

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: P345418

Luminaire Tested: **PR4FS24D010 PR4M24WW8FSMW 3000Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345418
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 3000Lm3000K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2130.0 lumens
Efficiency: N/A
Efficacy: 74.7 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

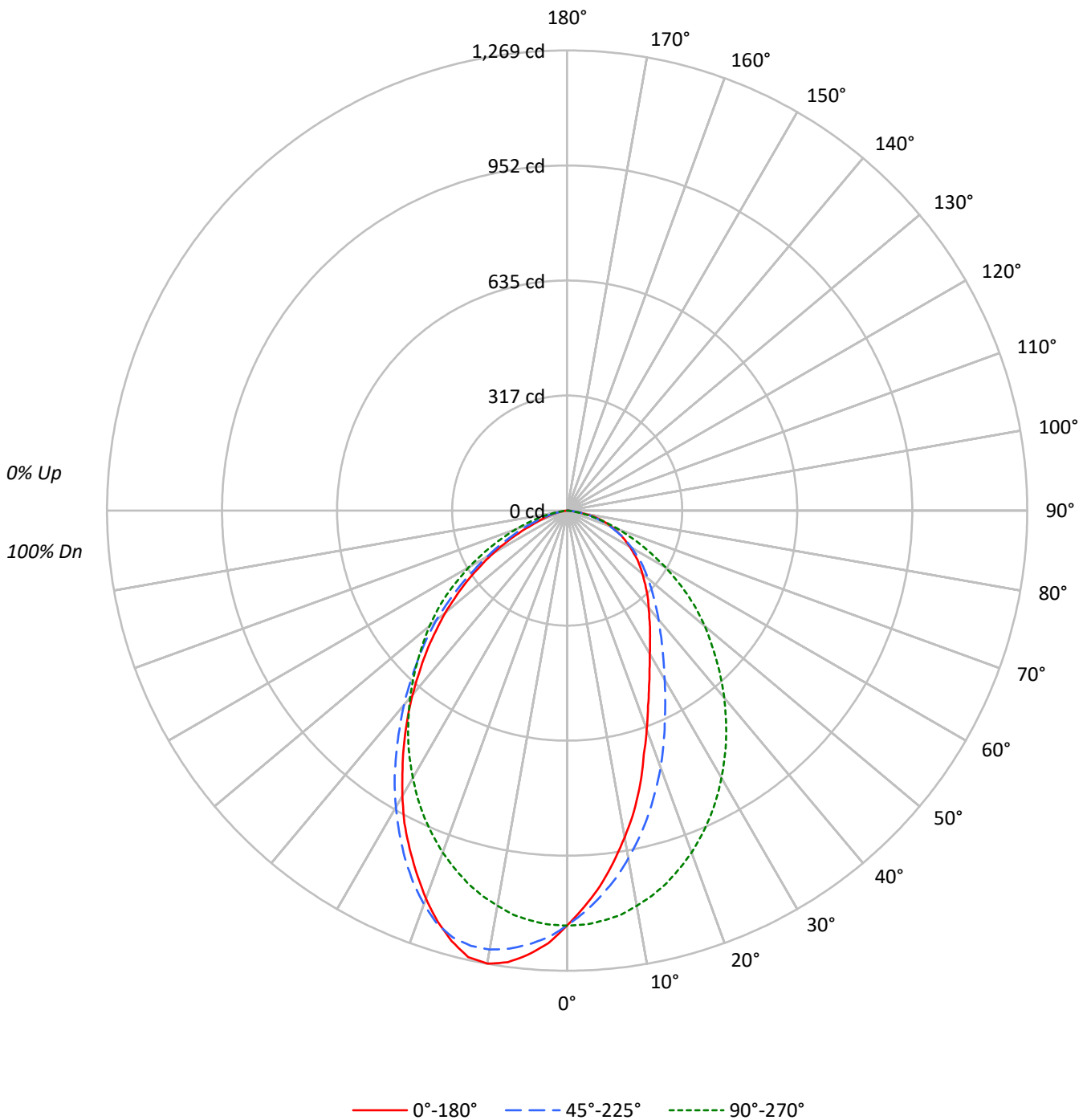
Input Watts (W): 28.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	100100	100100	100100
5°	91316	99683	107928
10°	81207	98287	112676
15°	70597	96233	111310
20°	59750	93418	105966
25°	51576	89997	99205
30°	46026	85932	91739
35°	42509	81634	83727
40°	39930	76914	75703
45°	38199	71907	67788
50°	36877	67359	59738
55°	36020	61869	51011
60°	34953	54826	41321
65°	34150	46693	30383
70°	33298	38336	20894
75°	31734	29166	15850
80°	22113	16774	9168
85°	9133	6122	3011



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	107.2	5.0
10°-20°	290.7	13.6
20°-30°	392.8	18.4
30°-40°	413.4	19.4
40°-50°	372.4	17.5
50°-60°	287.5	13.5
60°-70°	177.0	8.3
70°-80°	77.8	3.7
80°-90°	11.1	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°	790.6	37.1
0°-40°	1204.0	56.5
0°-60°	1864.0	87.5
0°-90°	2130.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2130.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1144	1144	1144	1144	1144	
5°	1040	1067	1135	1200	1229	95
15°	780	867	1063	1219	1229	217
25°	534	637	932	1058	1028	247
35°	398	457	764	822	784	250
45°	309	338	581	581	548	239
55°	236	248	406	359	334	210
65°	165	165	226	171	147	163
75°	94	83	86	56	47	96
85°	9	8	6	4	3	16
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°	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4
2.5°	1093.0	1094.5	1094.5	1094.5	1096.0	1097.5	1097.5	1100.5	1102.0	1105.1	1108.1
5°	1040.0	1038.5	1038.5	1041.5	1044.5	1046.0	1046.0	1052.1	1056.6	1061.2	1067.2
7.5°	977.9	976.4	980.9	982.5	985.5	990.0	993.1	999.1	1003.6	1014.2	1023.3
10°	914.3	914.3	917.4	921.9	926.4	931.0	934.0	941.6	950.7	961.3	973.4
12.5°	850.8	846.2	850.8	856.8	861.4	865.9	870.4	879.5	893.1	906.8	921.9
15°	779.6	778.1	781.1	787.2	797.8	800.8	805.3	819.0	832.6	850.8	867.4
