

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: P345419

Luminaire Tested: **PR4FS24D010 PR4M24WW8FSMW 3000Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345419
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-7)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PR4FS24D010 PR4M24WW8FSMW 3000Lm3500K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2365.6 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 1.12 / 1.11
Luminous Opening: Circular (Dia: 0.4' x H: 0')
CIE Type: Direct

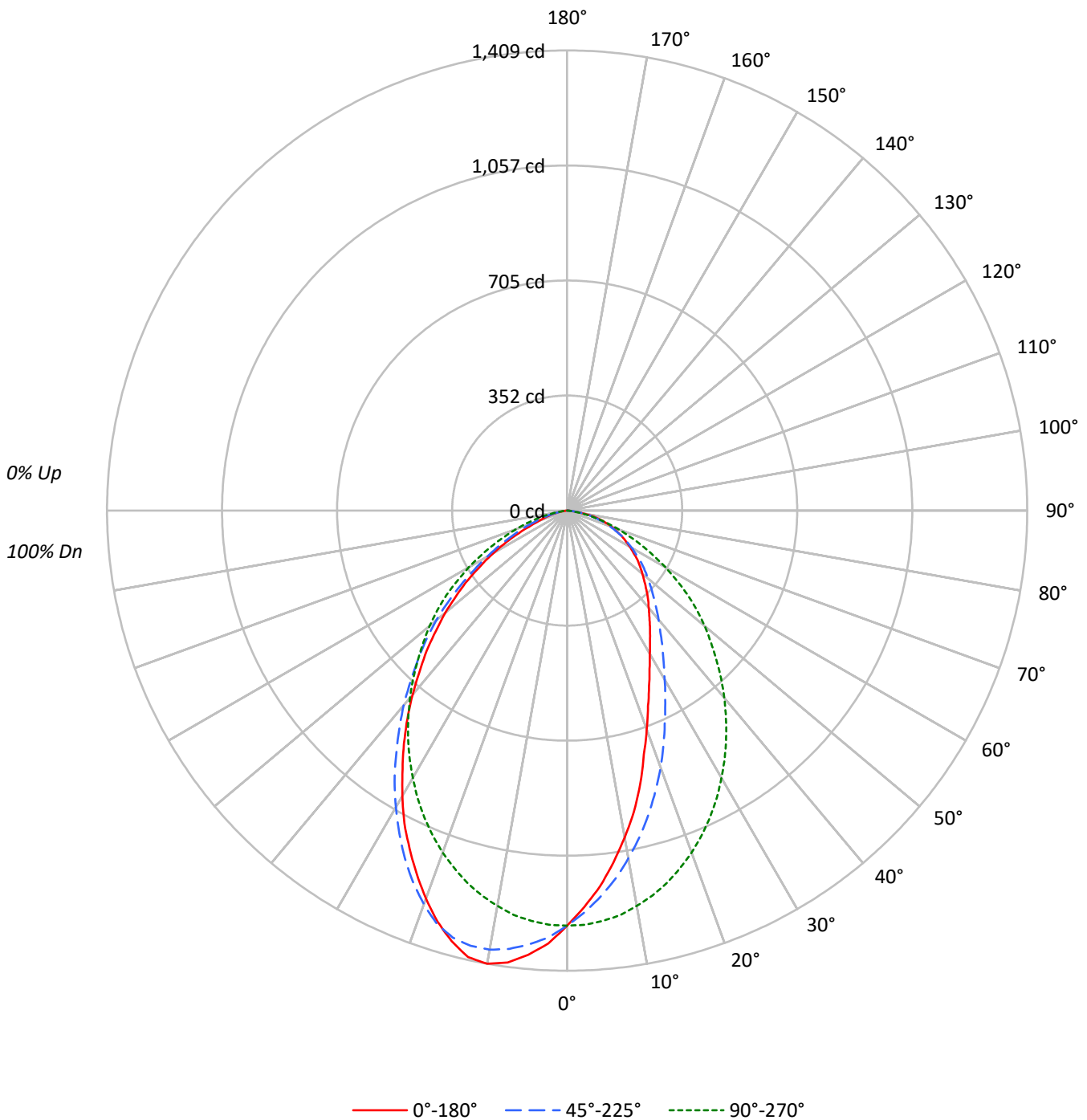
Input Watts (W): 26.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	35	45	39	35					34				
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	36	32					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	111174	111174	111174
5°	101413	110712	119869
10°	90195	109158	125137
15°	78403	106873	123626
20°	66350	103760	117685
25°	57280	99948	110178
30°	51117	95436	101880
35°	47218	90657	92995
40°	44349	85420	84085
45°	42429	79861	75284
50°	40946	74816	66352
55°	40000	68716	56668
60°	38819	60879	45886
65°	37938	51846	33757
70°	36981	42556	23222
75°	35215	32376	17608
80°	24581	18638	10175
85°	10136	6724	3412



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.1	5.0
10°-20°	322.8	13.6
20°-30°	436.2	18.4
30°-40°	459.1	19.4
40°-50°	413.6	17.5
50°-60°	319.3	13.5
60°-70°	196.6	8.3
70°-80°	86.4	3.7
80°-90°	12.4	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°	878.1	37.1
0°-40°	1337.2	56.5
0°-60°	2070.2	87.5
0°-90°	2365.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2365.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1271	1271	1271	1271	1271	
5°	1155	1185	1261	1333	1365	106
15°	866	963	1180	1353	1365	240
25°	594	708	1036	1175	1142	275
35°	442	508	849	913	871	277
45°	343	375	646	646	609	265
55°	262	276	451	398	372	234
65°	183	183	250	190	163	181
75°	104	92	96	62	52	107
85°	10	8	7	5	3	18
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°	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0
2.5°	1213.9	1215.5	1215.5	1215.5	1217.2	1218.9	1218.9	1222.3	1223.9	1227.3	1230.7
5°	1155.0	1153.3	1153.3	1156.7	1160.1	1161.7	1161.7	1168.5	1173.5	1178.5	1185.3
7.5°	1086.1	1084.4	1089.4	1091.1	1094.5	1099.5	1102.9	1109.6	1114.7	1126.4	1136.5
10°	1015.5	1015.5	1018.8	1023.9	1028.9	1034.0	1037.3	1045.7	1055.8	1067.6	1081.0
12.5°	944.9	939.8	944.9	951.6	956.6	961.7	966.7	976.8	991.9	1007.1	1023.9
