

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: HALO COMMERCIAL

Report Number: P345462

Luminaire Tested: **PR4FS24D010 PR4M24WW8FSMMS 4000Lm4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345462
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-8)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PR4FS24D010 PR4M24WW8FSMMS 4000Lm4000K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3242.4 lumens
Efficiency: N/A
Efficacy: 72.1 lumens/watt
Spacing Criteria (0/90/45): 0.94 / 1.12 / 1.1
Luminous Opening: Circular (Dia: 0.38' x H: 0')
CIE Type: Direct

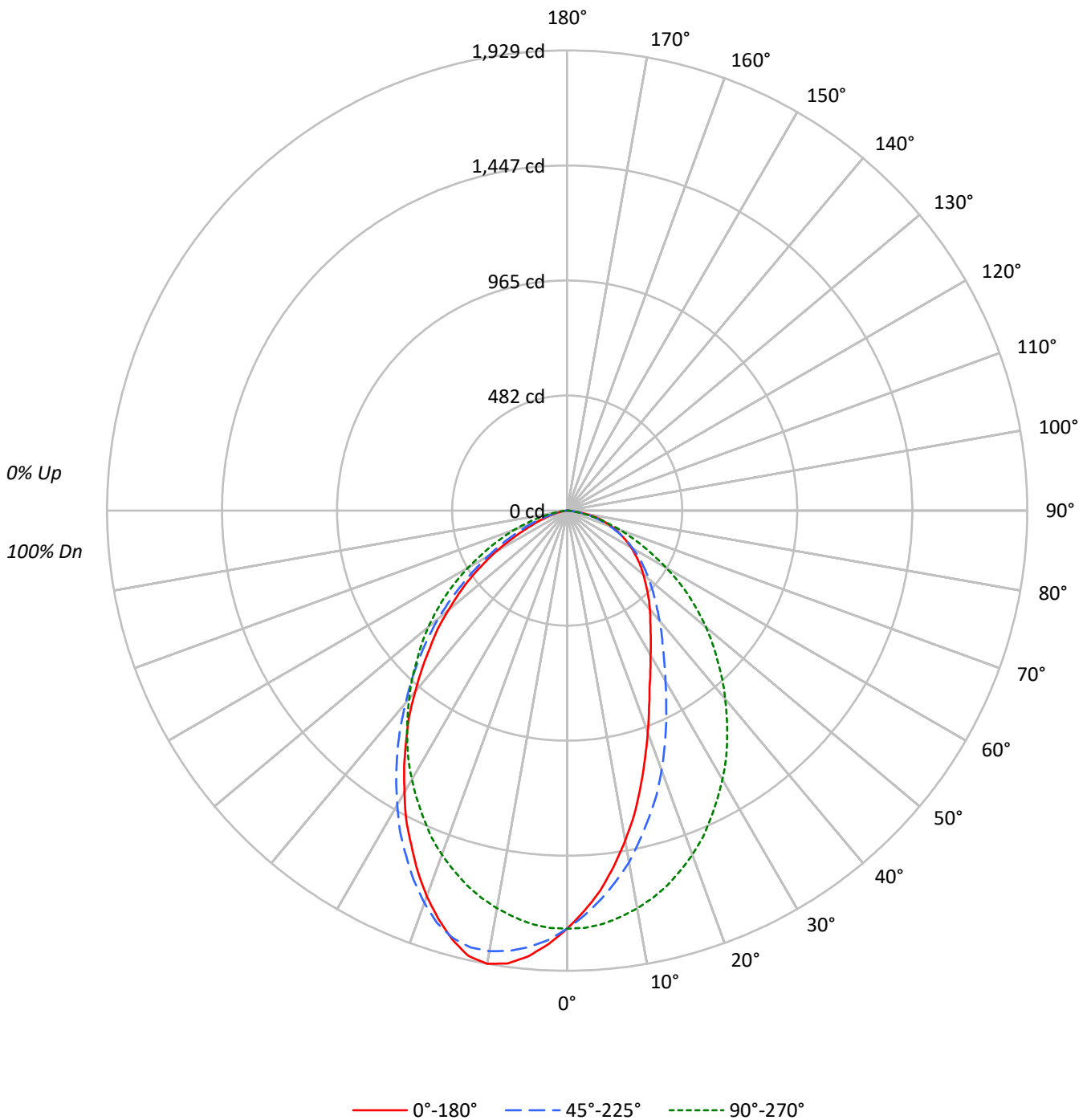
Input Watts (W): 45
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	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			
1	111	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77					75				
3	94	85	77	72	92	83	76	71	80	75	70	78	73	69	75	71	68					66				
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59					57				
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53					51				
6	75	63	54	49	73	62	54	48	60	53	48	58	52	48	57	51	47					45				
7	70	57	49	44	68	57	49	43	55	48	43	54	47	43	52	47	43					41				
8	65	53	45	39	64	52	45	39	51	44	39	50	43	39	48	43	39					37				
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	39	35					34				
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	37	32					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	170815	170815	170815
5°	156294	170107	183471
10°	138853	167492	190867
15°	120308	163986	187818
20°	102530	159209	178417
25°	87887	153116	166311
30°	78684	146430	153464
35°	72443	139105	139938
40°	68637	131077	126077
45°	65412	122859	112012
50°	63194	115139	98643
55°	61763	105822	84192
60°	60482	93423	67246
65°	58735	80089	48058
70°	57389	66621	34308
75°	54939	51437	24400
80°	39006	29914	14312
85°	10399	15543	2572



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.0	5.1
10°-20°	443.9	13.7
20°-30°	598.1	18.4
30°-40°	628.1	19.4
40°-50°	566.0	17.5
50°-60°	437.2	13.5
60°-70°	269.1	8.3
70°-80°	118.6	3.7
80°-90°	17.4	0.5
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°	1206.1	37.2
0°-40°	1834.2	56.6
0°-60°	2837.4	87.5
