

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: P775841

Luminaire Tested: HCDJBL510CSD-HCD82TRC-1000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775841
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B062-HCD82TRC)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD82TRC-1000lm-3000K
Description: 8 INCH ROUND NARROW SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

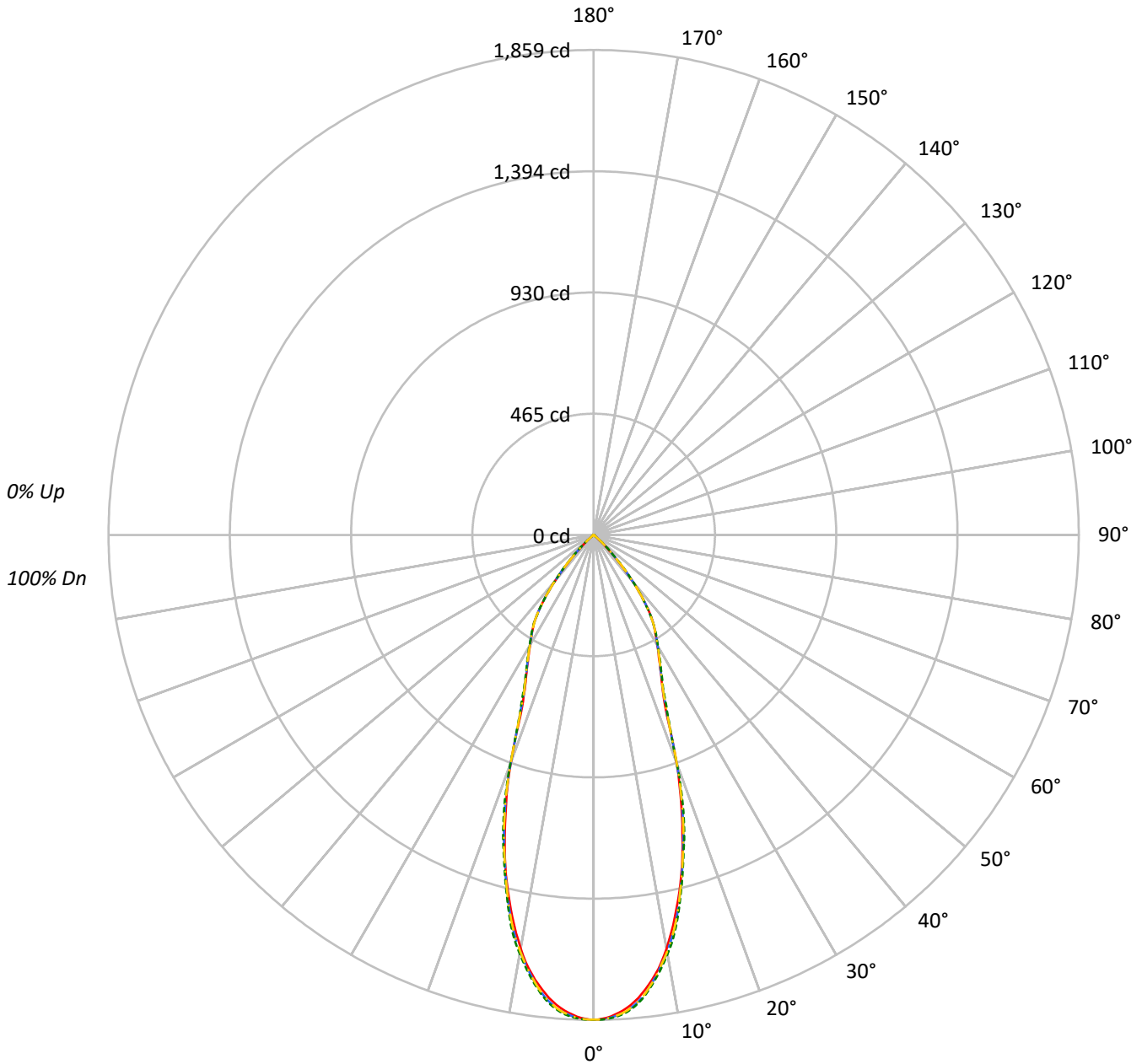
Lumens per Lamp: N/A
Luminaire Lumens: 1134.9 lumens
Efficiency: N/A
Efficacy: 113.5 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 0.66 / 0.66
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