15°	865.8	864.2	867.5	874.2	886.0	889.4	894.4	909.5	924.7	944.9	963.3
17.5°	781.8	786.8	788.5	798.6	810.4	815.4	820.4	835.6	857.4	877.6	899.5
20°	712.8	709.5	716.2	722.9	733.0	741.4	748.1	765.0	788.5	810.4	837.3
22.5°	647.3	645.6	650.6	659.0	667.4	674.2	680.9	697.7	716.2	741.4	771.7
25°	593.5	591.8	596.8	601.9	612.0	617.0	622.1	638.9	659.0	679.2	707.8
27.5°	546.4	546.4	549.8	553.1	561.5	566.6	573.3	586.8	603.6	623.7	650.6
30°	506.1	506.1	509.4	512.8	521.2	524.5	529.6	539.7	553.1	575.0	596.8
32.5°	472.4	472.4	474.1	479.2	482.5	485.9	490.9	499.3	512.8	529.6	549.8
35°	442.2	442.2	443.8	447.2	452.3	453.9	457.3	465.7	475.8	489.2	507.7
37.5°	413.6	415.3	415.3	418.6	422.0	423.7	427.0	433.8	442.2	453.9	469.1
40°	388.4	390.0	390.0	393.4	396.8	398.5	400.1	403.5	413.6	422.0	435.4
42.5°	366.5	366.5	366.5	368.2	371.6	373.2	374.9	380.0	385.0	393.4	403.5
45°	343.0	343.0	344.7	346.3	349.7	349.7	351.4	356.4	359.8	366.5	374.9
47.5°	321.1	321.1	322.8	322.8	326.2	326.2	327.8	331.2	334.6	341.3	348.0
50°	300.9	300.9	300.9	302.6	304.3	306.0	306.0	309.3	312.7	317.8	322.8
52.5°	280.8	280.8	280.8	280.8	282.4	284.1	284.1	287.5	290.9	294.2	299.3
55°	262.3	260.6	262.3	262.3	262.3	264.0	264.0	267.3	267.3	270.7	275.7
57.5°	240.4	242.1	242.1	240.4	242.1	243.8	243.8	243.8	245.5	248.8	250.5
60°	221.9	221.9	221.9	221.9	223.6	223.6	223.6	223.6	225.3	225.3	228.6
62.5°	201.7	201.7	203.4	203.4	201.7	203.4	203.4	203.4	205.1	205.1	205.1
65°	183.3	183.3	183.3	183.3	183.3	183.3	183.3	183.3	183.3	183.3	183.3
67.5°	163.1	163.1	163.1	163.1	163.1	163.1	163.1	161.4	161.4	161.4	159.7
70°	144.6	144.6	144.6	142.9	142.9	142.9	142.9	141.2	141.2	139.5	137.9
72.5°	124.4	124.4	124.4	122.7	122.7	122.7	121.0	119.4	117.7	116.0	116.0
75°	104.2	104.2	102.6	100.9	100.9	99.2	99.2	97.5	97.5	94.1	92.5
77.5°	80.7	79.0	79.0	79.0	77.3	75.7	75.7	74.0	72.3	72.3	70.6
80°	48.8	48.8	50.4	48.8	50.4	48.8	48.8	50.4	48.8	47.1	47.1
82.5°	23.5	23.5	25.2	23.5	25.2	25.2	25.2	23.5	23.5	23.5	23.5
85°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	8.4	8.4	8.4
87.5°	6.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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°	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0
2.5°	1234.0	1239.1	1240.7	1245.8	1247.5	1250.8	1254.2	1259.2	1264.3	1269.3	1272.7
5°	1192.0	1200.4	1207.1	1215.5	1220.6	1223.9	1234.0	1242.4	1252.5	1260.9	1269.3
