

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: P775863

Luminaire Tested: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775863
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B064-HCD82TRMW)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD82TRMW-1000lm-4000K
Description: 8 INCH ROUND NARROW MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

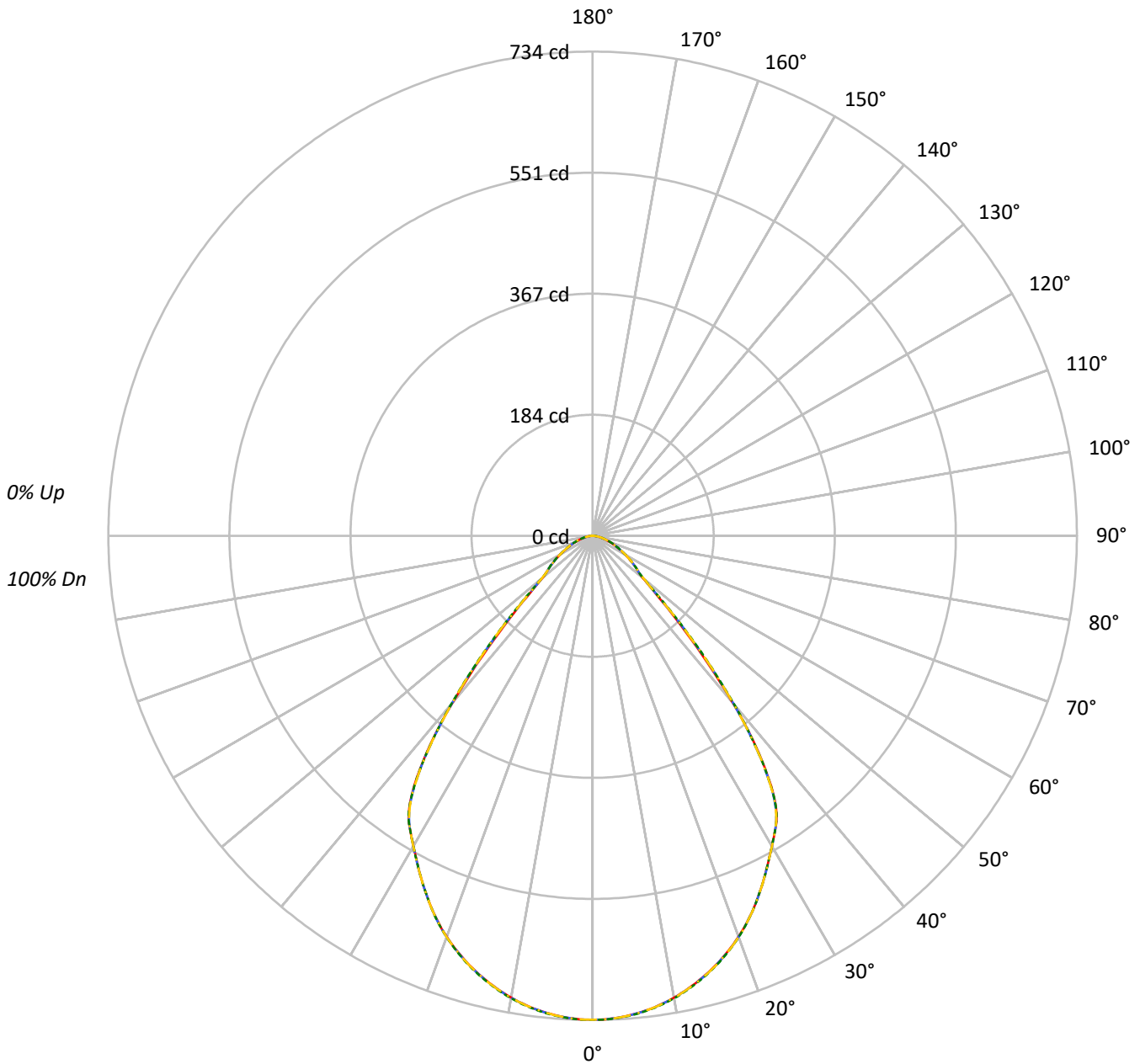
Lumens per Lamp: N/A
Luminaire Lumens: 1106.4 lumens
Efficiency: N/A
Efficacy: 110.6 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 1.12 / 1.12
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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	112	108	105	103	109	106	103	101	102	100	98	98	96	95	95	93	92	90																			
2	105	99	93	89	102	97	92	88	93	90	86	90	87	84	87	85	83	81																			
3	98	90	84	79	96	88	83	78	86	81	77	83	79	75	81	77	74	72																			
4	91	82	75	70	89	81	74	70	79	73	69	76	72	68	74	70	67	65																			
5	86	75	68	63	84	74	68	63	72	67	62	71	65	61	69	64	61	59																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54																			
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49																			
8	71	60	52	47	69	59	52	47	58	52	47	57	51	47	55	50	47	45																			
9	67	55	48	44	66	55	48	44	54	48	43	53	47	43	52	47	43	42																			
10	63	52	45	40	62	51	45	40	50	44	40	49	44	40	49	44	40	38																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	22400	22400	22400	22400
5°	22308	22329	22308	22329
10°	22039	22073	22039	22073
15°	21607	21638	21607	21638
20°	21014	21034	21014	21034
25°	20141	20144	20141	20144
30°	19157	19157	19157	19157
35°	17797	17759	17797	17759
40°	13152	13307	13152	13307
45°	7733	8109	7733	8109
50°	4731	4792	4731	4792
55°	4056	4061	4056	4061
60°	3456	3493	3456	3493
65°	2940	3005	2940	3005
70°	2499	2607	2499	2607
75°	2088	2241	2088	2241
80°	1670	1881	1670	1881
85°	1016	1436	1016	1436

