

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: P775842

Luminaire Tested: HCDJBL510CSD-HCD82TRC-1000lm-3500K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775842  
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-3500K  
Description: 8 INCH ROUND NARROW SPECULAR CLEAR TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

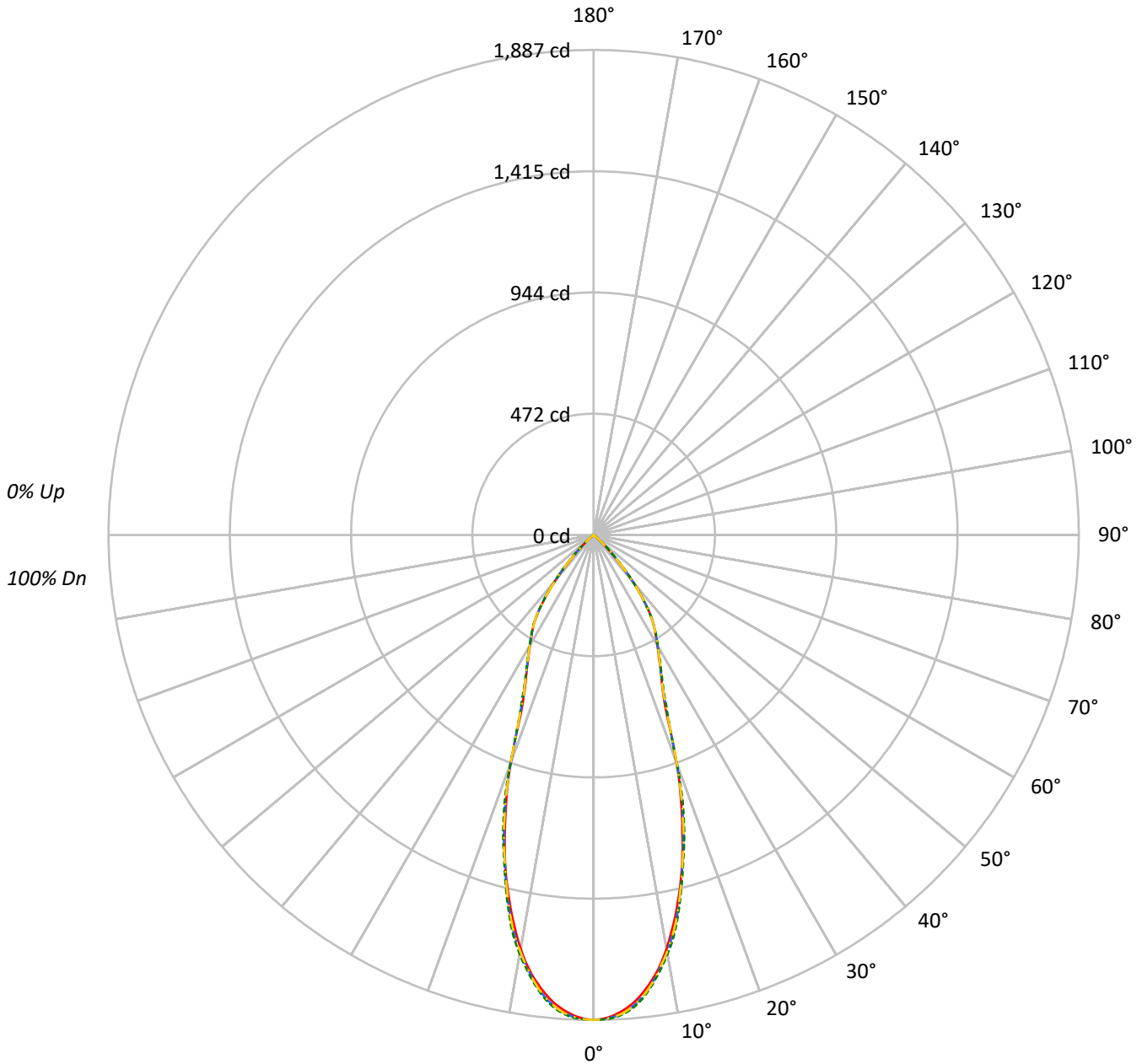
Lumens per Lamp: N/A  
Luminaire Lumens: 1152.2 lumens  
Efficiency: N/A  
Efficacy: 115.2 lumens/watt  
Spacing Criteria (0/90/45): 0.65 / 0.66 / 0.66  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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°	57595	57595	57595	57595
5°	55875	56439	55875	56439
10°	50662	51344	50662	51344
15°	42009	42373	42009	42373
20°	30589	30719	30589	30719
25°	21074	21367	21074	21367
30°	17461	17644	17461	17644
35°	14573	14506	14573	14506
40°	9330	9457	9330	9457
45°	3778	4149	3778	4149
50°	708	788	708	788
55°	213	208	213	208
60°	140	140	140	140
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: 4149 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	169.1	14.7
10°-20°	364.7	31.6
20°-30°	299.1	26.0
30°-40°	235.4	20.4
40°-50°	77.4	6.7
50°-60°	4.5	0.4
60°-70°	1.4	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°	832.8	72.3
0°-40°	1068.3	92.7
0°-60°	1150.3	99.8
0°-90°	1152.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1152.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1886	1886	1886	1886	1886	
5°	1823	1842	1823	1842	1823	168
15°	1329	1341	1329	1341	1329	362
25°	626	634	626	634	626	297
35°	391	389	391	389	391	235
45°	88	96	88	96	88	75
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°	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5
