

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: P775709

Luminaire Tested: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775709
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B006-HCD4TSQMB)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K
Description: 4 INCH SQUARE MEDIUM MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

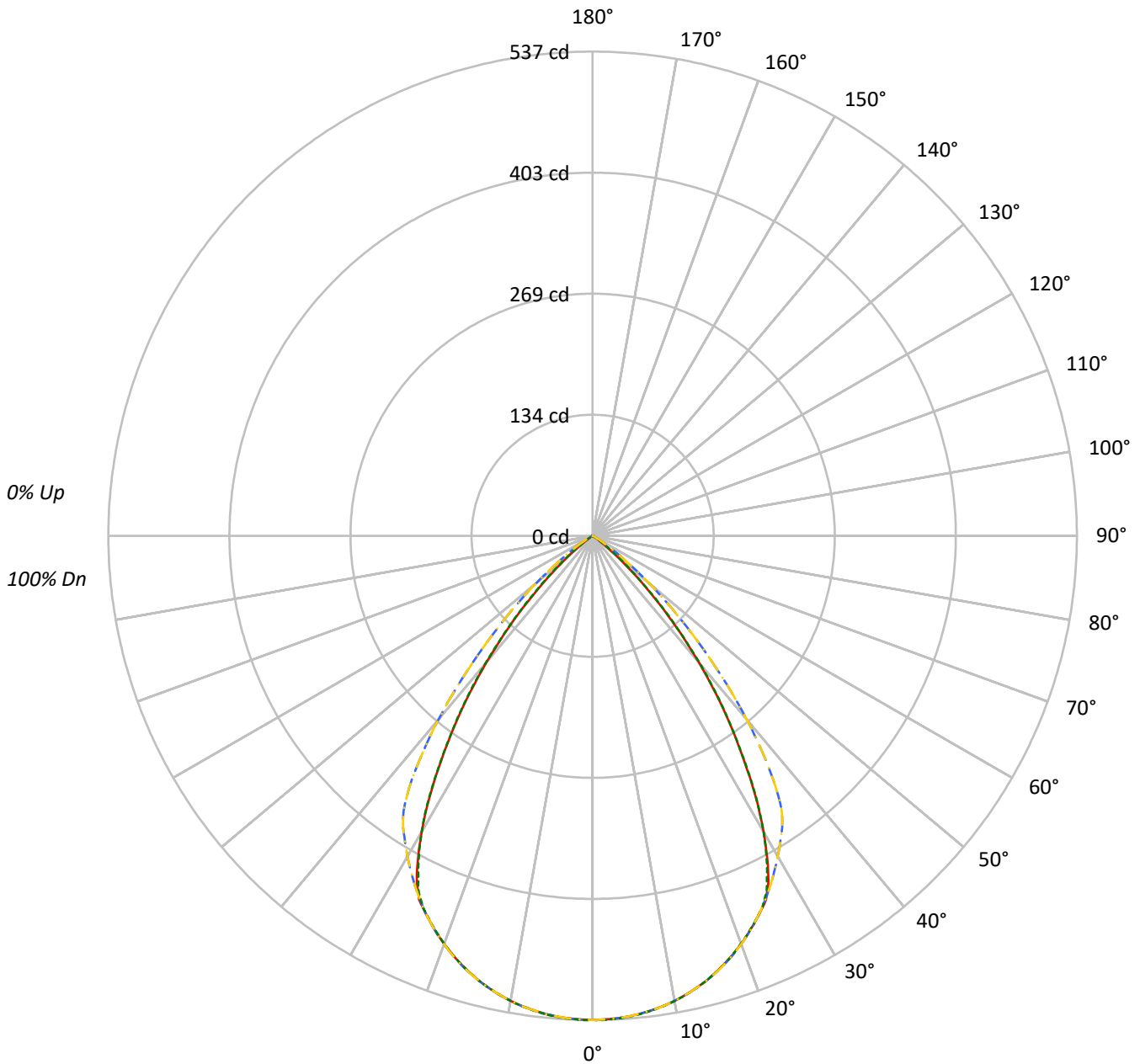
Lumens per Lamp: N/A
Luminaire Lumens: 710.5 lumens
Efficiency: N/A
Efficacy: 71.1 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1.1 / 1.14
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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				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	100	100	100
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	92	92	92	92
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	90	88	86	85	85	85	85
3	100	93	88	84	98	92	87	83	89	85	81	87	83	80	84	82	79	77	77	77	77
4	95	86	80	75	93	85	79	75	83	78	74	81	77	73	79	75	72	71	71	71	71
5	89	80	73	68	87	79	73	68	77	72	67	75	71	67	74	70	66	65	65	65	65
6	84	74	67	62	82	73	67	62	71	66	62	70	65	61	69	64	61	59	59	59	59
7	79	69	62	57	77	68	62	57	67	61	57	65	60	56	64	60	56	55	55	55	55
8	74	64	57	53	73	63	57	53	62	56	52	61	56	52	60	55	52	50	50	50	50
9	70	60	53	49	69	59	53	49	58	52	48	57	52	48	56	52	48	47	47	47	47
10	67	56	49	45	65	55	49	45	54	49	45	54	48	45	53	48	45	43	43	43	43

