

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: P776848

Luminaire Tested: HCDJBL510CSD-HCD42TRMW-500lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776848
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156A001)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD42TRMW-500lm-4000K
Description: 4 INCH ROUND NARROW MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

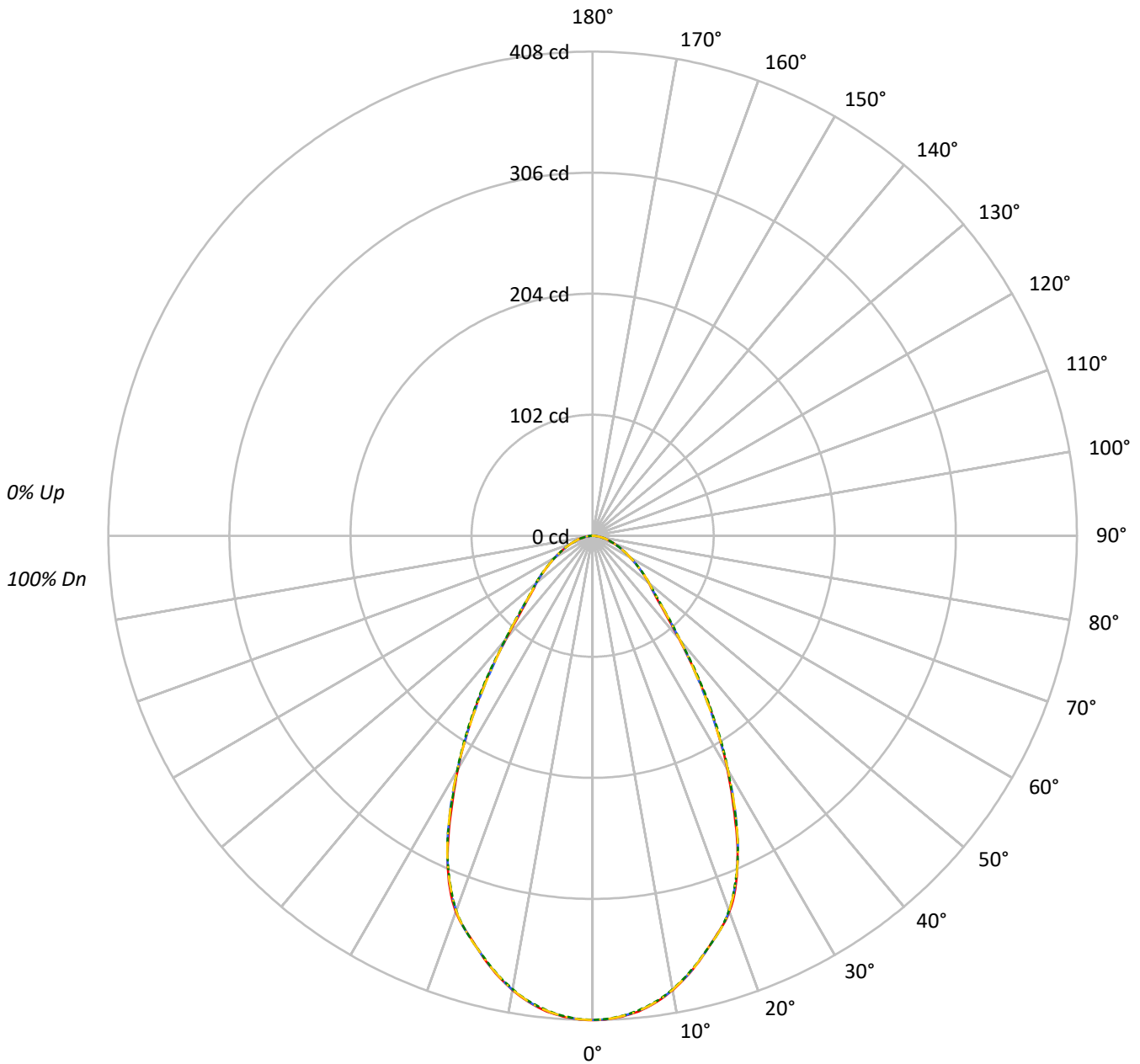
Lumens per Lamp: N/A
Luminaire Lumens: 527.0 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 0.97 / 0.95
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 5
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					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	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	104	98	93	88	102	96	91	87	93	89	85	90	86	83	87	84	82	80								
3	97	89	83	78	95	88	82	77	85	80	76	82	78	74	80	76	73	71								
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64								
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58								
6	80	69	62	57	78	68	61	56	67	60	56	65	60	55	64	59	55	53								
7	75	64	57	52	74	63	56	52	62	56	51	61	55	51	59	54	51	49								
8	71	60	52	48	70	59	52	47	58	52	47	57	51	47	56	51	47	45								
9	67	56	49	44	66	55	48	44	54	48	44	53	48	44	52	47	43	42								
10	63	52	45	41	62	52	45	41	51	45	41	50	44	41	49	44	40	39								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	51359	51359	51359	51359
5°	51000	50886	51000	50886
10°	49685	49570	49685	49570
15°	47477	47425	47477	47425
20°	45147	44986	45147	44986
25°	40075	40200	40075	40200
30°	32973	33147	32973	33147
35°	25580	25857	25580	25857
40°	18581	18893	18581	18893
45°	14060	14416	14060	14416
50°	12119	12217	12119	12217
55°	10532	10642	10532	10642
60°	9212	9288	9212	9288
65°	8100	8159	8100	8159
70°	7138	7175	7138	7175
75°	6273	6273	6273	6273
80°	5436	5363	5436	5363
85°	4332	4332	4332	4332