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 8173 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	6.2
10°-20°	192.5	17.4
20°-30°	274.9	24.8
30°-40°	287.0	25.9
40°-50°	149.1	13.5
50°-60°	68.3	6.2
60°-70°	41.4	3.7
70°-80°	19.9	1.8
80°-90°	4.4	0.4
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°	536.3	48.5
0°-40°	823.3	74.4
0°-60°	1040.7	94.1
0°-90°	1106.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1106.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	734	734	734	734	734	
5°	728	729	728	729	728	69
15°	684	685	684	685	684	192
25°	598	598	598	598	598	275
35°	478	476	478	476	478	287
45°	179	188	179	188	179	146
55°	76	76	76	76	76	68
65°	41	42	41	42	41	41
75°	18	19	18	19	18	19
85°	3	4	3	4	3	4
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°	733.7	733.7	733.7	733.7	733.7	733.7	733.7	733.7	733.7	733.7	733.7
0.5°	733.6	733.4	733.6	733.6	734.0	733.6	733.6	733.4	733.6	733.4	733.6
1°	733.5	733.3	733.5	733.5	733.8	733.5	733.5	733.3	733.5	733.3	733.5
1.5°	733.2	733.0	733.2	733.2	733.6	733.2	733.2	733.0	733.2	733.0	733.2
2°	732.8	732.6	732.8	732.8	733.2	732.8	732.8	732.6	732.8	732.6	732.8
2.5°	732.2	732.0	732.2	732.3	732.7	732.3	732.2	732.0	732.2	732.0	732.2
3°	731.6	731.4	731.6	731.7	732.1	731.7	731.6	731.4	731.6	731.4	731.6
3.5°	730.9	730.7	730.9	731.0	731.4	731.0	730.9	730.7	730.9	730.7	730.9
4°	729.9	729.8	730.0	730.1	730.6	730.1	730.0	729.8	729.9	729.8	730.0
4.5°	729.0	728.9	729.1	729.2	729.6	729.2	729.1	728.9	729.0	728.9	729.1
5°	727.9	727.7	727.9	728.1	728.6	728.1	727.9	727.7	727.9	727.7	727.9
5.5°	726.7	726.6	726.8	727.0	727.4	727.0	726.8	726.6	726.7	726.6	726.8
6°	725.4	725.2	725.5	725.7	726.0	725.7	725.5	725.2	725.4	725.2	725.5
6.5°	723.9	723.8	724.1	724.4	724.7	724.4	724.1	723.8	723.9	723.8	724.1
7°	722.5	722.3	722.6	722.8	723.2	722.8	722.6	722.3	722.5	722.3	722.6
7.5°	720.8	720.6	721.0	721.2	721.6	721.2	721.0	720.6	720.8	720.6	721.0
8°	719.0	718.9	719.2	719.4	719.9	719.4	719.2	718.9	719.0	718.9	719.2
8.5°	717.1	717.0	717.4	717.6	718.1	717.6	717.4	717.0	717.1	717.0	717.4
9°	715.2	715.1	715.4	715.7	716.2	715.7	715.4	715.1	715.2	715.1	715.4
9.5°	713.0	713.0	713.3	713.6	714.1	713.6	713.3	713.0	713.0	713.0	713.3
10°	710.9	710.8	711.2	711.5	712.0	711.5	711.2	710.8	710.9	710.8	711.2
10.5°	708.6	708.5	708.9	709.2	709.7	709.2	708.9	708.5	708.6	708.5	708.9
11°	706.2	706.2	706.5	706.9	707.3	706.9	706.5	706.2	706.2	706.2	706.5
11.5°	703.8	703.7	704.1	704.4	704.8	704.4	704.1	703.7	703.8	703.7	704.1
12°	701.1	701.1	701.4	701.9	702.3	701.9	701.4	701.1	701.1	701.1	701.4
12.5°	698.4	698.4	698.8	699.2	699.6	699.2	698.8	698.4	698.4	698.4	698.8
13°	695.7	695.7	696.1	696.4	696.8	696.4	696.1	695.7	695.7	695.7	696.1
13.5°	692.7	692.7	693.1	693.7	693.9	693.7	693.1	692.7	692.7	692.7	693.1
14°	689.9	689.8	690.2	690.6	690.9	690.6	690.2	689.8	689.9	689.8	690.2
14.5°	686.7	686.7	687.2	687.6	687.9	687.6	687.2	686.7	686.7	686.7	687.2
15°	683.6	683.7	684.1	684.4	684.6	684.4	684.1	683.7	683.6	683.7	684.1
15.5°	680.3	680.4	680.8	681.2	681.4	681.2	680.8	680.4	680.3	680.4	680.8
16°	677.1	677.1	677.5	677.8	678.0	677.8	677.5	677.1	677.1	677.1	677.5
16.5°	673.7	673.7	674.1	674.3	674.6	674.3	674.1	673.7	673.7	673.7	674.1
17°	670.1	670.1	670.5	670.9	671.1	670.9	670.5	670.1	670.1	670.1	670.5
17.5°	666.4	666.6	667.0	667.2	667.4	667.2	667.0	666.6	666.4	666.6	667.0
18°	662.8	662.8	663.2	663.4	663.6	663.4	663.2	662.8	662.8	662.8	663.2
18.5°	659.0	659.0	659.4	659.5	659.7	659.5	659.4	659.0	659.0	659.0	659.4
19°	655.0	655.0	655.4	655.6	655.7	655.6	655.4	655.0	655.0	655.0	655.4
19.5°	650.9	651.0	651.3	651.5	651.6	651.5	651.3	651.0	650.9	651.0	651.3
20°	646.8	646.8	647.1	647.2	647.4	647.2	647.1	646.8	646.8	646.8	647.1
20.5°	642.5	642.5	642.8	642.8	643.0	642.8	642.8	642.5	642.5	642.5	642.8
21°	638.1	638.1	638.4	638.4	638.5	638.4	638.4	638.1	638.1	638.1	638.4