0.5°	1885.7	1885.9	1886.8	1885.0	1887.0	1885.0	1886.8	1885.9	1885.7	1885.9	1886.8
1°	1883.7	1884.1	1885.6	1883.8	1886.0	1883.8	1885.6	1884.1	1883.7	1884.1	1885.6
1.5°	1880.2	1881.1	1883.3	1882.0	1884.2	1882.0	1883.3	1881.1	1880.2	1881.1	1883.3
2°	1875.5	1876.8	1880.1	1879.2	1882.4	1879.2	1880.1	1876.8	1875.5	1876.8	1880.1
2.5°	1869.5	1871.5	1875.6	1875.4	1878.9	1875.4	1875.6	1871.5	1869.5	1871.5	1875.6
3°	1862.6	1865.2	1870.2	1870.3	1874.4	1870.3	1870.2	1865.2	1862.6	1865.2	1870.2
3.5°	1854.5	1857.9	1863.6	1863.9	1868.5	1863.9	1863.6	1857.9	1854.5	1857.9	1863.6
4°	1845.5	1850.0	1855.7	1856.2	1861.1	1856.2	1855.7	1850.0	1845.5	1850.0	1855.7
4.5°	1835.0	1840.7	1846.3	1847.2	1852.2	1847.2	1846.3	1840.7	1835.0	1840.7	1846.3
5°	1823.2	1830.4	1835.5	1836.9	1841.6	1836.9	1835.5	1830.4	1823.2	1830.4	1835.5
5.5°	1810.0	1818.5	1822.7	1825.3	1829.4	1825.3	1822.7	1818.5	1810.0	1818.5	1822.7
6°	1795.6	1805.2	1808.5	1812.4	1815.0	1812.4	1808.5	1805.2	1795.6	1805.2	1808.5
6.5°	1779.9	1790.1	1792.3	1798.0	1799.0	1798.0	1792.3	1790.1	1779.9	1790.1	1792.3
7°	1763.3	1773.4	1774.8	1782.6	1781.1	1782.6	1774.8	1773.4	1763.3	1773.4	1774.8
7.5°	1745.7	1754.9	1755.5	1765.7	1762.5	1765.7	1755.5	1754.9	1745.7	1754.9	1755.5
8°	1726.8	1735.0	1735.4	1747.4	1742.4	1747.4	1735.4	1735.0	1726.8	1735.0	1735.4
8.5°	1706.2	1713.0	1714.0	1727.3	1721.9	1727.3	1714.0	1713.0	1706.2	1713.0	1714.0
9°	1684.3	1689.4	1691.8	1705.3	1700.1	1705.3	1691.8	1689.4	1684.3	1689.4	1691.8
9.5°	1660.0	1663.7	1669.2	1681.5	1678.7	1681.5	1669.2	1663.7	1660.0	1663.7	1669.2
10°	1634.2	1637.0	1645.6	1655.3	1656.2	1655.3	1645.6	1637.0	1634.2	1637.0	1645.6
10.5°	1606.9	1608.6	1621.3	1627.7	1633.1	1627.7	1621.3	1608.6	1606.9	1608.6	1621.3