7.5°	1146.6	1156.7	1171.8	1181.9	1187.0	1195.4	1207.1	1220.6	1234.0	1249.2	1260.9
10°	1094.5	1109.6	1124.7	1143.2	1151.6	1160.1	1175.2	1193.7	1212.2	1229.0	1247.5
12.5°	1039.0	1059.2	1079.4	1097.8	1109.6	1119.7	1143.2	1163.4	1185.3	1207.1	1227.3
15°	985.2	1007.1	1030.6	1054.1	1067.6	1079.4	1102.9	1128.1	1155.0	1180.2	1203.8
17.5°	926.4	951.6	978.5	1005.4	1018.8	1034.0	1064.2	1091.1	1121.4	1148.3	1176.9
20°	865.8	894.4	923.0	956.6	970.1	986.9	1017.1	1050.8	1082.7	1114.7	1144.9
22.5°	803.6	835.6	867.5	902.8	921.3	938.1	973.4	1007.1	1042.4	1076.0	1109.6
25°	739.7	776.7	813.7	849.0	869.2	886.0	924.7	963.3	1000.3	1035.6	1070.9
27.5°	680.9	716.2	756.6	795.2	815.4	833.9	875.9	912.9	953.3	991.9	1027.2
30°	627.1	660.7	701.1	743.1	763.3	783.5	825.5	867.5	904.5	944.9	983.5
32.5°	576.7	606.9	647.3	689.3	712.8	731.3	775.0	815.4	857.4	897.8	936.4
35°	529.6	559.9	595.2	637.2	657.4	679.2	724.6	766.6	807.0	849.0	884.3
37.5°	489.2	512.8	544.7	585.1	606.9	628.8	674.2	716.2	756.6	798.6	835.6
40°	450.6	472.4	501.0	536.3	558.2	580.0	623.7	665.8	706.1	748.1	786.8
42.5°	418.6	435.4	459.0	492.6	511.1	533.0	576.7	617.0	657.4	697.7	734.7
45°	386.7	401.8	422.0	448.9	467.4	487.6	529.6	571.6	608.6	645.6	682.6
47.5°	356.4	368.2	386.7	410.2	425.4	443.8	484.2	524.5	561.5	596.8	630.5
50°	329.5	339.6	356.4	373.2	386.7	403.5	438.8	479.2	514.5	549.8	580.0
52.5°	304.3	312.7	324.5	341.3	351.4	364.8	398.5	433.8	469.1	501.0	529.6
55°	280.8	285.8	295.9	307.7	316.1	327.8	356.4	390.0	422.0	450.6	474.1
57.5°	253.9	260.6	267.3	275.7	284.1	290.9	312.7	343.0	371.6	396.8	420.3
60°	230.3	235.4	238.7	247.1	250.5	257.2	274.0	299.3	326.2	348.0	364.8
62.5°	206.8	208.5	211.8	218.6	220.2	225.3	237.1	257.2	277.4	297.6	314.4
65°	183.3	183.3	186.6	188.3	191.7	193.3	201.7	216.9	235.4	250.5	260.6
67.5°	159.7	159.7	161.4	161.4	164.8	164.8	169.8	181.6	193.3	206.8	215.2
70°	136.2	136.2	136.2	136.2	136.2	137.9	141.2	147.9	156.4	166.4	171.5
72.5°	114.3	112.6	112.6	111.0	111.0	111.0	112.6	116.0	122.7	129.5	134.5
75°	90.8	89.1	87.4	87.4	85.7	85.7	85.7	89.1	92.5	95.8	97.5
77.5°	67.2	67.2	65.6	62.2	62.2	60.5	60.5	60.5	62.2	65.6	63.9
80°	47.1	43.7	42.0	42.0	40.3	40.3	38.7	37.0	37.0	37.0	35.3
82.5°	21.9	21.9	21.9	20.2	20.2	20.2	20.2	18.5	18.5	16.8	16.8
85°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	6.7	6.7	6.7	6.7