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 14416 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.0	7.2
10°-20°	102.4	19.4
20°-30°	131.1	24.9
30°-40°	103.9	19.7
40°-50°	63.6	12.1
50°-60°	43.5	8.3
60°-70°	27.2	5.2
70°-80°	13.8	2.6
80°-90°	3.5	0.7
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°	271.5	51.5
0°-40°	375.4	71.2
0°-60°	482.5	91.6
0°-90°	527.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	527.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	408	408	408	408	408	
5°	404	403	404	403	404	38
15°	364	364	364	364	364	102
25°	289	290	289	290	289	131
35°	166	168	166	168	166	104
45°	79	81	79	81	79	63
55°	48	48	48	48	48	43
65°	27	27	27	27	27	27
75°	13	13	13	13	13	14
85°	3	3	3	3	3	3
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°	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1	408.1
0.5°	408.2	408.1	408.0	407.9	407.8	407.9	408.0	408.1	408.2	408.1	408.0
1°	408.0	407.9	407.9	407.8	407.6	407.8	407.9	407.9	408.0	407.9	407.9
1.5°	407.8	407.7	407.7	407.6	407.4	407.6	407.7	407.7	407.8	407.7	407.7
2°	407.4	407.4	407.3	407.2	407.0	407.2	407.3	407.4	407.4	407.4	407.3
2.5°	407.1	407.0	406.8	406.8	406.5	406.8	406.8	407.0	407.1	407.0	406.8
3°	406.5	406.4	406.3	406.2	405.9	406.2	406.3	406.4	406.5	406.4	406.3
3.5°	405.9	405.8	405.6	405.5	405.4	405.5	405.6	405.8	405.9	405.8	405.6
4°	405.2	405.2	404.9	404.8	404.6	404.8	404.9	405.2	405.2	405.2	404.9
4.5°	404.4	404.3	404.1	404.0	403.7	404.0	404.1	404.3	404.4	404.3	404.1
5°	403.7	403.5	403.3	403.2	402.8	403.2	403.3	403.5	403.7	403.5	403.3
5.5°	402.9	402.5	402.2	402.1	401.8	402.1	402.2	402.5	402.9	402.5	402.2
6°	401.6	401.4	401.1	400.9	400.5	400.9	401.1	401.4	401.6	401.4	401.1
6.5°	400.3	400.2	399.9	399.7	399.3	399.7	399.9	400.2	400.3	400.2	399.9
7°	399.0	398.8	398.7	398.4	398.0	398.4	398.7	398.8	399.0	398.8	398.7
7.5°	397.6	397.3	397.1	397.0	396.6	397.0	397.1	397.3	397.6	397.3	397.1
8°	396.0	395.8	395.6	395.4	395.2	395.4	395.6	395.8	396.0	395.8	395.6
8.5°	394.3	394.1	393.9	393.7	393.5	393.7	393.9	394.1	394.3	394.1	393.9
9°	392.6	392.4	392.1	392.0	391.8	392.0	392.1	392.4	392.6	392.4	392.1
9.5°	390.7	390.6	390.3	390.1	389.9	390.1	390.3	390.6	390.7	390.6	390.3
10°	388.8	388.6	388.4	388.2	387.9	388.2	388.4	388.6	388.8	388.6	388.4
10.5°	386.6	386.5	386.2	386.1	385.9	386.1	386.2	386.5	386.6	386.5	386.2
11°	384.5	384.4	384.2	383.9	383.7	383.9	384.2	384.4	384.5	384.4	384.2
11.5°	382.3	382.1	381.9	381.7	381.5	381.7	381.9	382.1	382.3	382.1	381.9
12°	380.0	379.8	379.7	379.4	379.2	379.4	379.7	379.8	380.0	379.8	379.7
12.5°	377.6	377.4	377.3	377.0	376.7	377.0	377.3	377.4	377.6	377.4	377.3
13°	375.1	375.0	374.8	374.6	374.3	374.6	374.8	375.0	375.1	375.0	374.8
13.5°	372.5	372.4	372.3	372.1	371.9	372.1	372.3	372.4	372.5	372.4	372.3
14°	369.9	369.8	369.7	369.5	369.3	369.5	369.7	369.8	369.9	369.8	369.7
14.5°	367.2	367.1	367.1	366.8	366.6	366.8	367.1	367.1	367.2	367.1	367.1
15°	364.4	364.4	364.3	364.2	364.0	364.2	364.3	364.4	364.4	364.4	364.3
15.5°	361.6	361.6	361.7	361.6	361.5	361.6	361.7	361.6	361.6	361.6	361.7
16°	358.9	358.9	359.1	359.0	358.9	359.0	359.1	358.9	358.9	358.9	359.1
16.5°	356.1	356.2	356.5	356.5	356.4	356.5	356.5	356.2	356.1	356.2	356.5
17°	353.6	353.7	353.9	353.8	353.9	353.8	353.9	353.7	353.6	353.7	353.9
17.5°	351.0	351.2	351.3	351.3	351.2	351.3	351.3	351.2	351.0	351.2	351.3
18°	348.6	348.6	348.8	348.6	348.5	348.6	348.8	348.6	348.6	348.6	348.8
18.5°	346.0	346.0	346.0	345.9	345.7	345.9	346.0	346.0	346.0	346.0	346.0
19°	343.3	343.1	343.0	342.8	342.7	342.8	343.0	343.1	343.3	343.1	343.0
19.5°	340.3	340.1	339.8	339.7	339.5	339.7	339.8	340.1	340.3	340.1	339.8
20°	337.1	336.8	336.2	336.3	335.9	336.3	336.2	336.8	337.1	336.8	336.2
20.5°	333.6	333.1	332.4	332.6	332.2	332.6	332.4	333.1	333.6	333.1	332.4
21°	329.8	329.2	328.4	328.6	328.1	328.6	328.4	329.2	329.8	329.2	328.4