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	53078	53078	53078	53078
5°	52954	52993	52954	52993
10°	52562	52582	52562	52582
15°	51819	51830	51819	51830
20°	50647	50626	50647	50626
25°	49132	48935	49132	48935
30°	43279	43256	43279	43256
35°	33798	33907	33798	33907
40°	23587	23819	23587	23819
45°	13391	13741	13391	13741
50°	5320	5720	5320	5720
55°	793	1017	793	1017
60°	178	178	178	178
65°	117	117	117	117
70°	87	87	87	87
75°	76	76	76	76
80°	57	57	57	57
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 22631 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.6	7.1
10°-20°	142.6	20.1
20°-30°	205.4	28.9
30°-40°	193.8	27.3
40°-50°	99.9	14.1
50°-60°	17.4	2.5
60°-70°	0.6	0.1
70°-80°	0.2	0.0
80°-90°	0.0	0.0
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°	398.6	56.1
0°-40°	592.4	83.4
0°-60°	709.7	99.9
0°-90°	710.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	710.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	537	537	537	537	537	
5°	534	534	534	534	534	51
15°	506	506	506	506	506	143
25°	450	449	450	449	450	204
35°	280	281	280	281	280	174
45°	96	98	96	98	96	76
55°	5	6	5	6	5	8
65°	0	0	0	0	0	1
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
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°	537.0	537.0	537.0	537.0	537.0	537.0	537.0	537.0	537.0	537.0	537.0
0.5°	536.9	536.9	536.9	537.0	537.4	537.0	536.9	536.9	536.9	536.9	536.9
1°	536.8	536.8	536.8	536.9	537.2	536.9	536.8	536.8	536.8	536.8	536.8
1.5°	536.6	536.7	536.7	536.7	537.0	536.7	536.7	536.7	536.6	536.7	536.7
2°	536.4	536.4	536.5	536.5	536.8	536.5	536.5	536.4	536.4	536.4	536.5
2.5°	536.1	536.1	536.2	536.3	536.5	536.3	536.2	536.1	536.1	536.1	536.2
3°	535.8	535.8	535.9	535.9	536.2	535.9	535.9	535.8	535.8	535.8	535.9
3.5°	535.3	535.3	535.4	535.4	535.8	535.4	535.4	535.3	535.3	535.3	535.4
4°	534.9	534.9	534.9	535.0	535.2	535.0	534.9	534.9	534.9	534.9	534.9
4.5°	534.4	534.4	534.4	534.4	534.7	534.4	534.4	534.4	534.4	534.4	534.4
5°	533.7	533.7	533.7	533.7	534.1	533.7	533.7	533.7	533.7	533.7	533.7
5.5°	533.0	533.0	533.1	533.1	533.3	533.1	533.1	533.0	533.0	533.0	533.1
6°	532.2	532.2	532.2	532.3	532.6	532.3	532.2	532.2	532.2	532.2	532.2
6.5°	531.4	531.4	531.5	531.5	531.7	531.5	531.5	531.4	531.4	531.4	531.5
7°	530.5	530.5	530.5	530.6	530.9	530.6	530.5	530.5	530.5	530.5	530.5
7.5°	529.6	529.6	529.6	529.6	529.9	529.6	529.6	529.6	529.6	529.6	529.6
8°	528.5	528.5	528.6	528.6	528.8	528.6	528.6	528.5	528.5	528.5	528.6
8.5°	527.4	527.4	527.4	527.4	527.7	527.4	527.4	527.4	527.4	527.4	527.4
9°	526.3	526.3	526.3	526.3	526.5	526.3	526.3	526.3	526.3	526.3	526.3
9.5°	525.0	525.0	525.0	525.0	525.2	525.0	525.0	525.0	525.0	525.0	525.0
10°	523.7	523.7	523.7	523.7	523.9	523.7	523.7	523.7	523.7	523.7	523.7
10.5°	522.3	522.3	522.3	522.2	522.5	522.2	522.3	522.3	522.3	522.3	522.3
11°	520.8	520.8	520.9	520.8	521.1	520.8	520.9	520.8	520.8	520.8	520.9
11.5°	519.4	519.4	519.4	519.2	519.5	519.2	519.4	519.4	519.4	519.4	519.4
12°	517.8	517.8	517.8	517.6	517.9	517.6	517.8	517.8	517.8	517.8	517.8
12.5°	515.9	516.0	516.0	515.9	516.0	515.9	516.0	516.0	515.9	516.0	516.0
13°	514.2	514.3	514.3	514.1	514.3	514.1	514.3	514.3	514.2	514.3	514.3
13.5°	512.4	512.4	512.5	512.3	512.5	512.3	512.5	512.4	512.4	512.4	512.5
14°	510.5	510.6	510.6	510.4	510.5	510.4	510.6	510.6	510.5	510.6	510.6
14.5°	508.5	508.6	508.7	508.5	508.5	508.5	508.7	508.6	508.5	508.6	508.7
15°	506.4	506.6	506.6	506.4	506.5	506.4	506.6	506.6	506.4	506.6	506.6
15.5°	504.2	504.4	504.4	504.2	504.2	504.2	504.4	504.4	504.2	504.4	504.4
16°	502.0	502.2	502.3	502.0	502.0	502.0	502.3	502.2	502.0	502.2	502.3
16.5°	499.7	499.9	500.1	499.7	499.6	499.7	500.1	499.9	499.7	499.9	500.1
17°	497.4	497.5	497.7	497.3	497.3	497.3	497.7	497.5	497.4	497.5	497.7
17.5°	494.8	495.1	495.3	494.8	494.8	494.8	495.3	495.1	494.8	495.1	495.3
18°	492.4	492.5	492.7	492.4	492.3	492.4	492.7	492.5	492.4	492.5	492.7
18.5°	489.8	489.9	490.2	489.7	489.6	489.7	490.2	489.9	489.8	489.9	490.2
19°	487.1	487.3	487.5	487.1	486.9	487.1	487.5	487.3	487.1	487.3	487.5
19.5°	484.4	484.5	484.7	484.3	484.2	484.3	484.7	484.5	484.4	484.5	484.7
20°	481.5	481.7	482.0	481.4	481.3	481.4	482.0	481.7	481.5	481.7	482.0
20.5°	478.8	478.9	479.1	478.5	478.4	478.5	479.1	478.9	478.8	478.9	479.1
21°	475.8	475.9	476.1	475.6	475.5	475.6	476.1	475.9	475.8	475.9	476.1