11°	1579.0	1579.7	1596.0	1598.8	1607.8	1598.8	1596.0	1579.7	1579.0	1579.7	1596.0
11.5°	1549.9	1550.4	1568.7	1568.9	1580.0	1568.9	1568.7	1550.4	1549.9	1550.4	1568.7
12°	1520.5	1521.0	1538.8	1539.3	1550.2	1539.3	1538.8	1521.0	1520.5	1521.0	1538.8
12.5°	1489.7	1492.2	1506.3	1509.1	1516.9	1509.1	1506.3	1492.2	1489.7	1492.2	1506.3
13°	1459.3	1462.9	1472.9	1478.5	1483.6	1478.5	1472.9	1462.9	1459.3	1462.9	1472.9
13.5°	1427.8	1432.8	1438.0	1445.9	1447.8	1445.9	1438.0	1432.8	1427.8	1432.8	1438.0
14°	1396.1	1401.1	1403.1	1412.0	1411.9	1412.0	1403.1	1401.1	1396.1	1401.1	1403.1
14.5°	1363.2	1367.1	1368.6	1377.6	1376.3	1377.6	1368.6	1367.1	1363.2	1367.1	1368.6
15°	1329.1	1331.6	1334.0	1342.1	1340.6	1342.1	1334.0	1331.6	1329.1	1331.6	1334.0
15.5°	1292.6	1294.0	1299.5	1306.8	1307.1	1306.8	1299.5	1294.0	1292.6	1294.0	1299.5
16°	1255.5	1256.4	1264.7	1271.1	1272.7	1271.1	1264.7	1256.4	1255.5	1256.4	1264.7
16.5°	1216.4	1219.2	1229.1	1235.8	1239.5	1235.8	1229.1	1219.2	1216.4	1219.2	1229.1
17°	1178.6	1181.9	1192.8	1200.8	1205.6	1200.8	1192.8	1181.9	1178.6	1181.9	1192.8
17.5°	1140.4	1144.9	1154.8	1164.5	1169.2	1164.5	1154.8	1144.9	1140.4	1144.9	1154.8
18°	1103.6	1106.9	1115.9	1126.5	1130.5	1126.5	1115.9	1106.9	1103.6	1106.9	1115.9
18.5°	1065.3	1068.4	1075.3	1085.9	1089.0	1085.9	1075.3	1068.4	1065.3	1068.4	1075.3
19°	1026.0	1028.1	1033.5	1041.3	1044.5	1041.3	1033.5	1028.1	1026.0	1028.1	1033.5
19.5°	985.0	985.2	989.2	995.2	998.2	995.2	989.2	985.2	985.0	985.2	989.2
20°	941.5	941.5	943.7	947.0	945.5	947.0	943.7	941.5	941.5	941.5	943.7
20.5°	898.9	897.3	898.2	898.1	893.6	898.1	898.2	897.3	898.9	897.3	898.2
21°	854.9	853.9	850.1	853.9	852.4	853.9	850.1	853.9	854.9	853.9	850.1