87.5°	5.0	5.0	5.0	5.0	5.0	3.4	3.4	3.4	3.4	3.4	3.4
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°	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0
2.5°	1277.7	1282.8	1287.8	1289.5	1291.2	1296.2	1299.6	1304.6	1308.0	1309.7	1313.0
5°	1279.4	1287.8	1296.2	1301.3	1304.6	1313.0	1319.8	1328.2	1333.2	1341.6	1346.7
7.5°	1274.4	1287.8	1299.6	1306.3	1313.0	1324.8	1334.9	1345.0	1353.4	1361.8	1370.2
10°	1264.3	1281.1	1297.9	1304.6	1313.0	1326.5	1341.6	1353.4	1365.2	1375.2	1385.3
12.5°	1249.2	1269.3	1289.5	1297.9	1306.3	1324.8	1339.9	1353.4	1365.2	1375.2	1382.0
15°	1229.0	1252.5	1274.4	1286.1	1296.2	1314.7	1329.9	1343.3	1353.4	1360.1	1365.2
17.5°	1203.8	1230.7	1255.9	1266.0	1277.7	1294.5	1309.7	1319.8	1326.5	1326.5	1328.2
20°	1175.2	1203.8	1229.0	1240.7	1252.5	1266.0	1277.7	1282.8	1282.8	1282.8	1279.4
22.5°	1141.6	1171.8	1197.0	1208.8	1218.9	1229.0	1235.7	1235.7	1232.3	1227.3	1222.3
25°	1102.9	1134.8	1158.4	1170.1	1175.2	1183.6	1181.9	1180.2	1175.2	1170.1	1163.4
27.5°	1060.9	1092.8	1118.0	1123.1	1126.4	1128.1	1123.1	1119.7	1113.0	1106.3	1101.2
30°	1017.1	1047.4	1067.6	1069.3	1072.6	1070.9	1064.2	1055.8	1049.1	1040.7	1034.0
32.5°	970.1	998.7	1012.1	1015.5	1013.8	1007.1	1000.3	991.9	983.5	973.4	965.0
35°	919.6	946.5	954.9	953.3	951.6	943.2	933.1	924.7	912.9	906.2	894.4
37.5°	867.5	892.7	896.1	891.1	886.0	875.9	865.8	857.4	844.0	837.3	828.8
40°	815.4	832.2	832.2	827.2	823.8	813.7	800.3	788.5	778.4	766.6	761.6
42.5°	761.6	775.0	768.3	765.0	759.9	744.8	734.7	722.9	709.5	702.8	694.3
45°	707.8	716.2	707.8	701.1	696.0	682.6	672.5	657.4	645.6	638.9	628.8
47.5°	652.3	655.7	649.0	638.9	635.5	620.4	608.6	596.8	585.1	573.3	564.9
50°	601.9	598.5	588.4	581.7	576.7	559.9	546.4	533.0	522.9	512.8	504.4
52.5°	544.7	541.4	527.9	519.5	511.1	497.6	480.8	470.7	459.0	450.6	442.2
55°	485.9	475.8	465.7	457.3	448.9	435.4	420.3	406.9	398.5	388.4	383.3
57.5°	425.4	418.6	401.8	395.1	388.4	374.9	359.8	348.0	336.2	329.5	326.2
60°	371.6	359.8	346.3	337.9	331.2	317.8	304.3	292.5	284.1	280.8	275.7
62.5°	314.4	304.3	289.2	282.4	277.4	264.0	252.2	242.1	235.4	228.6	225.3
65°	262.3	250.5	238.7	232.0	225.3	213.5	205.1	198.4	190.0	184.9	181.6
67.5°	211.8	201.7	191.7	186.6	181.6	171.5	163.1	158.0	151.3	146.3	139.5
70°	166.4	158.0	151.3	146.3	141.2	132.8	126.1	121.0	116.0	111.0	105.9
72.5°	129.5	121.0	112.6	111.0	107.6	100.9	95.8	90.8	85.7	82.4	79.0