0°-90°	3242.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3242.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1753	1753	1753	1753	1753	
5°	1598	1635	1739	1836	1875	146
15°	1192	1329	1625	1855	1862	332
25°	817	982	1424	1598	1547	379
35°	609	699	1169	1241	1176	383
45°	475	519	891	878	813	367
55°	364	382	623	535	496	325
65°	255	255	347	257	208	253
75°	146	130	137	81	65	149
85°	9	12	14	7	2	22
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7
2.5°	1678.6	1676.3	1674.0	1678.6	1678.6	1680.9	1680.9	1685.5	1685.5	1690.2	1697.1
5°	1597.6	1592.9	1595.2	1595.2	1602.2	1602.2	1606.8	1611.5	1618.4	1627.7	1634.6
7.5°	1502.6	1502.6	1505.0	1509.6	1516.5	1516.5	1523.5	1530.4	1542.0	1553.6	1567.5
10°	1403.1	1407.7	1410.0	1414.7	1426.2	1430.9	1433.2	1444.8	1461.0	1472.5	1495.7
12.5°	1303.5	1303.5	1308.2	1317.4	1326.7	1333.6	1338.2	1354.5	1370.7	1391.5	1412.3
15°	1192.4	1194.7	1201.6	1210.9	1227.1	1231.7	1241.0	1259.5	1282.7	1308.2	1329.0
17.5°	1085.9	1090.5	1095.1	1109.0	1120.6	1127.6	1141.4	1162.3	1187.8	1215.5	1248.0
20°	988.6	981.7	991.0	1000.2	1011.8	1028.0	1037.3	1060.4	1088.2	1125.2	1157.7
22.5°	896.0	896.0	903.0	909.9	921.5	933.1	944.6	963.2	993.3	1030.3	1067.4
25°	817.3	819.6	826.6	833.5	845.1	852.0	863.6	882.1	912.2	940.0	981.7
27.5°	754.8	757.1	759.4	768.7	777.9	784.9	791.8	810.4	833.5	863.6	898.3
30°	699.2	699.2	701.5	710.8	715.4	724.7	729.3	745.5	766.4	791.8	824.3
32.5°	652.9	652.9	655.2	659.9	669.1	673.8	676.1	692.3	708.5	734.0	759.4
35°	608.9	608.9	611.2	615.9	622.8	625.1	632.1	641.3	657.5	676.1	699.2
37.5°	571.9	571.9	574.2	576.5	581.1	585.8	590.4	599.7	608.9	627.4	650.6
40°	539.5	537.2	539.5	541.8	548.7	548.7	551.0	560.3	569.6	583.5	602.0
42.5°	507.1	507.1	507.1	509.4	514.0	516.3	518.6	523.3	532.5	544.1	558.0
45°	474.6	474.6	477.0	479.3	481.6	483.9	488.5	493.2	497.8	504.7	518.6
47.5°	444.5	446.9	446.9	449.2	451.5	453.8	456.1	460.7	465.4	472.3	481.6
50°	416.8	419.1	419.1	421.4	423.7	423.7	426.0	430.6	435.3	439.9	446.9
52.5°	391.3	391.3	389.0	391.3	393.6	393.6	395.9	398.2	402.9	409.8	414.4
55°	363.5	363.5	363.5	365.8	365.8	365.8	368.1	370.4	372.8	375.1	382.0