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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°	732.0	736.9	743.5	751.5	748.0	751.5	743.5	736.9	732.0	736.9	743.5
23°	703.3	706.7	713.5	724.4	724.5	724.4	713.5	706.7	703.3	706.7	713.5
23.5°	682.2	681.7	686.0	696.5	697.8	696.5	686.0	681.7	682.2	681.7	686.0
24°	659.5	661.8	664.5	673.0	673.6	673.0	664.5	661.8	659.5	661.8	664.5
24.5°	642.1	643.2	645.6	651.0	651.0	651.0	645.6	643.2	642.1	643.2	645.6
25°	625.6	627.1	629.6	634.5	634.3	634.5	629.6	627.1	625.6	627.1	629.6
25.5°	610.3	611.0	613.6	618.3	618.6	618.3	613.6	611.0	610.3	611.0	613.6
26°	595.5	596.1	598.0	601.5	602.0	601.5	598.0	596.1	595.5	596.1	598.0
26.5°	581.5	581.7	583.9	587.1	587.4	587.1	583.9	581.7	581.5	581.7	583.9
27°	567.3	567.9	570.2	574.2	575.3	574.2	570.2	567.9	567.3	567.9	570.2
27.5°	553.9	554.8	556.9	560.9	562.3	560.9	556.9	554.8	553.9	554.8	556.9
28°	541.3	542.1	544.2	547.1	548.4	547.1	544.2	542.1	541.3	542.1	544.2
28.5°	529.6	530.0	532.0	534.2	535.4	534.2	532.0	530.0	529.6	530.0	532.0
29°	518.0	518.3	520.1	522.1	523.4	522.1	520.1	518.3	518.0	518.3	520.1
29.5°	506.5	507.1	508.6	510.8	511.9	510.8	508.6	507.1	506.5	507.1	508.6
30°	495.3	495.9	497.4	499.4	500.5	499.4	497.4	495.9	495.3	495.9	497.4
30.5°	484.4	484.9	486.4	488.3	489.1	488.3	486.4	484.9	484.4	484.9	486.4
31°	473.7	474.2	475.6	477.7	478.7	477.7	475.6	474.2	473.7	474.2	475.6
31.5°	463.5	464.0	465.4	467.3	468.0	467.3	465.4	464.0	463.5	464.0	465.4
32°	453.6	454.0	455.4	457.3	458.0	457.3	455.4	454.0	453.6	454.0	455.4
32.5°	444.2	444.6	445.5	447.3	447.9	447.3	445.5	444.6	444.2	444.6	445.5
33°	435.1	435.3	435.8	436.6	437.3	436.6	435.8	435.3	435.1	435.3	435.8
33.5°	425.6	425.6	425.4	425.0	426.0	425.0	425.4	425.6	425.6	425.6	425.4
34°	415.0	414.6	414.4	413.0	415.1	413.0	414.4	414.6	415.0	414.6	414.4
34.5°	403.5	402.5	402.4	400.7	402.2	400.7	402.4	402.5	403.5	402.5	402.4
35°	391.0	389.8	389.8	388.1	389.2	388.1	389.8	389.8	391.0	389.8	389.8
35.5°	377.5	376.9	376.3	374.9	375.5	374.9	376.3	376.9	377.5	376.9	376.3
36°	363.4	363.2	362.0	361.2	361.3	361.2	362.0	363.2	363.4	363.2	362.0
36.5°	348.5	348.9	347.2	346.7	346.1	346.7	347.2	348.9	348.5	348.9	347.2
37°	332.4	333.6	332.2	331.9	331.0	331.9	332.2	333.6	332.4	333.6	332.2
37.5°	316.4	317.4	317.0	316.4	316.1	316.4	317.0	317.4	316.4	317.4	317.0
38°	300.5	301.2	300.7	301.1	300.8	301.1	300.7	301.2	300.5	301.2	300.7
38.5°	284.5	284.1	284.3	284.4	285.3	284.4	284.3	284.1	284.5	284.1	284.3
39°	268.3	267.3	267.8	267.8	269.5	267.8	267.8	267.3	268.3	267.3	267.8
39.5°	251.2	250.6	251.4	252.0	253.2	252.0	251.4	250.6	251.2	250.6	251.4
40°	234.1	234.5	235.4	236.3	237.3	236.3	235.4	234.5	234.1	234.5	235.4
40.5°	217.1	218.1	219.0	221.3	221.2	221.3	219.0	218.1	217.1	218.1	219.0
41°	200.6	201.7	203.1	205.8	205.4	205.8	203.1	201.7	200.6	201.7	203.1
41.5°	184.0	185.5	187.2	190.4	189.7	190.4	187.2	185.5	184.0	185.5	187.2
42°	168.3	169.7	172.1	175.3	174.8	175.3	172.1	169.7	168.3	169.7	172.1
42.5°	153.0	154.4	157.5	160.8	160.5	160.8	157.5	154.4	153.0	154.4	157.5
43°	138.3	140.1	143.3	147.0	146.7	147.0	143.3	140.1	138.3	140.1	143.3
43.5°	125.2	126.1	129.3	132.9	133.2	132.9	129.3	126.1	125.2	126.1	129.3