17.5°	703.9	708.5	710.0	719.1	729.7	734.2	738.7	752.4	772.0	790.2	809.9
20°	641.9	638.8	644.9	650.9	660.0	667.6	673.6	688.8	710.0	729.7	753.9
22.5°	582.8	581.3	585.8	593.4	601.0	607.0	613.1	628.2	644.9	667.6	694.8
25°	534.4	532.9	537.4	541.9	551.0	555.6	560.1	575.2	593.4	611.6	637.3
27.5°	492.0	492.0	495.0	498.0	505.6	510.1	516.2	528.3	543.5	561.6	585.8
30°	455.7	455.7	458.7	461.7	469.3	472.3	476.8	485.9	498.0	517.7	537.4
32.5°	425.4	425.4	426.9	431.4	434.5	437.5	442.0	449.6	461.7	476.8	495.0
35°	398.1	398.1	399.6	402.7	407.2	408.7	411.8	419.3	428.4	440.5	457.2
37.5°	372.4	373.9	373.9	376.9	380.0	381.5	384.5	390.6	398.1	408.7	422.3
40°	349.7	351.2	351.2	354.2	357.3	358.8	360.3	363.3	372.4	380.0	392.1
42.5°	330.0	330.0	330.0	331.5	334.5	336.1	337.6	342.1	346.7	354.2	363.3
45°	308.8	308.8	310.3	311.8	314.9	314.9	316.4	320.9	324.0	330.0	337.6
47.5°	289.1	289.1	290.6	290.6	293.7	293.7	295.2	298.2	301.2	307.3	313.4
50°	271.0	271.0	271.0	272.5	274.0	275.5	275.5	278.5	281.6	286.1	290.6
52.5°	252.8	252.8	252.8	252.8	254.3	255.8	255.8	258.9	261.9	264.9	269.5
55°	236.2	234.6	236.2	236.2	236.2	237.7	237.7	240.7	240.7	243.7	248.3
57.5°	216.5	218.0	218.0	216.5	218.0	219.5	219.5	219.5	221.0	224.0	225.6
60°	199.8	199.8	199.8	199.8	201.3	201.3	201.3	201.3	202.8	202.8	205.9
62.5°	181.7	181.7	183.2	183.2	181.7	183.2	183.2	183.2	184.7	184.7	184.7
65°	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
67.5°	146.8	146.8	146.8	146.8	146.8	146.8	146.8	145.3	145.3	145.3	143.8
70°	130.2	130.2	130.2	128.7	128.7	128.7	128.7	127.2	127.2	125.6	124.1
72.5°	112.0	112.0	112.0	110.5	110.5	110.5	109.0	107.5	106.0	104.5	104.5
75°	93.9	93.9	92.3	90.8	90.8	89.3	89.3	87.8	87.8	84.8	83.3
77.5°	72.7	71.1	71.1	71.1	69.6	68.1	68.1	66.6	65.1	65.1	63.6
80°	43.9	43.9	45.4	43.9	45.4	43.9	43.9	45.4	43.9	42.4	42.4
82.5°	21.2	21.2	22.7	21.2	22.7	22.7	22.7	21.2	21.2	21.2	21.2
85°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	7.6	7.6	7.6
87.5°	6.1	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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°	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4
2.5°	1111.1	1115.7	1117.2	1121.7	1123.2	1126.3	1129.3	1133.8	1138.4	1142.9	1145.9
5°	1073.3	1080.9	1086.9	1094.5	1099.0	1102.0	1111.1	1118.7	1127.8	1135.3	1142.9