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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°	466.6	466.6	466.7	466.3	466.3	466.3	466.7	466.6	466.6	466.6	466.7
23°	463.4	463.4	463.4	463.1	463.0	463.1	463.4	463.4	463.4	463.4	463.4
23.5°	460.2	460.2	460.0	459.8	459.8	459.8	460.0	460.2	460.2	460.2	460.0
24°	456.9	456.9	456.6	456.5	456.7	456.5	456.6	456.9	456.9	456.9	456.6
24.5°	453.6	453.5	453.1	453.1	453.4	453.1	453.1	453.5	453.6	453.5	453.1
25°	450.5	450.0	449.5	449.6	448.7	449.6	449.5	450.0	450.5	450.0	449.5
25.5°	446.9	446.6	445.8	446.2	444.2	446.2	445.8	446.6	446.9	446.6	445.8
26°	440.8	443.1	442.1	442.8	439.8	442.8	442.1	443.1	440.8	443.1	442.1
26.5°	435.7	439.6	438.4	439.1	433.3	439.1	438.4	439.6	435.7	439.6	438.4
27°	429.5	436.3	434.5	434.1	425.7	434.1	434.5	436.3	429.5	436.3	434.5
27.5°	421.9	431.7	430.6	429.5	418.9	429.5	430.6	431.7	421.9	431.7	430.6
28°	413.8	425.6	426.7	424.6	411.3	424.6	426.7	425.6	413.8	425.6	426.7
28.5°	405.6	420.4	422.7	417.7	403.4	417.7	422.7	420.4	405.6	420.4	422.7
29°	396.9	413.9	418.7	410.5	395.8	410.5	418.7	413.9	396.9	413.9	418.7
29.5°	388.2	406.2	414.6	403.4	387.5	403.4	414.6	406.2	388.2	406.2	414.6
30°	379.2	398.3	410.5	396.0	379.0	396.0	410.5	398.3	379.2	398.3	410.5
30.5°	369.9	390.0	406.4	388.2	370.3	388.2	406.4	390.0	369.9	390.0	406.4
31°	360.3	381.7	402.3	380.2	361.4	380.2	402.3	381.7	360.3	381.7	402.3
31.5°	350.6	373.1	398.1	372.2	351.7	372.2	398.1	373.1	350.6	373.1	398.1
32°	340.7	364.3	394.0	364.0	341.8	364.0	394.0	364.3	340.7	364.3	394.0
32.5°	330.6	355.3	389.9	355.6	331.7	355.6	389.9	355.3	330.6	355.3	389.9
33°	320.5	346.2	385.8	346.8	321.8	346.8	385.8	346.2	320.5	346.2	385.8
33.5°	310.2	336.8	381.0	337.7	311.1	337.7	381.0	336.8	310.2	336.8	381.0
34°	300.2	327.2	375.8	328.2	300.9	328.2	375.8	327.2	300.2	327.2	375.8
34.5°	290.1	317.5	369.9	318.4	290.7	318.4	369.9	317.5	290.1	317.5	369.9
35°	280.1	307.8	362.6	308.5	281.0	308.5	362.6	307.8	280.1	307.8	362.6
35.5°	270.3	298.2	354.9	298.8	271.0	298.8	354.9	298.2	270.3	298.2	354.9
36°	260.6	288.4	346.2	288.9	261.6	288.9	346.2	288.4	260.6	288.4	346.2
36.5°	250.8	278.8	337.0	279.2	252.1	279.2	337.0	278.8	250.8	278.8	337.0
37°	241.1	269.2	327.2	269.6	242.6	269.6	327.2	269.2	241.1	269.2	327.2
37.5°	231.3	259.7	317.3	260.4	233.0	260.4	317.3	259.7	231.3	259.7	317.3
38°	221.5	250.2	307.0	251.0	223.4	251.0	307.0	250.2	221.5	250.2	307.0
38.5°	211.6	241.1	296.9	241.9	213.6	241.9	296.9	241.1	211.6	241.1	296.9
39°	202.0	231.8	286.7	232.9	204.0	232.9	286.7	231.8	202.0	231.8	286.7
39.5°	192.5	222.5	276.3	223.9	194.1	223.9	276.3	222.5	192.5	222.5	276.3
40°	182.8	213.2	265.8	214.8	184.6	214.8	265.8	213.2	182.8	213.2	265.8
40.5°	173.3	203.9	255.1	205.5	175.0	205.5	255.1	203.9	173.3	203.9	255.1
41°	164.2	194.7	244.5	196.3	165.8	196.3	244.5	194.7	164.2	194.7	244.5