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CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	87.5	87.9	91.4	94.7	96.1	94.7	91.4	87.9	87.5	87.9	91.4
45.5°	75.4	76.4	80.3	83.2	85.0	83.2	80.3	76.4	75.4	76.4	80.3
46°	64.9	65.6	69.8	73.2	75.0	73.2	69.8	65.6	64.9	65.6	69.8
46.5°	55.3	56.6	59.9	64.0	66.2	64.0	59.9	56.6	55.3	56.6	59.9
47°	46.6	48.1	50.7	55.3	57.4	55.3	50.7	48.1	46.6	48.1	50.7
47.5°	39.2	40.6	43.0	47.0	48.6	47.0	43.0	40.6	39.2	40.6	43.0
48°	32.4	34.2	35.9	39.5	39.8	39.5	35.9	34.2	32.4	34.2	35.9
48.5°	26.7	28.3	29.6	32.7	32.2	32.7	29.6	28.3	26.7	28.3	29.6
49°	22.2	23.1	24.0	26.9	26.1	26.9	24.0	23.1	22.2	23.1	24.0
49.5°	18.5	18.9	19.9	21.7	20.7	21.7	19.9	18.9	18.5	18.9	19.9
50°	14.9	14.8	16.0	17.6	16.6	17.6	16.0	14.8	14.9	14.8	16.0
50.5°	11.3	11.7	12.3	14.0	13.1	14.0	12.3	11.7	11.3	11.7	12.3
51°	8.7	8.9	10.1	11.2	10.4	11.2	10.1	8.9	8.7	8.9	10.1
51.5°	6.5	7.4	8.0	9.3	9.2	9.3	8.0	7.4	6.5	7.4	8.0
52°	5.7	6.1	6.7	7.4	8.1	7.4	6.7	6.1	5.7	6.1	6.7
52.5°	5.2	5.3	5.8	6.2	6.8	6.2	5.8	5.3	5.2	5.3	5.8
53°	4.9	5.0	5.0	5.4	5.7	5.4	5.0	5.0	4.9	5.0	5.0
53.5°	4.7	4.7	4.8	4.7	4.6	4.7	4.8	4.7	4.7	4.7	4.8
54°	4.5	4.5	4.5	4.5	4.4	4.5	4.5	4.5	4.5	4.5	4.5
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	2.5	2.6	2.6	2.6	2.6	2.6	2.6
59.5°	2.4	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.5	2.5
60°	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4
60.5°	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3
61°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
61.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
62°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
62.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
63°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
63.5°	1.6	1.6	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.7
64°	1.5	1.5	1.6	1.6	1.5	1.6	1.6	1.5	1.5	1.5	1.6
64.5°	1.3	1.5	1.5	1.5	1.3	1.5	1.5	1.5	1.3	1.5	1.5
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: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**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: P775842  
CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**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: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1886.5	1886.5	1886.5	1886.5	1886.5	1886.5
0.5°	1885.0	1887.0	1885.0	1886.8	1885.9	1885.7
1°	1883.8	1886.0	1883.8	1885.6	1884.1	1883.7
1.5°	1882.0	1884.2	1882.0	1883.3	1881.1	1880.2
2°	1879.2	1882.4	1879.2	1880.1	1876.8	1875.5
2.5°	1875.4	1878.9	1875.4	1875.6	1871.5	1869.5
3°	1870.3	1874.4	1870.3	1870.2	1865.2	1862.6
3.5°	1863.9	1868.5	1863.9	1863.6	1857.9	1854.5
4°	1856.2	1861.1	1856.2	1855.7	1850.0	1845.5
4.5°	1847.2	1852.2	1847.2	1846.3	1840.7	1835.0
5°	1836.9	1841.6	1836.9	1835.5	1830.4	1823.2
5.5°	1825.3	1829.4	1825.3	1822.7	1818.5	1810.0
6°	1812.4	1815.0	1812.4	1808.5	1805.2	1795.6
6.5°	1798.0	1799.0	1798.0	1792.3	1790.1	1779.9
7°	1782.6	1781.1	1782.6	1774.8	1773.4	1763.3
7.5°	1765.7	1762.5	1765.7	1755.5	1754.9	1745.7
8°	1747.4	1742.4	1747.4	1735.4	1735.0	1726.8
8.5°	1727.3	1721.9	1727.3	1714.0	1713.0	1706.2
9°	1705.3	1700.1	1705.3	1691.8	1689.4	1684.3
9.5°	1681.5	1678.7	1681.5	1669.2	1663.7	1660.0
10°	1655.3	1656.2	1655.3	1645.6	1637.0	1634.2
10.5°	1627.7	1633.1	1627.7	1621.3	1608.6	1606.9
11°	1598.8	1607.8	1598.8	1596.0	1579.7	1579.0
11.5°	1568.9	1580.0	1568.9	1568.7	1550.4	1549.9
12°	1539.3	1550.2	1539.3	1538.8	1521.0	1520.5
12.5°	1509.1	1516.9	1509.1	1506.3	1492.2	1489.7
13°	1478.5	1483.6	1478.5	1472.9	1462.9	1459.3
13.5°	1445.9	1447.8	1445.9	1438.0	1432.8	1427.8
14°	1412.0	1411.9	1412.0	1403.1	1401.1	1396.1
14.5°	1377.6	1376.3	1377.6	1368.6	1367.1	1363.2
15°	1342.1	1340.6	1342.1	1334.0	1331.6	1329.1
15.5°	1306.8	1307.1	1306.8	1299.5	1294.0	1292.6
16°	1271.1	1272.7	1271.1	1264.7	1256.4	1255.5
16.5°	1235.8	1239.5	1235.8	1229.1	1219.2	1216.4
17°	1200.8	1205.6	1200.8	1192.8	1181.9	1178.6
17.5°	1164.5	1169.2	1164.5	1154.8	1144.9	1140.4
18°	1126.5	1130.5	1126.5	1115.9	1106.9	1103.6
18.5°	1085.9	1089.0	1085.9	1075.3	1068.4	1065.3
19°	1041.3	1044.5	1041.3	1033.5	1028.1	1026.0
19.5°	995.2	998.2	995.2	989.2	985.2	985.0
20°	947.0	945.5	947.0	943.7	941.5	941.5
20.5°	898.1	893.6	898.1	898.2	897.3	898.9
21°	853.9	852.4	853.9	850.1	853.9	854.9