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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°	623.9	623.9	624.1	624.0	624.2	624.0	624.1	623.9	623.9	623.9	624.1
23°	618.9	618.9	619.0	619.0	619.2	619.0	619.0	618.9	618.9	618.9	619.0
23.5°	613.9	613.9	614.0	613.9	614.0	613.9	614.0	613.9	613.9	613.9	614.0
24°	608.7	608.6	608.7	608.6	608.7	608.6	608.7	608.6	608.7	608.6	608.7
24.5°	603.3	603.3	603.5	603.4	603.4	603.4	603.5	603.3	603.3	603.3	603.5
25°	597.9	597.9	598.0	598.0	598.0	598.0	598.0	597.9	597.9	597.9	598.0
25.5°	592.6	592.5	592.7	592.6	592.6	592.6	592.7	592.5	592.6	592.5	592.7
26°	587.1	587.0	587.1	587.2	587.1	587.2	587.1	587.0	587.1	587.0	587.1
26.5°	581.5	581.6	581.6	581.6	581.6	581.6	581.6	581.6	581.5	581.6	581.6
27°	576.1	576.1	576.2	576.2	576.1	576.2	576.2	576.1	576.1	576.1	576.2
27.5°	570.5	570.5	570.7	570.7	570.5	570.7	570.7	570.5	570.5	570.5	570.7
28°	565.0	565.0	565.2	565.1	565.1	565.1	565.2	565.0	565.0	565.0	565.2
28.5°	559.6	559.6	559.8	559.7	559.6	559.7	559.8	559.6	559.6	559.6	559.8
29°	554.0	554.2	554.3	554.2	554.2	554.2	554.3	554.2	554.0	554.2	554.3
29.5°	548.6	548.7	548.9	548.9	548.7	548.9	548.9	548.7	548.6	548.7	548.9
30°	543.4	543.5	543.6	543.6	543.4	543.6	543.6	543.5	543.4	543.5	543.6
30.5°	538.1	538.3	538.4	538.3	538.0	538.3	538.4	538.3	538.1	538.3	538.4
31°	533.0	533.1	533.3	533.2	533.1	533.2	533.3	533.1	533.0	533.1	533.3
31.5°	528.0	528.0	528.1	528.0	527.8	528.0	528.1	528.0	528.0	528.0	528.1
32°	522.9	522.9	522.9	522.8	522.8	522.8	522.9	522.9	522.9	522.9	522.9
32.5°	517.7	517.3	517.2	517.1	517.6	517.1	517.2	517.3	517.7	517.3	517.2
33°	512.1	511.0	510.8	510.5	512.3	510.5	510.8	511.0	512.1	511.0	510.8
33.5°	505.1	503.5	503.6	503.0	505.3	503.0	503.6	503.5	505.1	503.5	503.6
34°	496.8	495.0	495.7	494.4	497.1	494.4	495.7	495.0	496.8	495.0	495.7
34.5°	487.9	485.4	486.4	485.1	487.7	485.1	486.4	485.4	487.9	485.4	486.4
35°	477.5	475.2	475.7	474.8	476.5	474.8	475.7	475.2	477.5	475.2	475.7
35.5°	465.8	464.5	463.9	463.2	464.3	463.2	463.9	464.5	465.8	464.5	463.9
36°	453.0	453.2	451.3	450.5	452.3	450.5	451.3	453.2	453.0	453.2	451.3
36.5°	439.5	440.5	438.0	437.0	438.9	437.0	438.0	440.5	439.5	440.5	438.0
37°	425.7	426.5	424.2	422.9	425.2	422.9	424.2	426.5	425.7	426.5	424.2
37.5°	411.3	411.3	409.7	408.5	410.6	408.5	409.7	411.3	411.3	411.3	409.7
38°	396.2	395.2	394.9	393.9	395.9	393.9	394.9	395.2	396.2	395.2	394.9
38.5°	380.6	378.7	379.5	378.8	380.8	378.8	379.5	378.7	380.6	378.7	379.5
39°	364.2	362.4	363.6	363.5	365.6	363.5	363.6	362.4	364.2	362.4	363.6
39.5°	347.5	346.2	347.7	348.1	350.0	348.1	347.7	346.2	347.5	346.2	347.7
40°	330.0	330.3	331.8	333.0	333.9	333.0	331.8	330.3	330.0	330.3	331.8
40.5°	312.6	314.1	315.7	317.7	317.8	317.7	315.7	314.1	312.6	314.1	315.7
41°	295.6	298.3	300.3	302.6	301.9	302.6	300.3	298.3	295.6	298.3	300.3
41.5°	278.9	282.0	284.8	287.6	286.0	287.6	284.8	282.0	278.9	282.0	284.8
42°	263.0	266.1	269.5	272.4	270.7	272.4	269.5	266.1	263.0	266.1	269.5
42.5°	247.5	250.6	254.2	257.7	255.7	257.7	254.2	250.6	247.5	250.6	254.2
43°	232.5	235.5	239.6	243.1	241.4	243.1	239.6	235.5	232.5	235.5	239.6
43.5°	218.2	220.9	225.3	229.1	227.3	229.1	225.3	220.9	218.2	220.9	225.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	179.1	181.0	185.8	189.3	187.8	189.3	185.8	181.0	179.1	181.0	185.8
45.5°	167.6	169.3	173.9	177.2	176.0	177.2	173.9	169.3	167.6	169.3	173.9
46°	156.8	158.7	162.7	165.7	164.8	165.7	162.7	158.7	156.8	158.7	162.7
46.5°	146.9	149.0	151.9	155.0	154.3	155.0	151.9	149.0	146.9	149.0	151.9
47°	137.7	140.1	142.1	145.1	144.4	145.1	142.1	140.1	137.7	140.1	142.1
47.5°	129.5	132.0	133.1	136.0	135.2	136.0	133.1	132.0	129.5	132.0	133.1
48°	122.1	124.3	125.0	127.9	126.8	127.9	125.0	124.3	122.1	124.3	125.0
48.5°	115.5	117.3	117.8	120.3	119.0	120.3	117.8	117.3	115.5	117.3	117.8
49°	109.5	110.9	111.4	113.5	112.2	113.5	111.4	110.9	109.5	110.9	111.4
49.5°	104.4	105.3	105.9	107.5	106.0	107.5	105.9	105.3	104.4	105.3	105.9
50°	99.6	100.5	101.2	102.3	100.9	102.3	101.2	100.5	99.6	100.5	101.2
50.5°	95.7	96.4	97.0	97.8	96.5	97.8	97.0	96.4	95.7	96.4	97.0
51°	92.5	93.1	93.4	94.1	92.9	94.1	93.4	93.1	92.5	93.1	93.4
51.5°	89.8	90.3	90.6	90.8	90.1	90.8	90.6	90.3	89.8	90.3	90.6
52°	87.7	87.9	88.1	88.2	87.8	88.2	88.1	87.9	87.7	87.9	88.1
52.5°	85.7	85.8	85.9	85.9	85.9	85.9	85.9	85.8	85.7	85.8	85.9
53°	83.8	83.9	83.9	83.9	84.0	83.9	83.9	83.9	83.8	83.9	83.9
53.5°	82.0	82.0	82.0	81.9	82.1	81.9	82.0	82.0	82.0	82.0	82.0
54°	80.1	80.1	80.1	80.0	80.2	80.0	80.1	80.1	80.1	80.1	80.1
54.5°	78.2	78.2	78.2	78.1	78.3	78.1	78.2	78.2	78.2	78.2	78.2
55°	76.2	76.2	76.2	76.2	76.3	76.2	76.2	76.2	76.2	76.2	76.2
55.5°	74.2	74.2	74.3	74.2	74.3	74.2	74.3	74.2	74.2	74.2	74.3
56°	72.2	72.2	72.3	72.3	72.3	72.3	72.3	72.2	72.2	72.2	72.3
56.5°	70.2	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.2	70.3	70.3
57°	68.2	68.3	68.3	68.3	68.3	68.3	68.3	68.3	68.2	68.3	68.3
57.5°	66.2	66.3	66.4	66.4	66.4	66.4	66.4	66.3	66.2	66.3	66.4
58°	64.2	64.4	64.4	64.5	64.5	64.5	64.4	64.4	64.2	64.4	64.4
58.5°	62.2	62.5	62.5	62.6	62.6	62.6	62.5	62.5	62.2	62.5	62.5
59°	60.3	60.6	60.7	60.7	60.7	60.7	60.7	60.6	60.3	60.6	60.7
59.5°	58.5	58.9	59.0	59.0	59.0	59.0	59.0	58.9	58.5	58.9	59.0
60°	56.6	57.1	57.2	57.3	57.2	57.3	57.2	57.1	56.6	57.1	57.2
60.5°	54.9	55.3	55.5	55.5	55.5	55.5	55.5	55.3	54.9	55.3	55.5
61°	53.2	53.6	53.8	53.8	53.8	53.8	53.8	53.6	53.2	53.6	53.8
61.5°	51.5	51.9	52.1	52.2	52.2	52.2	52.1	51.9	51.5	51.9	52.1
62°	49.8	50.2	50.6	50.6	50.6	50.6	50.6	50.2	49.8	50.2	50.6
62.5°	48.2	48.7	49.0	49.0	49.0	49.0	49.0	48.7	48.2	48.7	49.0
63°	46.6	47.1	47.5	47.5	47.5	47.5	47.5	47.1	46.6	47.1	47.5
63.5°	45.1	45.6	45.9	46.0	46.0	46.0	45.9	45.6	45.1	45.6	45.9
64°	43.6	44.0	44.5	44.6	44.6	44.6	44.5	44.0	43.6	44.0	44.5
64.5°	42.1	42.6	43.1	43.1	43.1	43.1	43.1	42.6	42.1	42.6	43.1
65°	40.7	41.1	41.6	41.7	41.6	41.7	41.6	41.1	40.7	41.1	41.6
65.5°	39.3	39.7	40.3	40.4	40.4	40.4	40.3	39.7	39.3	39.7	40.3
66°	37.9	38.4	38.9	39.0	39.0	39.0	38.9	38.4	37.9	38.4	38.9



TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	33.9	34.5	35.0	35.2	35.1	35.2	35.0	34.5	33.9	34.5	35.0
68°	32.7	33.2	33.8	33.9	33.9	33.9	33.8	33.2	32.7	33.2	33.8
68.5°	31.5	32.0	32.6	32.7	32.7	32.7	32.6	32.0	31.5	32.0	32.6
69°	30.3	30.8	31.4	31.5	31.5	31.5	31.4	30.8	30.3	30.8	31.4
69.5°	29.1	29.5	30.3	30.4	30.4	30.4	30.3	29.5	29.1	29.5	30.3
70°	28.0	28.4	29.1	29.2	29.2	29.2	29.1	28.4	28.0	28.4	29.1
70.5°	26.8	27.2	28.0	28.1	28.1	28.1	28.0	27.2	26.8	27.2	28.0
71°	25.7	26.2	26.8	27.0	27.0	27.0	26.8	26.2	25.7	26.2	26.8
71.5°	24.6	25.0	25.7	26.0	25.9	26.0	25.7	25.0	24.6	25.0	25.7
72°	23.5	24.0	24.7	24.9	24.8	24.9	24.7	24.0	23.5	24.0	24.7
72.5°	22.5	22.9	23.6	23.9	23.8	23.9	23.6	22.9	22.5	22.9	23.6
73°	21.4	21.9	22.6	22.8	22.8	22.8	22.6	21.9	21.4	21.9	22.6
73.5°	20.5	20.9	21.7	21.9	21.9	21.9	21.7	20.9	20.5	20.9	21.7
74°	19.5	20.0	20.6	20.9	20.8	20.9	20.6	20.0	19.5	20.0	20.6
74.5°	18.6	18.9	19.7	20.0	19.9	20.0	19.7	18.9	18.6	18.9	19.7
75°	17.7	18.0	18.7	19.0	19.0	19.0	18.7	18.0	17.7	18.0	18.7
75.5°	16.7	17.1	17.8	18.1	18.1	18.1	17.8	17.1	16.7	17.1	17.8
76°	15.9	16.2	16.9	17.2	17.1	17.2	16.9	16.2	15.9	16.2	16.9
76.5°	14.9	15.3	16.0	16.3	16.3	16.3	16.0	15.3	14.9	15.3	16.0
77°	14.1	14.5	15.1	15.4	15.4	15.4	15.1	14.5	14.1	14.5	15.1
77.5°	13.3	13.7	14.3	14.6	14.6	14.6	14.3	13.7	13.3	13.7	14.3
78°	12.5	12.8	13.5	13.9	13.8	13.9	13.5	12.8	12.5	12.8	13.5
78.5°	11.7	12.0	12.7	13.0	13.0	13.0	12.7	12.0	11.7	12.0	12.7
79°	10.9	11.2	11.9	12.3	12.2	12.3	11.9	11.2	10.9	11.2	11.9
79.5°	10.2	10.4	11.1	11.5	11.5	11.5	11.1	10.4	10.2	10.4	11.1
80°	9.5	9.7	10.4	10.7	10.7	10.7	10.4	9.7	9.5	9.7	10.4
80.5°	8.7	8.9	9.7	10.0	10.0	10.0	9.7	8.9	8.7	8.9	9.7
81°	8.0	8.2	8.9	9.2	9.2	9.2	8.9	8.2	8.0	8.2	8.9
81.5°	7.4	7.5	8.2	8.6	8.6	8.6	8.2	7.5	7.4	7.5	8.2
82°	6.6	6.8	7.5	7.9	7.9	7.9	7.5	6.8	6.6	6.8	7.5
82.5°	6.0	6.1	6.8	7.3	7.3	7.3	6.8	6.1	6.0	6.1	6.8
83°	5.4	5.5	6.2	6.6	6.5	6.6	6.2	5.5	5.4	5.5	6.2
83.5°	4.7	4.8	5.6	5.9	5.9	5.9	5.6	4.8	4.7	4.8	5.6
84°	4.1	4.2	4.9	5.3	5.3	5.3	4.9	4.2	4.1	4.2	4.9
84.5°	3.5	3.6	4.3	4.7	4.7	4.7	4.3	3.6	3.5	3.6	4.3
85°	2.9	3.0	3.8	4.1	4.1	4.1	3.8	3.0	2.9	3.0	3.8
85.5°	2.4	2.5	3.3	3.5	3.5	3.5	3.3	2.5	2.4	2.5	3.3
86°	1.9	2.1	2.7	2.9	2.9	2.9	2.7	2.1	1.9	2.1	2.7
86.5°	1.5	1.7	2.2	2.4	2.4	2.4	2.2	1.7	1.5	1.7	2.2
87°	1.2	1.3	1.7	1.9	1.9	1.9	1.7	1.3	1.2	1.3	1.7
87.5°	0.8	0.9	1.3	1.5	1.4	1.5	1.3	0.9	0.8	0.9	1.3
88°	0.5	0.6	0.9	1.1	0.8	1.1	0.9	0.6	0.5	0.6	0.9
88.5°	0.3	0.4	0.6	0.7	0.5	0.7	0.6	0.4	0.3	0.4	0.6