41.5°	155.0	185.6	233.7	187.2	156.7	187.2	233.7	185.6	155.0	185.6	233.7
42°	146.2	176.6	223.0	178.0	148.0	178.0	223.0	176.6	146.2	176.6	223.0
42.5°	137.4	167.7	212.4	169.2	139.3	169.2	212.4	167.7	137.4	167.7	212.4
43°	128.8	158.9	201.9	160.2	130.8	160.2	201.9	158.9	128.8	158.9	201.9
43.5°	120.2	150.3	191.5	151.8	122.5	151.8	191.5	150.3	120.2	150.3	191.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	95.8	125.4	161.9	127.0	98.3	127.0	161.9	125.4	95.8	125.4	161.9
45.5°	88.3	117.4	152.7	119.2	90.8	119.2	152.7	117.4	88.3	117.4	152.7
46°	81.2	109.6	143.8	111.5	83.5	111.5	143.8	109.6	81.2	109.6	143.8
46.5°	73.9	101.7	135.1	103.9	76.6	103.9	135.1	101.7	73.9	101.7	135.1
47°	67.1	94.3	126.6	96.3	70.1	96.3	126.6	94.3	67.1	94.3	126.6
47.5°	60.3	87.0	118.4	88.8	63.7	88.8	118.4	87.0	60.3	87.0	118.4
48°	54.3	80.1	110.5	81.9	57.5	81.9	110.5	80.1	54.3	80.1	110.5
48.5°	48.6	73.3	102.9	75.3	52.0	75.3	102.9	73.3	48.6	73.3	102.9
49°	43.8	66.6	95.3	68.8	46.9	68.8	95.3	66.6	43.8	66.6	95.3
49.5°	39.2	60.3	88.1	62.6	42.0	62.6	88.1	60.3	39.2	60.3	88.1
50°	34.6	54.3	81.0	56.7	37.2	56.7	81.0	54.3	34.6	54.3	81.0
50.5°	30.3	48.7	74.4	51.1	32.5	51.1	74.4	48.7	30.3	48.7	74.4
51°	26.1	43.8	68.0	46.1	28.6	46.1	68.0	43.8	26.1	43.8	68.0
51.5°	22.7	39.1	61.9	41.2	24.8	41.2	61.9	39.1	22.7	39.1	61.9
52°	19.4	34.5	56.0	36.5	21.3	36.5	56.0	34.5	19.4	34.5	56.0
52.5°	16.3	30.0	50.5	32.1	18.0	32.1	50.5	30.0	16.3	30.0	50.5
53°	13.4	26.0	45.6	28.1	14.9	28.1	45.6	26.0	13.4	26.0	45.6
53.5°	11.1	22.4	40.8	24.5	11.9	24.5	40.8	22.4	11.1	22.4	40.8
54°	8.6	19.1	36.3	21.0	9.5	21.0	36.3	19.1	8.6	19.1	36.3
54.5°	6.3	16.0	32.2	17.7	7.7	17.7	32.2	16.0	6.3	16.0	32.2
55°	4.6	13.3	28.1	14.6	5.9	14.6	28.1	13.3	4.6	13.3	28.1
55.5°	2.9	10.9	24.5	11.7	4.0	11.7	24.5	10.9	2.9	10.9	24.5
56°	1.9	8.5	21.0	9.2	2.2	9.2	21.0	8.5	1.9	8.5	21.0
56.5°	1.5	6.2	18.0	7.0	1.4	7.0	18.0	6.2	1.5	6.2	18.0
57°	1.1	4.0	15.3	5.1	1.2	5.1	15.3	4.0	1.1	4.0	15.3
57.5°	1.1	2.6	12.9	3.4	1.1	3.4	12.9	2.6	1.1	2.6	12.9
58°	1.0	1.6	10.8	2.2	1.1	2.2	10.8	1.6	1.0	1.6	10.8
58.5°	1.0	1.1	8.9	1.6	1.0	1.6	8.9	1.1	1.0	1.1	8.9
59°	0.9	0.9	7.2	1.2	1.0	1.2	7.2	0.9	0.9	0.9	7.2
59.5°	0.9	0.9	5.9	0.9	1.0	0.9	5.9	0.9	0.9	0.9	5.9
60°	0.9	0.9	4.7	0.9	0.9	0.9	4.7	0.9	0.9	0.9	4.7
60.5°	0.7	0.7	3.6	0.9	0.9	0.9	3.6	0.7	0.7	0.7	3.6
61°	0.7	0.7	2.9	0.7	0.9	0.7	2.9	0.7	0.7	0.7	2.9
61.5°	0.7	0.7	2.1	0.7	0.7	0.7	2.1	0.7	0.7	0.7	2.1
62°	0.6	0.6	1.6	0.7	0.7	0.7	1.6	0.6	0.6	0.6	1.6
62.5°	0.6	0.6	1.2	0.6	0.7	0.6	1.2	0.6	0.6	0.6	1.2
63°	0.6	0.6	0.9	0.6	0.6	0.6	0.9	0.6	0.6	0.6	0.9
63.5°	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.6
64°	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5
64.5°	0.5	0.5	0.4	0.5	0.6	0.5	0.4	0.5	0.5	0.5	0.4
65°	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4
65.5°	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4
66°	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.4	0.5	0.4	0.3