TEST NUMBER: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	751.5	748.0	751.5	743.5	736.9	732.0
23°	724.4	724.5	724.4	713.5	706.7	703.3
23.5°	696.5	697.8	696.5	686.0	681.7	682.2
24°	673.0	673.6	673.0	664.5	661.8	659.5
24.5°	651.0	651.0	651.0	645.6	643.2	642.1
25°	634.5	634.3	634.5	629.6	627.1	625.6
25.5°	618.3	618.6	618.3	613.6	611.0	610.3
26°	601.5	602.0	601.5	598.0	596.1	595.5
26.5°	587.1	587.4	587.1	583.9	581.7	581.5
27°	574.2	575.3	574.2	570.2	567.9	567.3
27.5°	560.9	562.3	560.9	556.9	554.8	553.9
28°	547.1	548.4	547.1	544.2	542.1	541.3
28.5°	534.2	535.4	534.2	532.0	530.0	529.6
29°	522.1	523.4	522.1	520.1	518.3	518.0
29.5°	510.8	511.9	510.8	508.6	507.1	506.5
30°	499.4	500.5	499.4	497.4	495.9	495.3
30.5°	488.3	489.1	488.3	486.4	484.9	484.4
31°	477.7	478.7	477.7	475.6	474.2	473.7
31.5°	467.3	468.0	467.3	465.4	464.0	463.5
32°	457.3	458.0	457.3	455.4	454.0	453.6
32.5°	447.3	447.9	447.3	445.5	444.6	444.2
33°	436.6	437.3	436.6	435.8	435.3	435.1
33.5°	425.0	426.0	425.0	425.4	425.6	425.6
34°	413.0	415.1	413.0	414.4	414.6	415.0
34.5°	400.7	402.2	400.7	402.4	402.5	403.5
35°	388.1	389.2	388.1	389.8	389.8	391.0
35.5°	374.9	375.5	374.9	376.3	376.9	377.5
36°	361.2	361.3	361.2	362.0	363.2	363.4
36.5°	346.7	346.1	346.7	347.2	348.9	348.5
37°	331.9	331.0	331.9	332.2	333.6	332.4
37.5°	316.4	316.1	316.4	317.0	317.4	316.4
38°	301.1	300.8	301.1	300.7	301.2	300.5
38.5°	284.4	285.3	284.4	284.3	284.1	284.5
39°	267.8	269.5	267.8	267.8	267.3	268.3
39.5°	252.0	253.2	252.0	251.4	250.6	251.2
40°	236.3	237.3	236.3	235.4	234.5	234.1
40.5°	221.3	221.2	221.3	219.0	218.1	217.1
41°	205.8	205.4	205.8	203.1	201.7	200.6
41.5°	190.4	189.7	190.4	187.2	185.5	184.0
42°	175.3	174.8	175.3	172.1	169.7	168.3
42.5°	160.8	160.5	160.8	157.5	154.4	153.0
43°	147.0	146.7	147.0	143.3	140.1	138.3
43.5°	132.9	133.2	132.9	129.3	126.1	125.2