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					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	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	100	100		
	1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94	94	94	94	94	94		
	2	108	104	100	97	106	102	99	96	99	96	94	96	94	92	93	91	90	88	88	88	88	88	88		
	3	103	97	92	89	101	96	91	88	93	90	87	91	88	85	89	86	84	82	82	82	82	82	82		
	4	98	91	86	82	97	90	85	81	88	84	80	86	82	80	84	81	79	77	77	77	77	77	77		
	5	94	86	80	76	92	85	80	76	83	79	75	81	78	74	80	77	74	72	72	72	72	72	72		
	6	89	81	75	71	88	80	75	71	79	74	70	77	73	70	76	72	69	68	68	68	68	68	68		
	7	85	76	71	67	84	76	70	67	75	70	66	73	69	66	72	68	65	64	64	64	64	64	64		
	8	81	72	67	63	80	72	66	63	71	66	62	70	65	62	69	65	62	61	61	61	61	61	61		
	9	78	69	63	59	77	68	63	59	67	62	59	66	62	59	66	62	59	57	57	57	57	57	57		
	10	75	65	60	56	74	65	60	56	64	59	56	63	59	56	63	59	56	54	54	54	54	54	54		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	56731	56731	56731	56731
5°	55036	55593	55036	55593
10°	49903	50572	49903	50572
15°	41377	41734	41377	41734
20°	30131	30258	30131	30258
25°	20758	21047	20758	21047
30°	17197	17376	17197	17376
35°	14357	14286	14357	14286
40°	9190	9314	9190	9314
45°	3717	4084	3717	4084
50°	698	774	698	774
55°	213	208	213	208
60°	134	134	134	134
65°	94	94	94	94
70°	62	71	62	71
75°	47	47	47	47
80°	35	35	35	35
85°	0	35	0	35