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3
68°	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3
68.5°	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.2
69°	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2
69.5°	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2
70°	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2
70.5°	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2
71°	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2
71.5°	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
72°	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
72.5°	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1
73°	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1
73.5°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
74°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
74.5°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
75°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
75.5°	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1
76°	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1
76.5°	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
77°	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
79.5°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
80°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
80.5°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
81°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
81.5°	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	537.0	537.0	537.0	537.0	537.0	537.0
0.5°	537.0	537.4	537.0	536.9	536.9	536.9
1°	536.9	537.2	536.9	536.8	536.8	536.8
1.5°	536.7	537.0	536.7	536.7	536.7	536.6
2°	536.5	536.8	536.5	536.5	536.4	536.4
2.5°	536.3	536.5	536.3	536.2	536.1	536.1
3°	535.9	536.2	535.9	535.9	535.8	535.8
3.5°	535.4	535.8	535.4	535.4	535.3	535.3
4°	535.0	535.2	535.0	534.9	534.9	534.9
4.5°	534.4	534.7	534.4	534.4	534.4	534.4
5°	533.7	534.1	533.7	533.7	533.7	533.7
5.5°	533.1	533.3	533.1	533.1	533.0	533.0
6°	532.3	532.6	532.3	532.2	532.2	532.2
6.5°	531.5	531.7	531.5	531.5	531.4	531.4
7°	530.6	530.9	530.6	530.5	530.5	530.5
7.5°	529.6	529.9	529.6	529.6	529.6	529.6
8°	528.6	528.8	528.6	528.6	528.5	528.5
8.5°	527.4	527.7	527.4	527.4	527.4	527.4
9°	526.3	526.5	526.3	526.3	526.3	526.3
9.5°	525.0	525.2	525.0	525.0	525.0	525.0
10°	523.7	523.9	523.7	523.7	523.7	523.7
10.5°	522.2	522.5	522.2	522.3	522.3	522.3
11°	520.8	521.1	520.8	520.9	520.8	520.8
11.5°	519.2	519.5	519.2	519.4	519.4	519.4
12°	517.6	517.9	517.6	517.8	517.8	517.8
12.5°	515.9	516.0	515.9	516.0	516.0	515.9
13°	514.1	514.3	514.1	514.3	514.3	514.2
13.5°	512.3	512.5	512.3	512.5	512.4	512.4
14°	510.4	510.5	510.4	510.6	510.6	510.5
14.5°	508.5	508.5	508.5	508.7	508.6	508.5
15°	506.4	506.5	506.4	506.6	506.6	506.4
15.5°	504.2	504.2	504.2	504.4	504.4	504.2
16°	502.0	502.0	502.0	502.3	502.2	502.0
16.5°	499.7	499.6	499.7	500.1	499.9	499.7
17°	497.3	497.3	497.3	497.7	497.5	497.4
17.5°	494.8	494.8	494.8	495.3	495.1	494.8
18°	492.4	492.3	492.4	492.7	492.5	492.4
18.5°	489.7	489.6	489.7	490.2	489.9	489.8
19°	487.1	486.9	487.1	487.5	487.3	487.1
19.5°	484.3	484.2	484.3	484.7	484.5	484.4
20°	481.4	481.3	481.4	482.0	481.7	481.5
20.5°	478.5	478.4	478.5	479.1	478.9	478.8
21°	475.6	475.5	475.6	476.1	475.9	475.8