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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°	316.2	315.6	315.0	315.0	314.7	315.0	315.0	315.6	316.2	315.6	315.0
23°	311.0	310.5	310.4	310.0	309.9	310.0	310.4	310.5	311.0	310.5	310.4
23.5°	305.7	305.2	305.5	304.9	305.1	304.9	305.5	305.2	305.7	305.2	305.5
24°	300.2	299.8	300.5	299.6	300.1	299.6	300.5	299.8	300.2	299.8	300.5
24.5°	294.5	294.4	295.2	294.3	295.0	294.3	295.2	294.4	294.5	294.4	295.2
25°	288.6	288.7	289.7	289.0	289.5	289.0	289.7	288.7	288.6	288.7	289.7
25.5°	282.4	283.1	284.0	283.7	283.8	283.7	284.0	283.1	282.4	283.1	284.0
26°	276.1	277.3	278.1	278.2	277.8	278.2	278.1	277.3	276.1	277.3	278.1
26.5°	269.6	271.4	272.1	272.5	271.5	272.5	272.1	271.4	269.6	271.4	272.1
27°	263.2	265.3	265.9	266.6	265.1	266.6	265.9	265.3	263.2	265.3	265.9
27.5°	257.0	259.0	259.7	260.5	258.6	260.5	259.7	259.0	257.0	259.0	259.7
28°	250.8	252.6	253.4	254.1	252.1	254.1	253.4	252.6	250.8	252.6	253.4
28.5°	244.7	246.2	247.0	247.7	245.8	247.7	247.0	246.2	244.7	246.2	247.0
29°	238.7	239.7	240.7	241.1	239.8	241.1	240.7	239.7	238.7	239.7	240.7
29.5°	232.8	233.3	234.4	234.6	234.0	234.6	234.4	233.3	232.8	233.3	234.4
30°	226.9	226.7	228.0	228.0	228.1	228.0	228.0	226.7	226.9	226.7	228.0
30.5°	220.7	220.4	221.6	221.7	222.5	221.7	221.6	220.4	220.7	220.4	221.6
31°	214.7	213.9	215.1	215.3	216.6	215.3	215.1	213.9	214.7	213.9	215.1
31.5°	208.5	207.6	208.7	209.1	210.6	209.1	208.7	207.6	208.5	207.6	208.7
32°	202.1	201.3	202.3	202.9	204.5	202.9	202.3	201.3	202.1	201.3	202.3
32.5°	196.0	195.3	196.0	196.8	198.4	196.8	196.0	195.3	196.0	195.3	196.0
33°	189.8	189.3	189.5	190.6	192.2	190.6	189.5	189.3	189.8	189.3	189.5
33.5°	184.3	183.3	183.1	184.5	185.9	184.5	183.1	183.3	184.3	183.3	183.1
34°	178.3	177.3	176.8	178.5	179.9	178.5	176.8	177.3	178.3	177.3	176.8
34.5°	172.4	171.3	170.6	172.4	174.0	172.4	170.6	171.3	172.4	171.3	170.6
35°	166.5	165.5	164.8	166.6	168.3	166.6	164.8	165.5	166.5	165.5	164.8
35.5°	160.7	159.8	159.0	160.8	162.7	160.8	159.0	159.8	160.7	159.8	159.0
36°	155.0	154.1	153.4	155.2	157.1	155.2	153.4	154.1	155.0	154.1	153.4
36.5°	149.4	148.6	147.9	149.7	151.5	149.7	147.9	148.6	149.4	148.6	147.9
37°	143.7	143.1	142.5	144.3	145.9	144.3	142.5	143.1	143.7	143.1	142.5
37.5°	138.2	137.8	137.4	139.2	140.4	139.2	137.4	137.8	138.2	137.8	137.4
38°	132.7	132.6	132.5	134.2	134.8	134.2	132.5	132.6	132.7	132.6	132.5
38.5°	127.6	127.7	127.8	129.3	129.5	129.3	127.8	127.7	127.6	127.7	127.8
39°	122.6	122.9	123.1	124.5	124.4	124.5	123.1	122.9	122.6	122.9	123.1
39.5°	117.7	118.2	118.6	119.8	119.6	119.8	118.6	118.2	117.7	118.2	118.6
40°	113.1	113.6	114.3	115.3	115.0	115.3	114.3	113.6	113.1	113.6	114.3
40.5°	108.7	109.3	110.1	110.8	110.8	110.8	110.1	109.3	108.7	109.3	110.1
41°	104.5	105.0	106.2	106.7	106.8	106.7	106.2	105.0	104.5	105.0	106.2
41.5°	100.5	101.1	102.4	102.7	103.2	102.7	102.4	101.1	100.5	101.1	102.4