57.5°	335.7	335.7	338.0	335.7	338.0	338.0	338.0	340.4	342.7	347.3	349.6
60°	310.3	310.3	310.3	310.3	310.3	310.3	312.6	312.6	312.6	314.9	317.2
62.5°	282.5	282.5	282.5	282.5	282.5	282.5	282.5	282.5	284.8	284.8	287.1
65°	254.7	254.7	257.0	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7
67.5°	229.2	226.9	229.2	226.9	226.9	226.9	226.9	224.6	224.6	224.6	222.3
70°	201.4	199.1	199.1	199.1	199.1	196.8	199.1	196.8	194.5	192.2	189.9
72.5°	171.3	171.3	171.3	171.3	171.3	169.0	166.7	166.7	164.4	162.1	159.8
75°	145.9	145.9	143.5	141.2	138.9	138.9	138.9	136.6	134.3	132.0	129.7
77.5°	113.5	111.1	111.1	108.8	106.5	104.2	106.5	104.2	101.9	99.6	97.2
80°	69.5	69.5	69.5	69.5	69.5	69.5	67.1	69.5	67.1	64.8	64.8
82.5°	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4
85°	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	11.6	11.6
87.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	6.9	6.9	6.9
90°	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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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7
2.5°	1701.8	1706.4	1713.3	1718.0	1720.3	1722.6	1729.5	1736.5	1743.4	1750.4	1755.0
5°	1646.2	1657.8	1664.7	1676.3	1683.2	1690.2	1701.8	1713.3	1724.9	1738.8	1750.4
7.5°	1579.0	1597.6	1611.5	1627.7	1636.9	1646.2	1662.4	1680.9	1699.4	1718.0	1736.5
10°	1514.2	1530.4	1555.9	1579.0	1586.0	1599.9	1625.3	1646.2	1671.7	1692.5	1718.0
12.5°	1440.1	1461.0	1488.7	1516.5	1532.7	1546.6	1576.7	1604.5	1634.6	1662.4	1692.5
15°	1359.1	1391.5	1421.6	1454.0	1474.9	1488.7	1523.5	1558.2	1590.6	1625.3	1660.1
17.5°	1278.1	1315.1	1352.1	1391.5	1407.7	1428.5	1467.9	1505.0	1544.3	1581.4	1620.7
20°	1197.0	1236.4	1275.7	1319.7	1342.9	1363.7	1405.4	1449.4	1493.4	1535.1	1576.7
22.5°	1111.3	1153.0	1199.3	1248.0	1273.4	1291.9	1340.6	1389.2	1435.5	1484.1	1528.1
25°	1025.7	1074.3	1122.9	1173.9	1199.3	1227.1	1275.7	1326.7	1375.3	1423.9	1474.9
27.5°	942.3	993.3	1044.2	1102.1	1127.6	1155.3	1208.6	1259.5	1312.8	1363.7	1414.7
30°	865.9	914.5	970.1	1028.0	1055.8	1083.6	1139.1	1194.7	1248.0	1301.2	1349.8
32.5°	796.5	838.1	896.0	953.9	984.0	1011.8	1069.7	1127.6	1183.1	1238.7	1287.3