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	466.3	466.3	466.3	466.7	466.6	466.6
23°	463.1	463.0	463.1	463.4	463.4	463.4
23.5°	459.8	459.8	459.8	460.0	460.2	460.2
24°	456.5	456.7	456.5	456.6	456.9	456.9
24.5°	453.1	453.4	453.1	453.1	453.5	453.6
25°	449.6	448.7	449.6	449.5	450.0	450.5
25.5°	446.2	444.2	446.2	445.8	446.6	446.9
26°	442.8	439.8	442.8	442.1	443.1	440.8
26.5°	439.1	433.3	439.1	438.4	439.6	435.7
27°	434.1	425.7	434.1	434.5	436.3	429.5
27.5°	429.5	418.9	429.5	430.6	431.7	421.9
28°	424.6	411.3	424.6	426.7	425.6	413.8
28.5°	417.7	403.4	417.7	422.7	420.4	405.6
29°	410.5	395.8	410.5	418.7	413.9	396.9
29.5°	403.4	387.5	403.4	414.6	406.2	388.2
30°	396.0	379.0	396.0	410.5	398.3	379.2
30.5°	388.2	370.3	388.2	406.4	390.0	369.9
31°	380.2	361.4	380.2	402.3	381.7	360.3
31.5°	372.2	351.7	372.2	398.1	373.1	350.6
32°	364.0	341.8	364.0	394.0	364.3	340.7
32.5°	355.6	331.7	355.6	389.9	355.3	330.6
33°	346.8	321.8	346.8	385.8	346.2	320.5
33.5°	337.7	311.1	337.7	381.0	336.8	310.2
34°	328.2	300.9	328.2	375.8	327.2	300.2
34.5°	318.4	290.7	318.4	369.9	317.5	290.1
35°	308.5	281.0	308.5	362.6	307.8	280.1
35.5°	298.8	271.0	298.8	354.9	298.2	270.3
36°	288.9	261.6	288.9	346.2	288.4	260.6
36.5°	279.2	252.1	279.2	337.0	278.8	250.8
37°	269.6	242.6	269.6	327.2	269.2	241.1
37.5°	260.4	233.0	260.4	317.3	259.7	231.3
38°	251.0	223.4	251.0	307.0	250.2	221.5
38.5°	241.9	213.6	241.9	296.9	241.1	211.6
39°	232.9	204.0	232.9	286.7	231.8	202.0
39.5°	223.9	194.1	223.9	276.3	222.5	192.5
40°	214.8	184.6	214.8	265.8	213.2	182.8
40.5°	205.5	175.0	205.5	255.1	203.9	173.3
41°	196.3	165.8	196.3	244.5	194.7	164.2
41.5°	187.2	156.7	187.2	233.7	185.6	155.0
42°	178.0	148.0	178.0	223.0	176.6	146.2
42.5°	169.2	139.3	169.2	212.4	167.7	137.4
43°	160.2	130.8	160.2	201.9	158.9	128.8
43.5°	151.8	122.5	151.8	191.5	150.3	120.2