42°	96.8	97.4	98.8	99.0	99.6	99.0	98.8	97.4	96.8	97.4	98.8
42.5°	93.3	93.9	95.4	95.5	96.2	95.5	95.4	93.9	93.3	93.9	95.4
43°	90.0	90.6	92.1	92.2	92.9	92.2	92.1	90.6	90.0	90.6	92.1
43.5°	86.9	87.6	89.0	89.0	89.6	89.0	89.0	87.6	86.9	87.6	89.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	79.0	79.6	80.5	80.7	81.0	80.7	80.5	79.6	79.0	79.6	80.5
45.5°	76.7	77.2	78.0	78.3	78.5	78.3	78.0	77.2	76.7	77.2	78.0
46°	74.5	74.9	75.6	76.0	76.1	76.0	75.6	74.9	74.5	74.9	75.6
46.5°	72.5	72.9	73.4	73.8	73.9	73.8	73.4	72.9	72.5	72.9	73.4
47°	70.6	70.8	71.4	71.8	72.0	71.8	71.4	70.8	70.6	70.8	71.4
47.5°	68.8	69.0	69.5	70.0	70.2	70.0	69.5	69.0	68.8	69.0	69.5
48°	67.1	67.3	67.8	68.3	68.5	68.3	67.8	67.3	67.1	67.3	67.8
48.5°	65.7	65.9	66.2	66.7	66.8	66.7	66.2	65.9	65.7	65.9	66.2
49°	64.4	64.5	64.8	65.1	65.3	65.1	64.8	64.5	64.4	64.5	64.8
49.5°	63.2	63.2	63.5	63.7	63.8	63.7	63.5	63.2	63.2	63.2	63.5
50°	61.9	61.9	62.1	62.3	62.4	62.3	62.1	61.9	61.9	61.9	62.1
50.5°	60.6	60.6	60.7	60.9	60.9	60.9	60.7	60.6	60.6	60.6	60.7
51°	59.1	59.2	59.4	59.6	59.6	59.6	59.4	59.2	59.1	59.2	59.4
51.5°	57.7	57.7	57.9	58.2	58.3	58.2	57.9	57.7	57.7	57.7	57.9
52°	56.2	56.3	56.5	56.8	56.8	56.8	56.5	56.3	56.2	56.3	56.5
52.5°	54.7	54.8	55.1	55.3	55.4	55.3	55.1	54.8	54.7	54.8	55.1
53°	53.3	53.5	53.7	53.9	54.0	53.9	53.7	53.5	53.3	53.5	53.7
53.5°	51.9	52.0	52.2	52.5	52.6	52.5	52.2	52.0	51.9	52.0	52.2
54°	50.6	50.7	50.9	51.1	51.2	51.1	50.9	50.7	50.6	50.7	50.9
54.5°	49.3	49.4	49.6	49.8	49.9	49.8	49.6	49.4	49.3	49.4	49.6
55°	48.0	48.1	48.3	48.5	48.5	48.5	48.3	48.1	48.0	48.1	48.3
55.5°	46.7	46.8	47.1	47.2	47.3	47.2	47.1	46.8	46.7	46.8	47.1
56°	45.5	45.6	45.8	46.0	46.0	46.0	45.8	45.6	45.5	45.6	45.8
56.5°	44.3	44.4	44.6	44.8	44.8	44.8	44.6	44.4	44.3	44.4	44.6
57°	43.1	43.2	43.4	43.6	43.6	43.6	43.4	43.2	43.1	43.2	43.4
57.5°	41.9	42.1	42.2	42.4	42.5	42.4	42.2	42.1	41.9	42.1	42.2
58°	40.9	40.9	41.1	41.3	41.3	41.3	41.1	40.9	40.9	40.9	41.1
58.5°	39.8	39.8	40.0	40.1	40.2	40.1	40.0	39.8	39.8	39.8	40.0
59°	38.7	38.8	38.9	39.0	39.1	39.0	38.9	38.8	38.7	38.8	38.9
59.5°	37.6	37.7	37.8	37.9	38.0	37.9	37.8	37.7	37.6	37.7	37.8
60°	36.6	36.6	36.7	36.8	36.9	36.8	36.7	36.6	36.6	36.6	36.7
60.5°	35.5	35.6	35.7	35.8	35.9	35.8	35.7	35.6	35.5	35.6	35.7
61°	34.5	34.6	34.7	34.8	34.9	34.8	34.7	34.6	34.5	34.6	34.7
61.5°	33.6	33.6	33.7	33.8	33.9	33.8	33.7	33.6	33.6	33.6	33.7
62°	32.6	32.6	32.7	32.8	32.8	32.8	32.7	32.6	32.6	32.6	32.7
62.5°	31.6	31.7	31.8	31.9	31.9	31.9	31.8	31.7	31.6	31.7	31.8
63°	30.7	30.8	30.8	30.9	30.9	30.9	30.8	30.8	30.7	30.8	30.8
63.5°	29.8	29.8	29.9	30.0	30.1	30.0	29.9	29.8	29.8	29.8	29.9
64°	28.9	29.0	29.0	29.1	29.1	29.1	29.0	29.0	28.9	29.0	29.0
64.5°	28.0	28.1	28.1	28.2	28.3	28.2	28.1	28.1	28.0	28.1	28.1
65°	27.2	27.2	27.3	27.3	27.4	27.3	27.3	27.2	27.2	27.2	27.3
65.5°	26.3	26.3	26.4	26.5	26.5	26.5	26.4	26.3	26.3	26.3	26.4
66°	25.5	25.5	25.6	25.6	25.7	25.6	25.6	25.5	25.5	25.5	25.6