TEST NUMBER: P775863
CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	733.7	733.7	733.7	733.7	733.7	733.7
0.5°	733.6	734.0	733.6	733.6	733.4	733.6
1°	733.5	733.8	733.5	733.5	733.3	733.5
1.5°	733.2	733.6	733.2	733.2	733.0	733.2
2°	732.8	733.2	732.8	732.8	732.6	732.8
2.5°	732.3	732.7	732.3	732.2	732.0	732.2
3°	731.7	732.1	731.7	731.6	731.4	731.6
3.5°	731.0	731.4	731.0	730.9	730.7	730.9
4°	730.1	730.6	730.1	730.0	729.8	729.9
4.5°	729.2	729.6	729.2	729.1	728.9	729.0
5°	728.1	728.6	728.1	727.9	727.7	727.9
5.5°	727.0	727.4	727.0	726.8	726.6	726.7
6°	725.7	726.0	725.7	725.5	725.2	725.4
6.5°	724.4	724.7	724.4	724.1	723.8	723.9
7°	722.8	723.2	722.8	722.6	722.3	722.5
7.5°	721.2	721.6	721.2	721.0	720.6	720.8
8°	719.4	719.9	719.4	719.2	718.9	719.0
8.5°	717.6	718.1	717.6	717.4	717.0	717.1
9°	715.7	716.2	715.7	715.4	715.1	715.2
9.5°	713.6	714.1	713.6	713.3	713.0	713.0
10°	711.5	712.0	711.5	711.2	710.8	710.9
10.5°	709.2	709.7	709.2	708.9	708.5	708.6
11°	706.9	707.3	706.9	706.5	706.2	706.2
11.5°	704.4	704.8	704.4	704.1	703.7	703.8
12°	701.9	702.3	701.9	701.4	701.1	701.1
12.5°	699.2	699.6	699.2	698.8	698.4	698.4
13°	696.4	696.8	696.4	696.1	695.7	695.7
13.5°	693.7	693.9	693.7	693.1	692.7	692.7
14°	690.6	690.9	690.6	690.2	689.8	689.9
14.5°	687.6	687.9	687.6	687.2	686.7	686.7
15°	684.4	684.6	684.4	684.1	683.7	683.6
15.5°	681.2	681.4	681.2	680.8	680.4	680.3
16°	677.8	678.0	677.8	677.5	677.1	677.1
16.5°	674.3	674.6	674.3	674.1	673.7	673.7
17°	670.9	671.1	670.9	670.5	670.1	670.1
17.5°	667.2	667.4	667.2	667.0	666.6	666.4
18°	663.4	663.6	663.4	663.2	662.8	662.8
18.5°	659.5	659.7	659.5	659.4	659.0	659.0
19°	655.6	655.7	655.6	655.4	655.0	655.0
19.5°	651.5	651.6	651.5	651.3	651.0	650.9
20°	647.2	647.4	647.2	647.1	646.8	646.8
20.5°	642.8	643.0	642.8	642.8	642.5	642.5
21°	638.4	638.5	638.4	638.4	638.1	638.1

TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	624.0	624.2	624.0	624.1	623.9	623.9
23°	619.0	619.2	619.0	619.0	618.9	618.9
23.5°	613.9	614.0	613.9	614.0	613.9	613.9
24°	608.6	608.7	608.6	608.7	608.6	608.7
24.5°	603.4	603.4	603.4	603.5	603.3	603.3
25°	598.0	598.0	598.0	598.0	597.9	597.9
25.5°	592.6	592.6	592.6	592.7	592.5	592.6
26°	587.2	587.1	587.2	587.1	587.0	587.1
26.5°	581.6	581.6	581.6	581.6	581.6	581.5
27°	576.2	576.1	576.2	576.2	576.1	576.1
27.5°	570.7	570.5	570.7	570.7	570.5	570.5
28°	565.1	565.1	565.1	565.2	565.0	565.0
28.5°	559.7	559.6	559.7	559.8	559.6	559.6
29°	554.2	554.2	554.2	554.3	554.2	554.0
29.5°	548.9	548.7	548.9	548.9	548.7	548.6
30°	543.6	543.4	543.6	543.6	543.5	543.4
30.5°	538.3	538.0	538.3	538.4	538.3	538.1
31°	533.2	533.1	533.2	533.3	533.1	533.0
31.5°	528.0	527.8	528.0	528.1	528.0	528.0
32°	522.8	522.8	522.8	522.9	522.9	522.9
32.5°	517.1	517.6	517.1	517.2	517.3	517.7
33°	510.5	512.3	510.5	510.8	511.0	512.1
33.5°	503.0	505.3	503.0	503.6	503.5	505.1
34°	494.4	497.1	494.4	495.7	495.0	496.8
34.5°	485.1	487.7	485.1	486.4	485.4	487.9
35°	474.8	476.5	474.8	475.7	475.2	477.5
35.5°	463.2	464.3	463.2	463.9	464.5	465.8
36°	450.5	452.3	450.5	451.3	453.2	453.0
36.5°	437.0	438.9	437.0	438.0	440.5	439.5
37°	422.9	425.2	422.9	424.2	426.5	425.7
37.5°	408.5	410.6	408.5	409.7	411.3	411.3
38°	393.9	395.9	393.9	394.9	395.2	396.2
38.5°	378.8	380.8	378.8	379.5	378.7	380.6
39°	363.5	365.6	363.5	363.6	362.4	364.2
39.5°	348.1	350.0	348.1	347.7	346.2	347.5
40°	333.0	333.9	333.0	331.8	330.3	330.0
40.5°	317.7	317.8	317.7	315.7	314.1	312.6
41°	302.6	301.9	302.6	300.3	298.3	295.6
41.5°	287.6	286.0	287.6	284.8	282.0	278.9
42°	272.4	270.7	272.4	269.5	266.1	263.0
42.5°	257.7	255.7	257.7	254.2	250.6	247.5
43°	243.1	241.4	243.1	239.6	235.5	232.5
43.5°	229.1	227.3	229.1	225.3	220.9	218.2



TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	189.3	187.8	189.3	185.8	181.0	179.1
45.5°	177.2	176.0	177.2	173.9	169.3	167.6
46°	165.7	164.8	165.7	162.7	158.7	156.8
46.5°	155.0	154.3	155.0	151.9	149.0	146.9
47°	145.1	144.4	145.1	142.1	140.1	137.7
47.5°	136.0	135.2	136.0	133.1	132.0	129.5
48°	127.9	126.8	127.9	125.0	124.3	122.1
48.5°	120.3	119.0	120.3	117.8	117.3	115.5
49°	113.5	112.2	113.5	111.4	110.9	109.5
49.5°	107.5	106.0	107.5	105.9	105.3	104.4
50°	102.3	100.9	102.3	101.2	100.5	99.6
50.5°	97.8	96.5	97.8	97.0	96.4	95.7
51°	94.1	92.9	94.1	93.4	93.1	92.5
51.5°	90.8	90.1	90.8	90.6	90.3	89.8
52°	88.2	87.8	88.2	88.1	87.9	87.7
52.5°	85.9	85.9	85.9	85.9	85.8	85.7
53°	83.9	84.0	83.9	83.9	83.9	83.8
53.5°	81.9	82.1	81.9	82.0	82.0	82.0
54°	80.0	80.2	80.0	80.1	80.1	80.1
54.5°	78.1	78.3	78.1	78.2	78.2	78.2
55°	76.2	76.3	76.2	76.2	76.2	76.2
55.5°	74.2	74.3	74.2	74.3	74.2	74.2
56°	72.3	72.3	72.3	72.3	72.2	72.2
56.5°	70.3	70.3	70.3	70.3	70.3	70.2
57°	68.3	68.3	68.3	68.3	68.3	68.2
57.5°	66.4	66.4	66.4	66.4	66.3	66.2
58°	64.5	64.5	64.5	64.4	64.4	64.2
58.5°	62.6	62.6	62.6	62.5	62.5	62.2
59°	60.7	60.7	60.7	60.7	60.6	60.3
59.5°	59.0	59.0	59.0	59.0	58.9	58.5
60°	57.3	57.2	57.3	57.2	57.1	56.6
60.5°	55.5	55.5	55.5	55.5	55.3	54.9
61°	53.8	53.8	53.8	53.8	53.6	53.2
61.5°	52.2	52.2	52.2	52.1	51.9	51.5
62°	50.6	50.6	50.6	50.6	50.2	49.8
62.5°	49.0	49.0	49.0	49.0	48.7	48.2
63°	47.5	47.5	47.5	47.5	47.1	46.6
63.5°	46.0	46.0	46.0	45.9	45.6	45.1
64°	44.6	44.6	44.6	44.5	44.0	43.6
64.5°	43.1	43.1	43.1	43.1	42.6	42.1
65°	41.7	41.6	41.7	41.6	41.1	40.7
65.5°	40.4	40.4	40.4	40.3	39.7	39.3
66°	39.0	39.0	39.0	38.9	38.4	37.9



TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	35.2	35.1	35.2	35.0	34.5	33.9
68°	33.9	33.9	33.9	33.8	33.2	32.7
68.5°	32.7	32.7	32.7	32.6	32.0	31.5
69°	31.5	31.5	31.5	31.4	30.8	30.3
69.5°	30.4	30.4	30.4	30.3	29.5	29.1
70°	29.2	29.2	29.2	29.1	28.4	28.0
70.5°	28.1	28.1	28.1	28.0	27.2	26.8
71°	27.0	27.0	27.0	26.8	26.2	25.7
71.5°	26.0	25.9	26.0	25.7	25.0	24.6
72°	24.9	24.8	24.9	24.7	24.0	23.5
72.5°	23.9	23.8	23.9	23.6	22.9	22.5
73°	22.8	22.8	22.8	22.6	21.9	21.4
73.5°	21.9	21.9	21.9	21.7	20.9	20.5
74°	20.9	20.8	20.9	20.6	20.0	19.5
74.5°	20.0	19.9	20.0	19.7	18.9	18.6
75°	19.0	19.0	19.0	18.7	18.0	17.7
75.5°	18.1	18.1	18.1	17.8	17.1	16.7
76°	17.2	17.1	17.2	16.9	16.2	15.9
76.5°	16.3	16.3	16.3	16.0	15.3	14.9
77°	15.4	15.4	15.4	15.1	14.5	14.1
77.5°	14.6	14.6	14.6	14.3	13.7	13.3
78°	13.9	13.8	13.9	13.5	12.8	12.5
78.5°	13.0	13.0	13.0	12.7	12.0	11.7
79°	12.3	12.2	12.3	11.9	11.2	10.9
79.5°	11.5	11.5	11.5	11.1	10.4	10.2
80°	10.7	10.7	10.7	10.4	9.7	9.5
80.5°	10.0	10.0	10.0	9.7	8.9	8.7
81°	9.2	9.2	9.2	8.9	8.2	8.0
81.5°	8.6	8.6	8.6	8.2	7.5	7.4
82°	7.9	7.9	7.9	7.5	6.8	6.6
82.5°	7.3	7.3	7.3	6.8	6.1	6.0
83°	6.6	6.5	6.6	6.2	5.5	5.4
83.5°	5.9	5.9	5.9	5.6	4.8	4.7
84°	5.3	5.3	5.3	4.9	4.2	4.1
84.5°	4.7	4.7	4.7	4.3	3.6	3.5
85°	4.1	4.1	4.1	3.8	3.0	2.9
85.5°	3.5	3.5	3.5	3.3	2.5	2.4
86°	2.9	2.9	2.9	2.7	2.1	1.9
86.5°	2.4	2.4	2.4	2.2	1.7	1.5
87°	1.9	1.9	1.9	1.7	1.3	1.2
87.5°	1.5	1.4	1.5	1.3	0.9	0.8
88°	1.1	0.8	1.1	0.9	0.6	0.5
88.5°	0.7	0.5	0.7	0.6	0.4	0.3



TEST NUMBER: P775863

CATALOG NUMBER: HCDJBL510CSD-HCD82TRMW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

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



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

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21.5°	633.4	633.5	633.8	633.8	633.9	633.8	633.8	633.5	633.4	633.5	633.8
22°	628.8	628.8	628.9	628.9	629.1	628.9	628.9	628.8	628.8	628.8	628.9



44°	204.5	206.8	211.7	215.2	213.7	215.2	211.7	206.8	204.5	206.8	211.7
44.5°	191.6	193.5	198.4	202.1	200.4	202.1	198.4	193.5	191.6	193.5	198.4



66.5°	36.5	37.0	37.5	37.6	37.7	37.6	37.5	37.0	36.5	37.0	37.5
67°	35.2	35.6	36.3	36.5	36.5	36.5	36.3	35.6	35.2	35.6	36.3



89°	0.1	0.2	0.3	0.5	0.3	0.5	0.3	0.2	0.1	0.2	0.3
89.5°	0.0	0.1	0.2	0.3	0.1	0.3	0.2	0.1	0.0	0.1	0.2

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21.5°	633.8	633.9	633.8	633.8	633.5	633.4
22°	628.9	629.1	628.9	628.9	628.8	628.8



44°	215.2	213.7	215.2	211.7	206.8	204.5
44.5°	202.1	200.4	202.1	198.4	193.5	191.6

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66.5°	37.6	37.7	37.6	37.5	37.0	36.5
67°	36.5	36.5	36.5	36.3	35.6	35.2

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89°	0.5	0.3	0.5	0.3	0.2	0.1
89.5°	0.3	0.1	0.3	0.2	0.1	0.0

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(END OF REPORT)