75°	92.5	89.1	82.4	79.0	77.3	72.3	67.2	63.9	62.2	58.8	57.2
77.5°	60.5	57.2	52.1	52.1	50.4	48.8	45.4	42.0	42.0	40.3	40.3
80°	33.6	31.9	30.3	28.6	30.3	28.6	26.9	25.2	25.2	25.2	23.5
82.5°	15.1	15.1	13.4	13.4	13.4	13.4	13.4	11.8	11.8	11.8	11.8
85°	6.7	6.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
87.5°	3.4	3.4	3.4	3.4	3.4	3.4	1.7	1.7	1.7	1.7	1.7
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: P345419

CATALOG NUMBER: PR4FS24D010 PR4M24WW8FSMW 3000lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0	1271.0
2.5°	1316.4	1318.1	1319.8	1321.4	1323.1	1323.1	1324.8	1326.5
5°	1350.0	1355.1	1356.8	1358.4	1361.8	1363.5	1363.5	1365.2
7.5°	1376.9	1383.7	1385.3	1388.7	1392.1	1393.7	1395.4	1395.4
10°	1392.1	1397.1	1398.8	1402.1	1405.5	1407.2	1408.9	1408.9
12.5°	1387.0	1392.1	1393.7	1395.4	1398.8	1400.5	1400.5	1400.5
15°	1368.5	1368.5	1368.5	1368.5	1366.8	1368.5	1368.5	1365.2
17.5°	1326.5	1324.8	1326.5	1323.1	1321.4	1321.4	1319.8	1319.8
20°	1276.1	1274.4	1272.7	1272.7	1271.0	1267.6	1266.0	1264.3
22.5°	1218.9	1215.5	1213.9	1213.9	1210.5	1208.8	1207.1	1203.8
25°	1160.1	1151.6	1151.6	1151.6	1148.3	1148.3	1144.9	1141.6
27.5°	1092.8	1087.8	1087.8	1084.4	1081.0	1079.4	1077.7	1079.4
30°	1028.9	1022.2	1018.8	1017.1	1015.5	1015.5	1010.4	1008.7
32.5°	958.3	953.3	949.9	948.2	944.9	943.2	941.5	938.1
35°	889.4	884.3	881.0	881.0	874.2	872.6	870.9	870.9
37.5°	818.8	815.4	813.7	808.7	807.0	805.3	805.3	803.6
40°	753.2	748.1	746.5	741.4	739.7	739.7	734.7	736.4
42.5°	685.9	679.2	677.5	675.9	674.2	670.8	672.5	669.1
45°	622.1	617.0	613.6	613.6	612.0	608.6	606.9	608.6
47.5°	559.9	553.1	553.1	551.4	549.8	548.1	548.1	544.7
50°	501.0	496.0	492.6	489.2	490.9	489.2	485.9	487.6
52.5°	437.1	432.1	430.4	430.4	428.7	428.7	427.0	427.0
55°	380.0	374.9	374.9	373.2	373.2	373.2	371.6	371.6
57.5°	322.8	319.4	317.8	317.8	314.4	316.1	314.4	312.7
60°	272.4	267.3	264.0	265.6	264.0	264.0	260.6	262.3
62.5°	220.2	216.9	215.2	215.2	211.8	211.8	208.5	210.2
65°	176.5	171.5	169.8	168.1	164.8	163.1	163.1	163.1
67.5°	136.2	132.8	131.1	127.8	124.4	122.7	121.0	119.4
70°	102.6	99.2	97.5	95.8	94.1	92.5	92.5	90.8
72.5°	77.3	74.0	74.0	72.3	72.3	70.6	70.6	70.6
75°	55.5	55.5	53.8	53.8	52.1	53.8	52.1	52.1
77.5°	38.7	37.0	38.7	37.0	35.3	35.3	35.3	35.3
80°	21.9	21.9	21.9	21.9	21.9	21.9	21.9	20.2
82.5°	11.8	11.8	11.8	10.1	10.1	10.1	10.1	10.1
85°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)