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	23.1	23.1	23.2	23.2	23.2	23.2	23.2	23.1	23.1	23.1	23.2
68°	22.3	22.4	22.4	22.5	22.5	22.5	22.4	22.4	22.3	22.4	22.4
68.5°	21.5	21.6	21.6	21.6	21.7	21.6	21.6	21.6	21.5	21.6	21.6
69°	20.8	20.8	20.8	20.9	20.9	20.9	20.8	20.8	20.8	20.8	20.8
69.5°	20.1	20.1	20.1	20.2	20.2	20.2	20.1	20.1	20.1	20.1	20.1
70°	19.4	19.5	19.4	19.5	19.5	19.5	19.4	19.5	19.4	19.5	19.4
70.5°	18.7	18.7	18.7	18.7	18.8	18.7	18.7	18.7	18.7	18.7	18.7
71°	18.0	18.0	18.0	18.0	18.1	18.0	18.0	18.0	18.0	18.0	18.0
71.5°	17.3	17.3	17.4	17.4	17.4	17.4	17.4	17.3	17.3	17.3	17.4
72°	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
72.5°	16.0	16.0	16.0	16.1	16.1	16.1	16.0	16.0	16.0	16.0	16.0
73°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
73.5°	14.7	14.7	14.8	14.8	14.8	14.8	14.8	14.7	14.7	14.7	14.8
74°	14.1	14.1	14.1	14.2	14.2	14.2	14.1	14.1	14.1	14.1	14.1
74.5°	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
75°	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
75.5°	12.3	12.3	12.3	12.3	12.4	12.3	12.3	12.3	12.3	12.3	12.3
76°	11.8	11.7	11.7	11.8	11.8	11.8	11.7	11.7	11.8	11.7	11.7
76.5°	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
77°	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
77.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
78°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
78.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
79°	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
79.5°	8.0	8.0	7.9	8.0	8.0	8.0	7.9	8.0	8.0	8.0	7.9
80°	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.4
80.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
81°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
81.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
82°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
82.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
83°	4.7	4.7	4.7	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.7
83.5°	4.3	4.3	4.3	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3
84°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
84.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
85°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
85.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
86°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
86.5°	1.9	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.8	1.8
87°	1.5	1.5	1.5	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.5
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
88°	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8
88.5°	0.4	0.4	0.5	0.5	0.7	0.5	0.5	0.4	0.4	0.4	0.5