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 4084 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	166.5	14.7
10°-20°	359.2	31.6
20°-30°	294.6	26.0
30°-40°	231.9	20.4
40°-50°	76.3	6.7
50°-60°	4.5	0.4
60°-70°	1.3	0.1
70°-80°	0.5	0.0
80°-90°	0.1	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°	820.3	72.3
0°-40°	1052.2	92.7
0°-60°	1133.0	99.8
0°-90°	1134.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1134.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1858	1858	1858	1858	1858	
5°	1796	1814	1796	1814	1796	166
15°	1309	1320	1309	1320	1309	356
25°	616	625	616	625	616	293
35°	385	383	385	383	385	232
45°	86	95	86	95	86	73
55°	4	4	4	4	4	4
65°	1	1	1	1	1	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°	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2
0.5°	1857.4	1857.6	1858.5	1856.7	1858.7	1856.7	1858.5	1857.6	1857.4	1857.6	1858.5
1°	1855.4	1855.8	1857.3	1855.5	1857.7	1855.5	1857.3	1855.8	1855.4	1855.8	1857.3
1.5°	1852.0	1852.9	1855.0	1853.7	1855.9	1853.7	1855.0	1852.9	1852.0	1852.9	1855.0
2°	1847.4	1848.6	1851.9	1850.9	1854.1	1850.9	1851.9	1848.6	1847.4	1848.6	1851.9
2.5°	1841.4	1843.4	1847.5	1847.3	1850.7	1847.3	1847.5	1843.4	1841.4	1843.4	1847.5
3°	1834.6	1837.2	1842.2	1842.3	1846.2	1842.3	1842.2	1837.2	1834.6	1837.2	1842.2
3.5°	1826.6	1830.0	1835.6	1835.9	1840.4	1835.9	1835.6	1830.0	1826.6	1830.0	1835.6
4°	1817.8	1822.3	1827.9	1828.3	1833.2	1828.3	1827.9	1822.3	1817.8	1822.3	1827.9
4.5°	1807.5	1813.1	1818.6	1819.5	1824.4	1819.5	1818.6	1813.1	1807.5	1813.1	1818.6
5°	1795.8	1802.9	1808.0	1809.3	1814.0	1809.3	1808.0	1802.9	1795.8	1802.9	1808.0
5.5°	1782.9	1791.2	1795.3	1797.9	1802.0	1797.9	1795.3	1791.2	1782.9	1791.2	1795.3
6°	1768.7	1778.1	1781.3	1785.2	1787.8	1785.2	1781.3	1778.1	1768.7	1778.1	1781.3
6.5°	1753.2	1763.3	1765.4	1771.0	1771.9	1771.0	1765.4	1763.3	1753.2	1763.3	1765.4
7°	1736.8	1746.7	1748.2	1755.8	1754.4	1755.8	1748.2	1746.7	1736.8	1746.7	1748.2
7.5°	1719.5	1728.6	1729.2	1739.2	1736.0	1739.2	1729.2	1728.6	1719.5	1728.6	1729.2
8°	1700.9	1709.0	1709.4	1721.1	1716.2	1721.1	1709.4	1709.0	1700.9	1709.0	1709.4
8.5°	1680.6	1687.2	1688.3	1701.3	1696.0	1701.3	1688.3	1687.2	1680.6	1687.2	1688.3
9°	1659.0	1664.1	1666.4	1679.7	1674.6	1679.7	1666.4	1664.1	1659.0	1664.1	1666.4
9.5°	1635.1	1638.8	1644.2	1656.2	1653.5	1656.2	1644.2	1638.8	1635.1	1638.8	1644.2
10°	1609.7	1612.4	1620.9	1630.5	1631.3	1630.5	1620.9	1612.4	1609.7	1612.4	1620.9
10.5°	1582.7	1584.5	1596.9	1603.2	1608.5	1603.2	1596.9	1584.5	1582.7	1584.5	1596.9
11°	1555.3	1556.0	1572.0	1574.8	1583.6	1574.8	1572.0	1556.0	1555.3	1556.0	1572.0
11.5°	1526.6	1527.1	1545.2	1545.4	1556.3	1545.4	1545.2	1527.1	1526.6	1527.1	1545.2
12°	1497.7	1498.1	1515.7	1516.2	1526.9	1516.2	1515.7	1498.1	1497.7	1498.1	1515.7
12.5°	1467.3	1469.7	1483.7	1486.5	1494.1	1486.5	1483.7	1469.7	1467.3	1469.7	1483.7
13°	1437.4	1441.0	1450.8	1456.3	1461.3	1456.3	1450.8	1441.0	1437.4	1441.0	1450.8
13.5°	1406.4	1411.3	1416.4	1424.2	1426.1	1424.2	1416.4	1411.3	1406.4	1411.3	1416.4
14°	1375.1	1380.0	1382.1	1390.8	1390.7	1390.8	1382.1	1380.0	1375.1	1380.0	1382.1
14.5°	1342.7	1346.6	1348.1	1356.9	1355.6	1356.9	1348.1	1346.6	1342.7	1346.6	1348.1
15°	1309.1	1311.6	1314.0	1322.0	1320.4	1322.0	1314.0	1311.6	1309.1	1311.6	1314.0
15.5°	1273.2	1274.6	1280.0	1287.2	1287.5	1287.2	1280.0	1274.6	1273.2	1274.6	1280.0
16°	1236.6	1237.6	1245.7	1252.1	1253.6	1252.1	1245.7	1237.6	1236.6	1237.6	1245.7
16.5°	1198.2	1200.9	1210.6	1217.3	1220.9	1217.3	1210.6	1200.9	1198.2	1200.9	1210.6
17°	1160.9	1164.2	1174.9	1182.8	1187.5	1182.8	1174.9	1164.2	1160.9	1164.2	1174.9
17.5°	1123.3	1127.7	1137.4	1147.0	1151.6	1147.0	1137.4	1127.7	1123.3	1127.7	1137.4
18°	1087.0	1090.3	1099.2	1109.6	1113.6	1109.6	1099.2	1090.3	1087.0	1090.3	1099.2
18.5°	1049.3	1052.3	1059.2	1069.6	1072.6	1069.6	1059.2	1052.3	1049.3	1052.3	1059.2
19°	1010.6	1012.6	1017.9	1025.7	1028.9	1025.7	1017.9	1012.6	1010.6	1012.6	1017.9
19.5°	970.2	970.4	974.4	980.3	983.2	980.3	974.4	970.4	970.2	970.4	974.4
20°	927.4	927.4	929.6	932.8	931.3	932.8	929.6	927.4	927.4	927.4	929.6
20.5°	885.4	883.8	884.7	884.6	880.2	884.6	884.7	883.8	885.4	883.8	884.7
21°	842.1	841.1	837.3	841.1	839.6	841.1	837.3	841.1	842.1	841.1	837.3



