3	104.3
59°	158.5	145.9	128.3	114.1	103.9	99.6
59.5°	152.0	140.3	123.5	109.7	99.5	94.9
60°	145.4	134.7	118.6	105.4	95.1	90.3
60.5°	139.0	129.1	113.7	100.9	90.7	85.8
61°	132.7	123.5	108.8	96.6	86.4	81.4
61.5°	126.3	118.0	103.9	92.2	82.2	76.9
62°	120.0	112.5	99.1	87.9	78.1	72.7
62.5°	114.0	107.1	94.2	83.5	73.9	68.5
63°	108.0	101.8	89.2	79.2	69.9	64.4
63.5°	102.2	96.5	84.5	74.7	65.9	60.2
64°	96.7	91.2	79.8	70.4	62.1	56.4
64.5°	91.3	86.3	75.2	66.1	58.3	52.6
65°	86.0	81.4	70.6	62.0	54.6	48.9
65.5°	80.8	76.4	66.3	57.7	50.8	45.3
66°	75.5	71.6	61.8	53.5	47.3	41.9



TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	61.2	58.5	49.6	42.1	36.9	33.1
68°	57.1	54.3	45.7	38.5	34.1	30.6
68.5°	53.1	50.3	42.0	34.9	31.3	28.2
69°	49.3	46.6	38.5	32.2	28.6	25.7
69.5°	45.8	43.1	35.0	29.5	25.8	23.8
70°	42.6	39.7	32.3	26.7	23.0	22.4
70.5°	39.4	36.6	29.7	24.0	21.0	21.5
71°	36.4	34.0	27.0	21.7	19.6	20.5
71.5°	33.7	31.4	24.3	19.8	18.6	19.5
72°	31.0	28.9	22.1	18.1	17.7	18.5
72.5°	28.7	26.3	20.1	16.6	16.8	17.5
73°	26.4	23.8	18.2	15.3	15.9	16.5
73.5°	24.2	21.6	16.5	14.1	15.0	15.6
74°	22.2	19.7	15.0	13.1	14.1	14.7
74.5°	20.2	17.9	13.7	12.3	13.3	13.8
75°	18.4	16.3	12.4	11.5	12.5	12.9
75.5°	16.7	14.7	11.3	10.8	11.7	12.1
76°	15.2	13.3	10.2	10.1	10.9	11.3
76.5°	13.6	11.9	9.3	9.5	10.2	10.6
77°	12.3	10.7	8.5	8.8	9.5	9.9
77.5°	11.0	9.6	7.7	8.3	8.8	9.2
78°	9.9	8.6	7.0	7.7	8.2	8.5
78.5°	8.9	7.6	6.4	7.1	7.6	7.9
79°	7.8	6.8	5.8	6.6	7.0	7.3
79.5°	6.8	6.0	5.3	6.0	6.4	6.7
80°	5.8	5.2	4.8	5.5	5.8	6.1
80.5°	5.0	4.6	4.4	5.0	5.3	5.6
81°	4.3	4.0	4.0	4.6	4.8	5.1
81.5°	3.6	3.6	3.6	4.1	4.3	4.6
82°	3.0	3.2	3.2	3.7	3.8	4.1
82.5°	2.5	2.7	2.8	3.3	3.4	3.7
83°	2.0	2.3	2.5	2.9	3.0	3.2
83.5°	1.6	1.9	2.1	2.5	2.6	2.8
84°	1.3	1.6	1.8	2.1	2.2	2.5
84.5°	0.9	1.3	1.6	1.8	1.8	2.1
85°	0.7	1.1	1.3	1.5	1.5	1.8
85.5°	0.5	0.8	1.0	1.3	1.2	1.5
86°	0.3	0.6	0.8	1.0	1.0	1.2
86.5°	0.1	0.4	0.5	0.7	0.8	0.9
87°	0.0	0.2	0.3	0.5	0.6	0.7
87.5°	0.0	0.1	0.1	0.3	0.4	0.5
88°	0.0	0.0	0.0	0.1	0.2	0.4
88.5°	0.0	0.0	0.0	0.0	0.1	0.2



TEST NUMBER: P775825

CATALOG NUMBER: HCDJBL510CSD-HCD81TRH-HCD81TRLWW-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°	448.0	463.2	475.6	492.0	508.1	528.4	542.7	547.6	544.1	529.2	511.9
22°	444.6	460.0	472.5	489.1	505.6	526.3	540.9	545.8	542.3	527.0	509.3



44°	250.5	273.3	290.1	312.9	336.8	371.5	398.5	408.4	403.0	377.5	349.5
44.5°	245.5	268.3	285.4	308.3	332.2	367.1	394.3	404.2	398.9	373.2	345.1



66.5°	38.7	60.3	78.5	97.4	106.9	120.2	126.4	123.0	112.0	91.0	81.2
67°	35.5	56.3	74.1	92.3	101.3	113.6	119.4	115.9	104.8	85.6	75.9



89°	0.1	0.6	1.0	1.1	0.6	0.5	0.3	0.1	0.0	0.0	0.0
89.5°	0.0	0.4	0.7	0.8	0.4	0.3	0.1	0.0	0.0	0.0	0.0

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21.5°	489.6	472.1	455.6	446.8	444.6	448.0
22°	486.6	468.8	452.1	443.1	441.1	444.6



44°	313.7	286.9	262.7	249.9	246.7	250.5
44.5°	309.1	282.3	258.2	245.3	241.7	245.5

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66.5°	70.3	67.2	57.6	49.6	43.7	38.7
67°	65.5	62.7	53.4	45.7	40.2	35.5

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

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(END OF REPORT)