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	127.0	98.3	127.0	161.9	125.4	95.8
45.5°	119.2	90.8	119.2	152.7	117.4	88.3
46°	111.5	83.5	111.5	143.8	109.6	81.2
46.5°	103.9	76.6	103.9	135.1	101.7	73.9
47°	96.3	70.1	96.3	126.6	94.3	67.1
47.5°	88.8	63.7	88.8	118.4	87.0	60.3
48°	81.9	57.5	81.9	110.5	80.1	54.3
48.5°	75.3	52.0	75.3	102.9	73.3	48.6
49°	68.8	46.9	68.8	95.3	66.6	43.8
49.5°	62.6	42.0	62.6	88.1	60.3	39.2
50°	56.7	37.2	56.7	81.0	54.3	34.6
50.5°	51.1	32.5	51.1	74.4	48.7	30.3
51°	46.1	28.6	46.1	68.0	43.8	26.1
51.5°	41.2	24.8	41.2	61.9	39.1	22.7
52°	36.5	21.3	36.5	56.0	34.5	19.4
52.5°	32.1	18.0	32.1	50.5	30.0	16.3
53°	28.1	14.9	28.1	45.6	26.0	13.4
53.5°	24.5	11.9	24.5	40.8	22.4	11.1
54°	21.0	9.5	21.0	36.3	19.1	8.6
54.5°	17.7	7.7	17.7	32.2	16.0	6.3
55°	14.6	5.9	14.6	28.1	13.3	4.6
55.5°	11.7	4.0	11.7	24.5	10.9	2.9
56°	9.2	2.2	9.2	21.0	8.5	1.9
56.5°	7.0	1.4	7.0	18.0	6.2	1.5
57°	5.1	1.2	5.1	15.3	4.0	1.1
57.5°	3.4	1.1	3.4	12.9	2.6	1.1
58°	2.2	1.1	2.2	10.8	1.6	1.0
58.5°	1.6	1.0	1.6	8.9	1.1	1.0
59°	1.2	1.0	1.2	7.2	0.9	0.9
59.5°	0.9	1.0	0.9	5.9	0.9	0.9
60°	0.9	0.9	0.9	4.7	0.9	0.9
60.5°	0.9	0.9	0.9	3.6	0.7	0.7
61°	0.7	0.9	0.7	2.9	0.7	0.7
61.5°	0.7	0.7	0.7	2.1	0.7	0.7
62°	0.7	0.7	0.7	1.6	0.6	0.6
62.5°	0.6	0.7	0.6	1.2	0.6	0.6
63°	0.6	0.6	0.6	0.9	0.6	0.6
63.5°	0.6	0.6	0.6	0.6	0.5	0.6
64°	0.5	0.6	0.5	0.5	0.5	0.5
64.5°	0.5	0.6	0.5	0.4	0.5	0.5
65°	0.5	0.5	0.5	0.4	0.5	0.5
65.5°	0.5	0.5	0.5	0.4	0.4	0.5
66°	0.4	0.5	0.4	0.3	0.4	0.5