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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°	721.0	725.8	732.4	740.2	736.8	740.2	732.4	725.8	721.0	725.8	732.4
23°	692.8	696.0	702.8	713.5	713.6	713.5	702.8	696.0	692.8	696.0	702.8
23.5°	672.0	671.4	675.7	686.0	687.4	686.0	675.7	671.4	672.0	671.4	675.7
24°	649.6	651.8	654.5	662.9	663.5	662.9	654.5	651.8	649.6	651.8	654.5
24.5°	632.5	633.6	635.9	641.2	641.2	641.2	635.9	633.6	632.5	633.6	635.9
25°	616.2	617.7	620.1	625.0	624.8	625.0	620.1	617.7	616.2	617.7	620.1
25.5°	601.1	601.8	604.4	609.0	609.3	609.0	604.4	601.8	601.1	601.8	604.4
26°	586.5	587.1	589.0	592.5	593.0	592.5	589.0	587.1	586.5	587.1	589.0
26.5°	572.8	573.0	575.1	578.3	578.6	578.3	575.1	573.0	572.8	573.0	575.1
27°	558.8	559.4	561.6	565.6	566.6	565.6	561.6	559.4	558.8	559.4	561.6
27.5°	545.6	546.4	548.6	552.4	553.9	552.4	548.6	546.4	545.6	546.4	548.6
28°	533.2	534.0	536.0	538.9	540.2	538.9	536.0	534.0	533.2	534.0	536.0
28.5°	521.6	522.0	524.0	526.2	527.3	526.2	524.0	522.0	521.6	522.0	524.0
29°	510.2	510.5	512.3	514.3	515.5	514.3	512.3	510.5	510.2	510.5	512.3
29.5°	498.9	499.5	501.0	503.1	504.2	503.1	501.0	499.5	498.9	499.5	501.0
30°	487.8	488.5	489.9	491.9	492.9	491.9	489.9	488.5	487.8	488.5	489.9
30.5°	477.1	477.6	479.1	481.0	481.7	481.0	479.1	477.6	477.1	477.6	479.1
31°	466.6	467.1	468.4	470.5	471.5	470.5	468.4	467.1	466.6	467.1	468.4
31.5°	456.5	457.0	458.4	460.3	461.0	460.3	458.4	457.0	456.5	457.0	458.4
32°	446.8	447.2	448.5	450.4	451.1	450.4	448.5	447.2	446.8	447.2	448.5
32.5°	437.5	437.9	438.9	440.6	441.2	440.6	438.9	437.9	437.5	437.9	438.9
33°	428.5	428.7	429.3	430.1	430.7	430.1	429.3	428.7	428.5	428.7	429.3
33.5°	419.3	419.3	419.1	418.6	419.6	418.6	419.1	419.3	419.3	419.3	419.1
34°	408.7	408.3	408.1	406.8	408.8	406.8	408.1	408.3	408.7	408.3	408.1
34.5°	397.4	396.5	396.4	394.7	396.2	394.7	396.4	396.5	397.4	396.5	396.4
35°	385.2	383.9	383.9	382.3	383.3	382.3	383.9	383.9	385.2	383.9	383.9
35.5°	371.8	371.3	370.7	369.2	369.9	369.2	370.7	371.3	371.8	371.3	370.7
36°	357.9	357.7	356.6	355.8	355.9	355.8	356.6	357.7	357.9	357.7	356.6
36.5°	343.2	343.6	342.0	341.5	340.9	341.5	342.0	343.6	343.2	343.6	342.0
37°	327.4	328.6	327.2	326.9	326.1	326.9	327.2	328.6	327.4	328.6	327.2
37.5°	311.7	312.6	312.2	311.7	311.4	311.7	312.2	312.6	311.7	312.6	312.2
38°	296.0	296.7	296.2	296.6	296.3	296.6	296.2	296.7	296.0	296.7	296.2
38.5°	280.3	279.8	280.0	280.2	281.0	280.2	280.0	279.8	280.3	279.8	280.0
39°	264.2	263.3	263.8	263.8	265.5	263.8	263.8	263.3	264.2	263.3	263.8
39.5°	247.4	246.9	247.6	248.2	249.4	248.2	247.6	246.9	247.4	246.9	247.6
40°	230.6	231.0	231.9	232.8	233.7	232.8	231.9	231.0	230.6	231.0	231.9
40.5°	213.8	214.8	215.8	218.0	217.9	218.0	215.8	214.8	213.8	214.8	215.8
41°	197.6	198.7	200.0	202.7	202.3	202.7	200.0	198.7	197.6	198.7	200.0