35°	731.6	771.0	819.6	882.1	909.9	940.0	1000.2	1055.8	1113.7	1169.2	1220.2
37.5°	673.8	710.8	754.8	808.0	842.8	870.6	930.8	988.6	1044.2	1099.8	1150.7
40°	622.8	655.2	692.3	740.9	773.3	803.4	863.6	921.5	977.1	1030.3	1081.3
42.5°	576.5	602.0	636.7	680.7	706.2	736.3	798.8	854.3	909.9	963.2	1009.5
45°	532.5	553.4	583.5	622.8	643.7	676.1	734.0	789.5	842.8	891.4	942.3
47.5°	493.2	511.7	534.8	567.3	588.1	613.6	671.4	727.0	777.9	826.6	870.6
50°	458.4	472.3	493.2	520.9	537.2	555.7	613.6	666.8	713.1	759.4	801.1
52.5°	423.7	433.0	449.2	472.3	488.5	504.7	553.4	604.3	650.6	690.0	734.0
55°	386.7	398.2	412.1	428.3	439.9	453.8	493.2	541.8	581.1	622.8	657.5
57.5°	354.2	361.2	370.4	384.3	393.6	405.2	435.3	477.0	516.3	551.0	585.8
60°	321.8	326.5	333.4	342.7	349.6	358.9	379.7	416.8	451.5	479.3	509.4
62.5°	289.4	289.4	294.0	301.0	305.6	312.6	331.1	358.9	389.0	409.8	435.3
65°	254.7	257.0	259.3	263.9	266.3	270.9	282.5	303.3	326.5	347.3	365.8
67.5°	222.3	222.3	224.6	226.9	226.9	229.2	236.2	250.1	273.2	287.1	301.0
70°	189.9	189.9	189.9	189.9	192.2	189.9	194.5	203.7	220.0	233.8	240.8
72.5°	159.8	157.4	155.1	155.1	155.1	155.1	157.4	164.4	173.6	180.6	189.9
75°	127.3	125.0	122.7	120.4	122.7	122.7	122.7	125.0	129.7	136.6	138.9
77.5°	94.9	94.9	90.3	88.0	90.3	88.0	85.7	85.7	88.0	90.3	90.3
80°	64.8	62.5	60.2	57.9	57.9	57.9	55.6	53.3	53.3	53.3	50.9
82.5°	32.4	32.4	30.1	30.1	30.1	30.1	30.1	27.8	27.8	25.5	25.5
85°	11.6	11.6	11.6	11.6	13.9	11.6	13.9	13.9	13.9	13.9	13.9
87.5°	6.9	6.9	9.3	9.3	9.3	9.3	9.3	11.6	11.6	11.6	9.3
90°	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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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7
2.5°	1762.0	1768.9	1773.5	1778.2	1780.5	1785.1	1792.1	1796.7	1801.3	1805.9	1810.6
5°	1762.0	1775.8	1785.1	1792.1	1799.0	1808.3	1819.8	1829.1	1836.0	1845.3	1852.2
7.5°	1755.0	1773.5	1789.7	1799.0	1808.3	1822.1	1836.0	1849.9	1861.5	1873.1	1882.3
10°	1741.1	1764.3	1787.4	1796.7	1808.3	1826.8	1845.3	1861.5	1875.4	1889.3	1900.9
12.5°	1720.3	1748.1	1775.8	1787.4	1799.0	1822.1	1843.0	1861.5	1875.4	1887.0	1893.9
15°	1692.5	1724.9	1755.0	1768.9	1782.8	1805.9	1826.8	1843.0	1854.6	1861.5	1866.1