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.4	0.4	0.4	0.3	0.4	0.4
68°	0.4	0.4	0.4	0.3	0.3	0.4
68.5°	0.3	0.4	0.3	0.2	0.3	0.4
69°	0.3	0.4	0.3	0.2	0.3	0.3
69.5°	0.3	0.4	0.3	0.2	0.3	0.3
70°	0.3	0.3	0.3	0.2	0.3	0.3
70.5°	0.3	0.3	0.3	0.2	0.3	0.3
71°	0.3	0.3	0.3	0.2	0.2	0.3
71.5°	0.2	0.3	0.2	0.2	0.2	0.3
72°	0.2	0.3	0.2	0.2	0.2	0.3
72.5°	0.2	0.3	0.2	0.1	0.2	0.2
73°	0.2	0.3	0.2	0.1	0.2	0.2
73.5°	0.2	0.2	0.2	0.1	0.2	0.2
74°	0.2	0.2	0.2	0.1	0.2	0.2
74.5°	0.2	0.2	0.2	0.1	0.2	0.2
75°	0.2	0.2	0.2	0.1	0.2	0.2
75.5°	0.2	0.2	0.2	0.1	0.1	0.2
76°	0.1	0.2	0.1	0.1	0.1	0.2
76.5°	0.1	0.2	0.1	0.1	0.1	0.1
77°	0.1	0.2	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.0	0.1	0.1
79.5°	0.1	0.1	0.1	0.0	0.1	0.1
80°	0.1	0.1	0.1	0.0	0.1	0.1
80.5°	0.1	0.1	0.1	0.0	0.1	0.1
81°	0.1	0.1	0.1	0.0	0.1	0.1
81.5°	0.1	0.1	0.1	0.0	0.0	0.1
82°	0.0	0.1	0.0	0.0	0.0	0.0
82.5°	0.0	0.1	0.0	0.0	0.0	0.0
83°	0.0	0.1	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775709

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-5000K

CANDELA DISTRIBUTION (continued):

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



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

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21.5°	472.8	472.9	473.0	472.6	472.5	472.6	473.0	472.9	472.8	472.9	473.0
22°	469.7	469.8	469.9	469.4	469.4	469.4	469.9	469.8	469.7	469.8	469.9



44°	111.9	141.8	181.3	143.3	114.2	143.3	181.3	141.8	111.9	141.8	181.3
44.5°	103.8	133.6	171.5	135.1	106.1	135.1	171.5	133.6	103.8	133.6	171.5



66.5°	0.4	0.4	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.3
67°	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3



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

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21.5°	472.6	472.5	472.6	473.0	472.9	472.8
22°	469.4	469.4	469.4	469.9	469.8	469.7

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44°	143.3	114.2	143.3	181.3	141.8	111.9
44.5°	135.1	106.1	135.1	171.5	133.6	103.8

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66.5°	0.4	0.5	0.4	0.3	0.4	0.4
67°	0.4	0.4	0.4	0.3	0.4	0.4

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

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(END OF REPORT)