41.5°	181.3	182.7	184.4	187.6	186.9	187.6	184.4	182.7	181.3	182.7	184.4
42°	165.7	167.2	169.5	172.7	172.2	172.7	169.5	167.2	165.7	167.2	169.5
42.5°	150.7	152.1	155.1	158.4	158.1	158.4	155.1	152.1	150.7	152.1	155.1
43°	136.2	138.0	141.1	144.8	144.5	144.8	141.1	138.0	136.2	138.0	141.1
43.5°	123.3	124.2	127.4	130.9	131.2	130.9	127.4	124.2	123.3	124.2	127.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	86.1	86.5	90.0	93.3	94.6	93.3	90.0	86.5	86.1	86.5	90.0
45.5°	74.3	75.2	79.1	82.0	83.7	82.0	79.1	75.2	74.3	75.2	79.1
46°	63.9	64.6	68.8	72.1	73.9	72.1	68.8	64.6	63.9	64.6	68.8
46.5°	54.5	55.7	59.0	63.1	65.2	63.1	59.0	55.7	54.5	55.7	59.0
47°	45.9	47.4	49.9	54.5	56.5	54.5	49.9	47.4	45.9	47.4	49.9
47.5°	38.6	40.0	42.4	46.3	47.9	46.3	42.4	40.0	38.6	40.0	42.4
48°	31.9	33.7	35.3	38.9	39.2	38.9	35.3	33.7	31.9	33.7	35.3
48.5°	26.3	27.9	29.2	32.3	31.7	32.3	29.2	27.9	26.3	27.9	29.2
49°	21.8	22.8	23.7	26.5	25.7	26.5	23.7	22.8	21.8	22.8	23.7
49.5°	18.3	18.6	19.6	21.3	20.4	21.3	19.6	18.6	18.3	18.6	19.6
50°	14.7	14.6	15.7	17.3	16.3	17.3	15.7	14.6	14.7	14.6	15.7
50.5°	11.1	11.5	12.1	13.8	12.9	13.8	12.1	11.5	11.1	11.5	12.1
51°	8.6	8.8	9.9	11.0	10.2	11.0	9.9	8.8	8.6	8.8	9.9
51.5°	6.4	7.2	7.9	9.2	9.1	9.2	7.9	7.2	6.4	7.2	7.9
52°	5.6	6.0	6.6	7.2	8.0	7.2	6.6	6.0	5.6	6.0	6.6
52.5°	5.1	5.2	5.7	6.1	6.7	6.1	5.7	5.2	5.1	5.2	5.7
53°	4.8	4.9	4.9	5.3	5.6	5.3	4.9	4.9	4.8	4.9	4.9
53.5°	4.6	4.6	4.7	4.6	4.5	4.6	4.7	4.6	4.6	4.6	4.7
54°	4.4	4.4	4.4	4.4	4.3	4.4	4.4	4.4	4.4	4.4	4.4
54.5°	4.2	4.2	4.2	4.2	4.1	4.2	4.2	4.2	4.2	4.2	4.2
55°	4.0	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.0	4.0
55.5°	3.8	3.8	3.8	3.8	3.7	3.8	3.8	3.8	3.8	3.8	3.8
56°	3.6	3.6	3.6	3.6	3.5	3.6	3.6	3.6	3.6	3.6	3.6
56.5°	3.4	3.4	3.5	3.4	3.3	3.4	3.5	3.4	3.4	3.4	3.5
57°	3.2	3.2	3.3	3.2	3.2	3.2	3.3	3.2	3.2	3.2	3.3
57.5°	3.0	3.1	3.1	3.0	3.0	3.0	3.1	3.1	3.0	3.1	3.1
58°	2.9	2.9	2.9	2.9	2.8	2.9	2.9	2.9	2.9	2.9	2.9
58.5°	2.7	2.8	2.8	2.7	2.7	2.7	2.8	2.8	2.7	2.8	2.8
59°	2.6	2.6	2.6	2.6	2.4	2.6	2.6	2.6	2.6	2.6	2.6
59.5°	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.3	2.4	2.4
60°	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3
60.5°	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2
61°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
61.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
62°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
62.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
63°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
63.5°	1.5	1.5	1.6	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.6
64°	1.4	1.4	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.5
64.5°	1.3	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.3	1.4	1.4
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65.5°	1.2	1.2	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.3
66°	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2