17.5°	1657.8	1692.5	1724.9	1741.1	1757.3	1780.5	1796.7	1805.9	1812.9	1812.9	1810.6
20°	1618.4	1655.4	1690.2	1706.4	1720.3	1738.8	1750.4	1752.7	1750.4	1745.7	1741.1
22.5°	1569.8	1611.5	1646.2	1660.1	1671.7	1685.5	1685.5	1683.2	1678.6	1671.7	1669.3
25°	1518.8	1558.2	1592.9	1606.8	1611.5	1620.7	1613.8	1609.1	1597.6	1590.6	1583.7
27.5°	1463.3	1505.0	1530.4	1539.7	1544.3	1539.7	1532.7	1523.5	1516.5	1505.0	1495.7
30°	1403.1	1440.1	1461.0	1467.9	1465.6	1458.6	1451.7	1435.5	1423.9	1412.3	1400.8
32.5°	1333.6	1370.7	1386.9	1389.2	1382.2	1370.7	1359.1	1347.5	1333.6	1319.7	1312.8
35°	1266.5	1298.9	1308.2	1303.5	1296.6	1282.7	1266.5	1252.6	1241.0	1224.8	1213.2
37.5°	1194.7	1222.5	1222.5	1215.5	1210.9	1194.7	1178.5	1164.6	1148.4	1134.5	1118.3
40°	1122.9	1143.8	1136.8	1129.9	1122.9	1104.4	1090.5	1069.7	1053.5	1037.3	1025.7
42.5°	1051.2	1062.7	1053.5	1044.2	1034.9	1016.4	1002.5	979.4	965.5	949.3	940.0
45°	979.4	981.7	967.8	960.9	951.6	928.4	909.9	893.7	877.5	859.0	847.4
47.5°	905.3	900.7	884.4	875.2	865.9	845.1	826.6	808.0	789.5	775.6	761.7
50°	831.2	819.6	803.4	794.2	782.6	764.1	743.2	722.4	706.2	692.3	680.7
52.5°	750.2	740.9	722.4	708.5	699.2	673.8	655.2	636.7	618.2	604.3	595.0
55°	669.1	655.2	634.4	625.1	611.2	590.4	571.9	548.7	534.8	523.3	511.7
57.5°	588.1	571.9	553.4	541.8	527.9	507.1	486.2	472.3	458.4	444.5	437.6
60°	509.4	493.2	470.0	465.4	451.5	430.6	412.1	395.9	382.0	372.8	365.8
62.5°	435.3	419.1	395.9	386.7	377.4	356.6	340.4	326.5	317.2	307.9	301.0
65°	361.2	347.3	328.8	317.2	307.9	291.7	277.8	263.9	257.0	245.4	238.5
67.5°	294.0	277.8	263.9	254.7	247.7	231.5	220.0	210.7	201.4	194.5	185.2
70°	231.5	217.6	203.7	199.1	192.2	180.6	171.3	162.1	155.1	148.2	138.9
72.5°	178.3	169.0	155.1	150.5	145.9	136.6	129.7	122.7	113.5	108.8	104.2
75°	132.0	122.7	113.5	108.8	106.5	97.2	92.6	85.7	81.0	78.7	74.1
77.5°	85.7	78.7	74.1	71.8	69.5	64.8	60.2	57.9	53.3	50.9	50.9
80°	48.6	46.3	44.0	41.7	39.4	37.0	37.0	34.7	32.4	30.1	27.8
82.5°	23.2	23.2	20.8	20.8	20.8	18.5	18.5	16.2	16.2	13.9	13.9
85°	11.6	11.6	11.6	11.6	11.6	9.3	9.3	9.3	6.9	6.9	4.6
87.5°	9.3	9.3	9.3	9.3	9.3	6.9	6.9	6.9	4.6	4.6	2.3