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-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	0.2	0.1	0.1	0.0	0.0	0.0	0.1



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	408.1	408.1	408.1	408.1	408.1	408.1
0.5°	407.9	407.8	407.9	408.0	408.1	408.2
1°	407.8	407.6	407.8	407.9	407.9	408.0
1.5°	407.6	407.4	407.6	407.7	407.7	407.8
2°	407.2	407.0	407.2	407.3	407.4	407.4
2.5°	406.8	406.5	406.8	406.8	407.0	407.1
3°	406.2	405.9	406.2	406.3	406.4	406.5
3.5°	405.5	405.4	405.5	405.6	405.8	405.9
4°	404.8	404.6	404.8	404.9	405.2	405.2
4.5°	404.0	403.7	404.0	404.1	404.3	404.4
5°	403.2	402.8	403.2	403.3	403.5	403.7
5.5°	402.1	401.8	402.1	402.2	402.5	402.9
6°	400.9	400.5	400.9	401.1	401.4	401.6
6.5°	399.7	399.3	399.7	399.9	400.2	400.3
7°	398.4	398.0	398.4	398.7	398.8	399.0
7.5°	397.0	396.6	397.0	397.1	397.3	397.6
8°	395.4	395.2	395.4	395.6	395.8	396.0
8.5°	393.7	393.5	393.7	393.9	394.1	394.3
9°	392.0	391.8	392.0	392.1	392.4	392.6
9.5°	390.1	389.9	390.1	390.3	390.6	390.7
10°	388.2	387.9	388.2	388.4	388.6	388.8
10.5°	386.1	385.9	386.1	386.2	386.5	386.6
11°	383.9	383.7	383.9	384.2	384.4	384.5
11.5°	381.7	381.5	381.7	381.9	382.1	382.3
12°	379.4	379.2	379.4	379.7	379.8	380.0
12.5°	377.0	376.7	377.0	377.3	377.4	377.6
13°	374.6	374.3	374.6	374.8	375.0	375.1
13.5°	372.1	371.9	372.1	372.3	372.4	372.5
14°	369.5	369.3	369.5	369.7	369.8	369.9
14.5°	366.8	366.6	366.8	367.1	367.1	367.2
15°	364.2	364.0	364.2	364.3	364.4	364.4
15.5°	361.6	361.5	361.6	361.7	361.6	361.6
16°	359.0	358.9	359.0	359.1	358.9	358.9
16.5°	356.5	356.4	356.5	356.5	356.2	356.1
17°	353.8	353.9	353.8	353.9	353.7	353.6
17.5°	351.3	351.2	351.3	351.3	351.2	351.0
18°	348.6	348.5	348.6	348.8	348.6	348.6
18.5°	345.9	345.7	345.9	346.0	346.0	346.0
19°	342.8	342.7	342.8	343.0	343.1	343.3
19.5°	339.7	339.5	339.7	339.8	340.1	340.3
20°	336.3	335.9	336.3	336.2	336.8	337.1
20.5°	332.6	332.2	332.6	332.4	333.1	333.6
21°	328.6	328.1	328.6	328.4	329.2	329.8

TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	315.0	314.7	315.0	315.0	315.6	316.2
23°	310.0	309.9	310.0	310.4	310.5	311.0
23.5°	304.9	305.1	304.9	305.5	305.2	305.7
24°	299.6	300.1	299.6	300.5	299.8	300.2
24.5°	294.3	295.0	294.3	295.2	294.4	294.5
25°	289.0	289.5	289.0	289.7	288.7	288.6
25.5°	283.7	283.8	283.7	284.0	283.1	282.4
26°	278.2	277.8	278.2	278.1	277.3	276.1
26.5°	272.5	271.5	272.5	272.1	271.4	269.6
27°	266.6	265.1	266.6	265.9	265.3	263.2
27.5°	260.5	258.6	260.5	259.7	259.0	257.0
28°	254.1	252.1	254.1	253.4	252.6	250.8
28.5°	247.7	245.8	247.7	247.0	246.2	244.7
29°	241.1	239.8	241.1	240.7	239.7	238.7
29.5°	234.6	234.0	234.6	234.4	233.3	232.8
30°	228.0	228.1	228.0	228.0	226.7	226.9
30.5°	221.7	222.5	221.7	221.6	220.4	220.7
31°	215.3	216.6	215.3	215.1	213.9	214.7
31.5°	209.1	210.6	209.1	208.7	207.6	208.5
32°	202.9	204.5	202.9	202.3	201.3	202.1
32.5°	196.8	198.4	196.8	196.0	195.3	196.0
33°	190.6	192.2	190.6	189.5	189.3	189.8
33.5°	184.5	185.9	184.5	183.1	183.3	184.3
34°	178.5	179.9	178.5	176.8	177.3	178.3
34.5°	172.4	174.0	172.4	170.6	171.3	172.4
35°	166.6	168.3	166.6	164.8	165.5	166.5
35.5°	160.8	162.7	160.8	159.0	159.8	160.7
36°	155.2	157.1	155.2	153.4	154.1	155.0
36.5°	149.7	151.5	149.7	147.9	148.6	149.4
37°	144.3	145.9	144.3	142.5	143.1	143.7
37.5°	139.2	140.4	139.2	137.4	137.8	138.2
38°	134.2	134.8	134.2	132.5	132.6	132.7
38.5°	129.3	129.5	129.3	127.8	127.7	127.6
39°	124.5	124.4	124.5	123.1	122.9	122.6
39.5°	119.8	119.6	119.8	118.6	118.2	117.7
40°	115.3	115.0	115.3	114.3	113.6	113.1
40.5°	110.8	110.8	110.8	110.1	109.3	108.7
41°	106.7	106.8	106.7	106.2	105.0	104.5
41.5°	102.7	103.2	102.7	102.4	101.1	100.5
42°	99.0	99.6	99.0	98.8	97.4	96.8
42.5°	95.5	96.2	95.5	95.4	93.9	93.3
43°	92.2	92.9	92.2	92.1	90.6	90.0
43.5°	89.0	89.6	89.0	89.0	87.6	86.9



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	80.7	81.0	80.7	80.5	79.6	79.0
45.5°	78.3	78.5	78.3	78.0	77.2	76.7
46°	76.0	76.1	76.0	75.6	74.9	74.5
46.5°	73.8	73.9	73.8	73.4	72.9	72.5
47°	71.8	72.0	71.8	71.4	70.8	70.6
47.5°	70.0	70.2	70.0	69.5	69.0	68.8
48°	68.3	68.5	68.3	67.8	67.3	67.1
48.5°	66.7	66.8	66.7	66.2	65.9	65.7
49°	65.1	65.3	65.1	64.8	64.5	64.4
49.5°	63.7	63.8	63.7	63.5	63.2	63.2
50°	62.3	62.4	62.3	62.1	61.9	61.9
50.5°	60.9	60.9	60.9	60.7	60.6	60.6
51°	59.6	59.6	59.6	59.4	59.2	59.1
51.5°	58.2	58.3	58.2	57.9	57.7	57.7
52°	56.8	56.8	56.8	56.5	56.3	56.2
52.5°	55.3	55.4	55.3	55.1	54.8	54.7
53°	53.9	54.0	53.9	53.7	53.5	53.3
53.5°	52.5	52.6	52.5	52.2	52.0	51.9
54°	51.1	51.2	51.1	50.9	50.7	50.6
54.5°	49.8	49.9	49.8	49.6	49.4	49.3
55°	48.5	48.5	48.5	48.3	48.1	48.0
55.5°	47.2	47.3	47.2	47.1	46.8	46.7
56°	46.0	46.0	46.0	45.8	45.6	45.5
56.5°	44.8	44.8	44.8	44.6	44.4	44.3
57°	43.6	43.6	43.6	43.4	43.2	43.1
57.5°	42.4	42.5	42.4	42.2	42.1	41.9
58°	41.3	41.3	41.3	41.1	40.9	40.9
58.5°	40.1	40.2	40.1	40.0	39.8	39.8
59°	39.0	39.1	39.0	38.9	38.8	38.7
59.5°	37.9	38.0	37.9	37.8	37.7	37.6
60°	36.8	36.9	36.8	36.7	36.6	36.6
60.5°	35.8	35.9	35.8	35.7	35.6	35.5
61°	34.8	34.9	34.8	34.7	34.6	34.5
61.5°	33.8	33.9	33.8	33.7	33.6	33.6
62°	32.8	32.8	32.8	32.7	32.6	32.6
62.5°	31.9	31.9	31.9	31.8	31.7	31.6
63°	30.9	30.9	30.9	30.8	30.8	30.7
63.5°	30.0	30.1	30.0	29.9	29.8	29.8
64°	29.1	29.1	29.1	29.0	29.0	28.9
64.5°	28.2	28.3	28.2	28.1	28.1	28.0
65°	27.3	27.4	27.3	27.3	27.2	27.2
65.5°	26.5	26.5	26.5	26.4	26.3	26.3
66°	25.6	25.7	25.6	25.6	25.5	25.5