TEST NUMBER: P775841

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
68°	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	0.9	0.9	1.0
68.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
69°	0.8	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.8	0.8	0.9
69.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
70°	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8
70.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
71°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
71.5°	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.7
72°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
73°	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
77°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
77.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
78°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
78.5°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3
79°	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2
79.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
82°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
82.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
83°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
83.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
84°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
84.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
85°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
85.5°	0.0	0.0	0.0	0.1	0.1	0.1	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: P775841
CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

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: P775841

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1858.2	1858.2	1858.2	1858.2	1858.2	1858.2
0.5°	1856.7	1858.7	1856.7	1858.5	1857.6	1857.4
1°	1855.5	1857.7	1855.5	1857.3	1855.8	1855.4
1.5°	1853.7	1855.9	1853.7	1855.0	1852.9	1852.0
2°	1850.9	1854.1	1850.9	1851.9	1848.6	1847.4
2.5°	1847.3	1850.7	1847.3	1847.5	1843.4	1841.4
3°	1842.3	1846.2	1842.3	1842.2	1837.2	1834.6
3.5°	1835.9	1840.4	1835.9	1835.6	1830.0	1826.6
4°	1828.3	1833.2	1828.3	1827.9	1822.3	1817.8
4.5°	1819.5	1824.4	1819.5	1818.6	1813.1	1807.5
5°	1809.3	1814.0	1809.3	1808.0	1802.9	1795.8
5.5°	1797.9	1802.0	1797.9	1795.3	1791.2	1782.9
6°	1785.2	1787.8	1785.2	1781.3	1778.1	1768.7
6.5°	1771.0	1771.9	1771.0	1765.4	1763.3	1753.2
7°	1755.8	1754.4	1755.8	1748.2	1746.7	1736.8
7.5°	1739.2	1736.0	1739.2	1729.2	1728.6	1719.5
8°	1721.1	1716.2	1721.1	1709.4	1709.0	1700.9
8.5°	1701.3	1696.0	1701.3	1688.3	1687.2	1680.6
9°	1679.7	1674.6	1679.7	1666.4	1664.1	1659.0
9.5°	1656.2	1653.5	1656.2	1644.2	1638.8	1635.1
10°	1630.5	1631.3	1630.5	1620.9	1612.4	1609.7
10.5°	1603.2	1608.5	1603.2	1596.9	1584.5	1582.7
11°	1574.8	1583.6	1574.8	1572.0	1556.0	1555.3
11.5°	1545.4	1556.3	1545.4	1545.2	1527.1	1526.6
12°	1516.2	1526.9	1516.2	1515.7	1498.1	1497.7
12.5°	1486.5	1494.1	1486.5	1483.7	1469.7	1467.3
13°	1456.3	1461.3	1456.3	1450.8	1441.0	1437.4
13.5°	1424.2	1426.1	1424.2	1416.4	1411.3	1406.4
14°	1390.8	1390.7	1390.8	1382.1	1380.0	1375.1
14.5°	1356.9	1355.6	1356.9	1348.1	1346.6	1342.7
15°	1322.0	1320.4	1322.0	1314.0	1311.6	1309.1
15.5°	1287.2	1287.5	1287.2	1280.0	1274.6	1273.2
16°	1252.1	1253.6	1252.1	1245.7	1237.6	1236.6
16.5°	1217.3	1220.9	1217.3	1210.6	1200.9	1198.2
17°	1182.8	1187.5	1182.8	1174.9	1164.2	1160.9
17.5°	1147.0	1151.6	1147.0	1137.4	1127.7	1123.3
18°	1109.6	1113.6	1109.6	1099.2	1090.3	1087.0
18.5°	1069.6	1072.6	1069.6	1059.2	1052.3	1049.3
19°	1025.7	1028.9	1025.7	1017.9	1012.6	1010.6
19.5°	980.3	983.2	980.3	974.4	970.4	970.2
20°	932.8	931.3	932.8	929.6	927.4	927.4
20.5°	884.6	880.2	884.6	884.7	883.8	885.4
21°	841.1	839.6	841.1	837.3	841.1	842.1