TEST NUMBER: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	94.7	96.1	94.7	91.4	87.9	87.5
45.5°	83.2	85.0	83.2	80.3	76.4	75.4
46°	73.2	75.0	73.2	69.8	65.6	64.9
46.5°	64.0	66.2	64.0	59.9	56.6	55.3
47°	55.3	57.4	55.3	50.7	48.1	46.6
47.5°	47.0	48.6	47.0	43.0	40.6	39.2
48°	39.5	39.8	39.5	35.9	34.2	32.4
48.5°	32.7	32.2	32.7	29.6	28.3	26.7
49°	26.9	26.1	26.9	24.0	23.1	22.2
49.5°	21.7	20.7	21.7	19.9	18.9	18.5
50°	17.6	16.6	17.6	16.0	14.8	14.9
50.5°	14.0	13.1	14.0	12.3	11.7	11.3
51°	11.2	10.4	11.2	10.1	8.9	8.7
51.5°	9.3	9.2	9.3	8.0	7.4	6.5
52°	7.4	8.1	7.4	6.7	6.1	5.7
52.5°	6.2	6.8	6.2	5.8	5.3	5.2
53°	5.4	5.7	5.4	5.0	5.0	4.9
53.5°	4.7	4.6	4.7	4.8	4.7	4.7
54°	4.5	4.4	4.5	4.5	4.5	4.5
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	2.5	2.6	2.6	2.6	2.6
59.5°	2.5	2.4	2.5	2.5	2.5	2.4
60°	2.3	2.3	2.3	2.4	2.3	2.3
60.5°	2.2	2.2	2.2	2.3	2.2	2.2
61°	2.1	2.1	2.1	2.1	2.1	2.1
61.5°	2.0	2.0	2.0	2.0	2.0	2.0
62°	1.9	1.9	1.9	1.9	1.9	1.9
62.5°	1.8	1.8	1.8	1.8	1.8	1.8
63°	1.7	1.7	1.7	1.7	1.7	1.7
63.5°	1.6	1.6	1.6	1.7	1.6	1.6
64°	1.6	1.5	1.6	1.6	1.5	1.5
64.5°	1.5	1.3	1.5	1.5	1.5	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: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**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: P775842

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-3500K

**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°	810.2	809.6	811.1	815.7	815.0	815.7	811.1	809.6	810.2	809.6	811.1
22°	764.7	771.9	775.3	781.4	780.6	781.4	775.3	771.9	764.7	771.9	775.3



44°	112.2	113.0	115.9	119.6	120.0	119.6	115.9	113.0	112.2	113.0	115.9
44.5°	99.7	100.2	103.0	106.7	107.8	106.7	103.0	100.2	99.7	100.2	103.0



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°	815.7	815.0	815.7	811.1	809.6	810.2
22°	781.4	780.6	781.4	775.3	771.9	764.7



44°	119.6	120.0	119.6	115.9	113.0	112.2
44.5°	106.7	107.8	106.7	103.0	100.2	99.7

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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)