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	23.2	23.2	23.2	23.2	23.1	23.1
68°	22.5	22.5	22.5	22.4	22.4	22.3
68.5°	21.6	21.7	21.6	21.6	21.6	21.5
69°	20.9	20.9	20.9	20.8	20.8	20.8
69.5°	20.2	20.2	20.2	20.1	20.1	20.1
70°	19.5	19.5	19.5	19.4	19.5	19.4
70.5°	18.7	18.8	18.7	18.7	18.7	18.7
71°	18.0	18.1	18.0	18.0	18.0	18.0
71.5°	17.4	17.4	17.4	17.4	17.3	17.3
72°	16.7	16.7	16.7	16.7	16.7	16.7
72.5°	16.1	16.1	16.1	16.0	16.0	16.0
73°	15.4	15.4	15.4	15.4	15.4	15.4
73.5°	14.8	14.8	14.8	14.8	14.7	14.7
74°	14.2	14.2	14.2	14.1	14.1	14.1
74.5°	13.5	13.5	13.5	13.5	13.5	13.5
75°	12.9	12.9	12.9	12.9	12.9	12.9
75.5°	12.3	12.4	12.3	12.3	12.3	12.3
76°	11.8	11.8	11.8	11.7	11.7	11.8
76.5°	11.1	11.1	11.1	11.1	11.1	11.1
77°	10.6	10.6	10.6	10.6	10.6	10.6
77.5°	10.1	10.1	10.1	10.1	10.1	10.1
78°	9.5	9.5	9.5	9.5	9.5	9.5
78.5°	9.0	9.0	9.0	9.0	9.0	9.0
79°	8.5	8.5	8.5	8.5	8.5	8.5
79.5°	8.0	8.0	8.0	7.9	8.0	8.0
80°	7.4	7.4	7.4	7.4	7.5	7.5
80.5°	7.0	7.0	7.0	7.0	7.0	7.0
81°	6.5	6.5	6.5	6.5	6.5	6.5
81.5°	6.0	6.0	6.0	6.0	6.0	6.0
82°	5.6	5.6	5.6	5.6	5.6	5.6
82.5°	5.1	5.1	5.1	5.1	5.1	5.1
83°	4.6	4.6	4.6	4.7	4.7	4.7
83.5°	4.2	4.2	4.2	4.3	4.3	4.3
84°	3.8	3.8	3.8	3.8	3.8	3.8
84.5°	3.4	3.4	3.4	3.4	3.4	3.4
85°	3.0	3.0	3.0	3.0	3.0	3.0
85.5°	2.6	2.6	2.6	2.6	2.6	2.6
86°	2.2	2.2	2.2	2.2	2.2	2.2
86.5°	1.8	1.9	1.8	1.8	1.8	1.9
87°	1.4	1.5	1.4	1.5	1.5	1.5
87.5°	1.1	1.1	1.1	1.1	1.1	1.1
88°	0.8	0.8	0.8	0.8	0.8	0.7
88.5°	0.5	0.7	0.5	0.5	0.4	0.4



TEST NUMBER: P776848

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMW-500lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.1	0.2	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°	325.5	325.0	324.0	324.3	323.8	324.3	324.0	325.0	325.5	325.0	324.0
22°	321.0	320.4	319.6	319.7	319.2	319.7	319.6	320.4	321.0	320.4	319.6



44°	84.1	84.7	86.0	86.1	86.6	86.1	86.0	84.7	84.1	84.7	86.0
44.5°	81.4	82.1	83.2	83.3	83.7	83.3	83.2	82.1	81.4	82.1	83.2



66.5°	24.6	24.7	24.8	24.8	24.9	24.8	24.8	24.7	24.6	24.7	24.8
67°	23.9	23.9	23.9	24.0	24.0	24.0	23.9	23.9	23.9	23.9	23.9



89°	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3
89.5°	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.0	0.1	0.2

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21.5°	324.3	323.8	324.3	324.0	325.0	325.5
22°	319.7	319.2	319.7	319.6	320.4	321.0



44°	86.1	86.6	86.1	86.0	84.7	84.1
44.5°	83.3	83.7	83.3	83.2	82.1	81.4



66.5°	24.8	24.9	24.8	24.8	24.7	24.6
67°	24.0	24.0	24.0	23.9	23.9	23.9



89°	0.4	0.4	0.4	0.3	0.2	0.2
89.5°	0.2	0.3	0.2	0.2	0.1	0.0

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(END OF REPORT)