TEST NUMBER: P775841

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	740.2	736.8	740.2	732.4	725.8	721.0
23°	713.5	713.6	713.5	702.8	696.0	692.8
23.5°	686.0	687.4	686.0	675.7	671.4	672.0
24°	662.9	663.5	662.9	654.5	651.8	649.6
24.5°	641.2	641.2	641.2	635.9	633.6	632.5
25°	625.0	624.8	625.0	620.1	617.7	616.2
25.5°	609.0	609.3	609.0	604.4	601.8	601.1
26°	592.5	593.0	592.5	589.0	587.1	586.5
26.5°	578.3	578.6	578.3	575.1	573.0	572.8
27°	565.6	566.6	565.6	561.6	559.4	558.8
27.5°	552.4	553.9	552.4	548.6	546.4	545.6
28°	538.9	540.2	538.9	536.0	534.0	533.2
28.5°	526.2	527.3	526.2	524.0	522.0	521.6
29°	514.3	515.5	514.3	512.3	510.5	510.2
29.5°	503.1	504.2	503.1	501.0	499.5	498.9
30°	491.9	492.9	491.9	489.9	488.5	487.8
30.5°	481.0	481.7	481.0	479.1	477.6	477.1
31°	470.5	471.5	470.5	468.4	467.1	466.6
31.5°	460.3	461.0	460.3	458.4	457.0	456.5
32°	450.4	451.1	450.4	448.5	447.2	446.8
32.5°	440.6	441.2	440.6	438.9	437.9	437.5
33°	430.1	430.7	430.1	429.3	428.7	428.5
33.5°	418.6	419.6	418.6	419.1	419.3	419.3
34°	406.8	408.8	406.8	408.1	408.3	408.7
34.5°	394.7	396.2	394.7	396.4	396.5	397.4
35°	382.3	383.3	382.3	383.9	383.9	385.2
35.5°	369.2	369.9	369.2	370.7	371.3	371.8
36°	355.8	355.9	355.8	356.6	357.7	357.9
36.5°	341.5	340.9	341.5	342.0	343.6	343.2
37°	326.9	326.1	326.9	327.2	328.6	327.4
37.5°	311.7	311.4	311.7	312.2	312.6	311.7
38°	296.6	296.3	296.6	296.2	296.7	296.0
38.5°	280.2	281.0	280.2	280.0	279.8	280.3
39°	263.8	265.5	263.8	263.8	263.3	264.2
39.5°	248.2	249.4	248.2	247.6	246.9	247.4
40°	232.8	233.7	232.8	231.9	231.0	230.6
40.5°	218.0	217.9	218.0	215.8	214.8	213.8
41°	202.7	202.3	202.7	200.0	198.7	197.6
41.5°	187.6	186.9	187.6	184.4	182.7	181.3
42°	172.7	172.2	172.7	169.5	167.2	165.7
42.5°	158.4	158.1	158.4	155.1	152.1	150.7
43°	144.8	144.5	144.8	141.1	138.0	136.2
43.5°	130.9	131.2	130.9	127.4	124.2	123.3



TEST NUMBER: P775841

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	93.3	94.6	93.3	90.0	86.5	86.1
45.5°	82.0	83.7	82.0	79.1	75.2	74.3
46°	72.1	73.9	72.1	68.8	64.6	63.9
46.5°	63.1	65.2	63.1	59.0	55.7	54.5
47°	54.5	56.5	54.5	49.9	47.4	45.9
47.5°	46.3	47.9	46.3	42.4	40.0	38.6
48°	38.9	39.2	38.9	35.3	33.7	31.9
48.5°	32.3	31.7	32.3	29.2	27.9	26.3
49°	26.5	25.7	26.5	23.7	22.8	21.8
49.5°	21.3	20.4	21.3	19.6	18.6	18.3
50°	17.3	16.3	17.3	15.7	14.6	14.7
50.5°	13.8	12.9	13.8	12.1	11.5	11.1
51°	11.0	10.2	11.0	9.9	8.8	8.6
51.5°	9.2	9.1	9.2	7.9	7.2	6.4
52°	7.2	8.0	7.2	6.6	6.0	5.6
52.5°	6.1	6.7	6.1	5.7	5.2	5.1
53°	5.3	5.6	5.3	4.9	4.9	4.8
53.5°	4.6	4.5	4.6	4.7	4.6	4.6
54°	4.4	4.3	4.4	4.4	4.4	4.4
54.5°	4.2	4.1	4.2	4.2	4.2	4.2
55°	4.0	3.9	4.0	4.0	4.0	4.0
55.5°	3.8	3.7	3.8	3.8	3.8	3.8
56°	3.6	3.5	3.6	3.6	3.6	3.6
56.5°	3.4	3.3	3.4	3.5	3.4	3.4
57°	3.2	3.2	3.2	3.3	3.2	3.2
57.5°	3.0	3.0	3.0	3.1	3.1	3.0
58°	2.9	2.8	2.9	2.9	2.9	2.9
58.5°	2.7	2.7	2.7	2.8	2.8	2.7
59°	2.6	2.4	2.6	2.6	2.6	2.6
59.5°	2.4	2.3	2.4	2.4	2.4	2.3
60°	2.2	2.2	2.2	2.3	2.2	2.2
60.5°	2.1	2.1	2.1	2.2	2.1	2.1
61°	2.0	2.0	2.0	2.0	2.0	2.0
61.5°	1.9	1.9	1.9	1.9	1.9	1.9
62°	1.8	1.8	1.8	1.8	1.8	1.8
62.5°	1.7	1.7	1.7	1.7	1.7	1.7
63°	1.6	1.6	1.6	1.6	1.6	1.6
63.5°	1.5	1.5	1.5	1.6	1.5	1.5
64°	1.5	1.4	1.5	1.5	1.4	1.4
64.5°	1.4	1.3	1.4	1.4	1.4	1.3
65°	1.3	1.3	1.3	1.3	1.3	1.3
65.5°	1.2	1.2	1.2	1.3	1.2	1.2
66°	1.2	1.2	1.2	1.2	1.2	1.1