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: P345462

CATALOG NUMBER: PR4FS24D010 PR4M24WW8FSMMS 4000Lm4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7	1752.7
2.5°	1810.6	1812.9	1815.2	1817.5	1817.5	1819.8	1822.1	1819.8
5°	1856.9	1863.8	1866.1	1868.5	1870.8	1873.1	1875.4	1875.4
7.5°	1891.6	1900.9	1903.2	1903.2	1910.1	1912.4	1914.8	1914.8
10°	1910.1	1914.8	1919.4	1919.4	1924.0	1924.0	1928.7	1928.7
12.5°	1900.9	1905.5	1907.8	1910.1	1910.1	1912.4	1912.4	1912.4
15°	1868.5	1866.1	1866.1	1863.8	1863.8	1861.5	1861.5	1861.5
17.5°	1808.3	1805.9	1803.6	1803.6	1799.0	1799.0	1794.4	1794.4
20°	1736.5	1731.9	1729.5	1727.2	1727.2	1724.9	1720.3	1720.3
22.5°	1660.1	1655.4	1650.8	1646.2	1641.6	1639.2	1636.9	1636.9
25°	1574.4	1567.5	1565.1	1562.8	1555.9	1553.6	1548.9	1546.6
27.5°	1486.4	1474.9	1472.5	1470.2	1465.6	1463.3	1461.0	1461.0
30°	1393.8	1386.9	1382.2	1379.9	1373.0	1370.7	1363.7	1363.7
32.5°	1301.2	1289.6	1285.0	1282.7	1278.1	1273.4	1271.1	1271.1
35°	1204.0	1197.0	1194.7	1187.8	1180.8	1180.8	1176.2	1176.2
37.5°	1111.3	1104.4	1097.5	1095.1	1090.5	1083.6	1081.3	1088.2
40°	1018.7	1009.5	1004.8	1002.5	997.9	991.0	991.0	991.0
42.5°	928.4	921.5	919.2	914.5	909.9	907.6	903.0	900.7
45°	835.8	831.2	828.9	824.3	821.9	817.3	812.7	812.7
47.5°	754.8	745.5	745.5	740.9	736.3	734.0	734.0	736.3
50°	673.8	666.8	662.2	659.9	655.2	655.2	652.9	650.6
52.5°	585.8	581.1	578.8	578.8	574.2	574.2	571.9	571.9
55°	504.7	504.7	502.4	500.1	495.5	495.5	495.5	495.5
57.5°	433.0	428.3	426.0	423.7	421.4	419.1	419.1	416.8
60°	358.9	356.6	351.9	354.2	347.3	347.3	347.3	345.0
62.5°	291.7	287.1	284.8	282.5	277.8	277.8	273.2	270.9
65°	233.8	226.9	222.3	222.3	217.6	213.0	210.7	208.4
67.5°	176.0	171.3	169.0	166.7	162.1	157.4	157.4	155.1
70°	134.3	129.7	127.3	125.0	122.7	120.4	120.4	120.4
72.5°	99.6	97.2	94.9	94.9	92.6	90.3	90.3	92.6
75°	71.8	69.5	69.5	69.5	67.1	67.1	67.1	64.8
77.5°	48.6	46.3	46.3	44.0	44.0	44.0	44.0	44.0
80°	27.8	25.5	25.5	25.5	25.5	25.5	25.5	25.5
82.5°	11.6	11.6	11.6	11.6	9.3	9.3	9.3	9.3
85°	4.6	4.6	4.6	4.6	4.6	2.3	2.3	2.3
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	0.0	2.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)