TEST NUMBER: P775841

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.0	1.0	1.0	1.0	1.0	1.0
68°	1.0	0.9	1.0	1.0	0.9	0.9
68.5°	0.9	0.9	0.9	0.9	0.9	0.9
69°	0.9	0.8	0.9	0.9	0.8	0.8
69.5°	0.8	0.8	0.8	0.8	0.8	0.8
70°	0.8	0.8	0.8	0.8	0.7	0.7
70.5°	0.7	0.7	0.7	0.7	0.7	0.7
71°	0.7	0.7	0.7	0.7	0.7	0.7
71.5°	0.7	0.6	0.7	0.7	0.6	0.6
72°	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6
73°	0.6	0.5	0.6	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.3	0.3	0.3
77°	0.3	0.3	0.3	0.3	0.3	0.3
77.5°	0.3	0.3	0.3	0.3	0.3	0.3
78°	0.3	0.3	0.3	0.3	0.3	0.3
78.5°	0.3	0.3	0.3	0.3	0.2	0.2
79°	0.3	0.2	0.3	0.2	0.2	0.2
79.5°	0.2	0.2	0.2	0.2	0.2	0.2
80°	0.2	0.2	0.2	0.2	0.2	0.2
80.5°	0.2	0.2	0.2	0.2	0.2	0.2
81°	0.2	0.2	0.2	0.2	0.2	0.2
81.5°	0.2	0.2	0.2	0.2	0.1	0.1
82°	0.1	0.1	0.1	0.1	0.1	0.1
82.5°	0.1	0.1	0.1	0.1	0.1	0.1
83°	0.1	0.1	0.1	0.1	0.1	0.1
83.5°	0.1	0.1	0.1	0.1	0.1	0.1
84°	0.1	0.1	0.1	0.1	0.1	0.1
84.5°	0.1	0.1	0.1	0.1	0.1	0.1
85°	0.1	0.1	0.1	0.1	0.0	0.0
85.5°	0.1	0.1	0.1	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: P775841
CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3000K

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°	798.0	797.5	798.9	803.4	802.8	803.4	798.9	797.5	798.0	797.5	798.9
22°	753.2	760.3	763.7	769.6	768.9	769.6	763.7	760.3	753.2	760.3	763.7



44°	110.5	111.3	114.2	117.8	118.2	117.8	114.2	111.3	110.5	111.3	114.2
44.5°	98.2	98.7	101.4	105.1	106.1	105.1	101.4	98.7	98.2	98.7	101.4



66.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67°	1.0	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	1.1



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°	803.4	802.8	803.4	798.9	797.5	798.0
22°	769.6	768.9	769.6	763.7	760.3	753.2



44°	117.8	118.2	117.8	114.2	111.3	110.5
44.5°	105.1	106.1	105.1	101.4	98.7	98.2

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66.5°	1.1	1.1	1.1	1.1	1.1	1.1
67°	1.1	1.0	1.1	1.1	1.0	1.0

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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)