7.5°	1032.4	1041.5	1055.1	1064.2	1068.7	1076.3	1086.9	1099.0	1111.1	1124.8	1135.3
10°	985.5	999.1	1012.7	1029.4	1037.0	1044.5	1058.1	1074.8	1091.4	1106.6	1123.2
12.5°	935.5	953.7	971.9	988.5	999.1	1008.2	1029.4	1047.5	1067.2	1086.9	1105.1
15°	887.1	906.8	928.0	949.2	961.3	971.9	993.1	1015.8	1040.0	1062.7	1083.9
17.5°	834.1	856.8	881.0	905.3	917.4	931.0	958.2	982.5	1009.7	1033.9	1059.7
20°	779.6	805.3	831.1	861.4	873.5	888.6	915.8	946.1	974.9	1003.6	1030.9
22.5°	723.6	752.4	781.1	812.9	829.6	844.7	876.5	906.8	938.6	968.8	999.1
25°	666.1	699.4	732.7	764.5	782.6	797.8	832.6	867.4	900.7	932.5	964.3
27.5°	613.1	644.9	681.2	716.0	734.2	750.8	788.7	822.0	858.3	893.1	924.9
30°	564.6	594.9	631.3	669.1	687.3	705.4	743.3	781.1	814.4	850.8	885.6
32.5°	519.2	546.5	582.8	620.7	641.9	658.5	697.9	734.2	772.0	808.4	843.2
35°	476.8	504.1	535.9	573.7	591.9	611.6	652.4	690.3	726.6	764.5	796.3
37.5°	440.5	461.7	490.5	526.8	546.5	566.2	607.0	644.9	681.2	719.1	752.4
40°	405.7	425.4	451.1	482.9	502.6	522.3	561.6	599.5	635.8	673.6	708.5
42.5°	376.9	392.1	413.3	443.5	460.2	479.9	519.2	555.6	591.9	628.2	661.5
45°	348.2	361.8	380.0	404.2	420.8	439.0	476.8	514.7	548.0	581.3	614.6
47.5°	320.9	331.5	348.2	369.4	383.0	399.6	436.0	472.3	505.6	537.4	567.7
50°	296.7	305.8	320.9	336.1	348.2	363.3	395.1	431.4	463.2	495.0	522.3
52.5°	274.0	281.6	292.2	307.3	316.4	328.5	358.8	390.6	422.3	451.1	476.8
55°	252.8	257.3	266.4	277.0	284.6	295.2	320.9	351.2	380.0	405.7	426.9
57.5°	228.6	234.6	240.7	248.3	255.8	261.9	281.6	308.8	334.5	357.3	378.4
60°	207.4	211.9	215.0	222.5	225.6	231.6	246.7	269.5	293.7	313.4	328.5
62.5°	186.2	187.7	190.7	196.8	198.3	202.8	213.4	231.6	249.8	267.9	283.1
65°	165.0	165.0	168.0	169.5	172.6	174.1	181.7	195.3	211.9	225.6	234.6
67.5°	143.8	143.8	145.3	145.3	148.4	148.4	152.9	163.5	174.1	186.2	193.8
70°	122.6	122.6	122.6	122.6	122.6	124.1	127.2	133.2	140.8	149.9	154.4
72.5°	102.9	101.4	101.4	99.9	99.9	99.9	101.4	104.5	110.5	116.6	121.1
75°	81.7	80.2	78.7	78.7	77.2	77.2	77.2	80.2	83.3	86.3	87.8
77.5°	60.6	60.6	59.0	56.0	56.0	54.5	54.5	54.5	56.0	59.0	57.5
80°	42.4	39.4	37.8	37.8	36.3	36.3	34.8	33.3	33.3	33.3	31.8
82.5°	19.7	19.7	19.7	18.2	18.2	18.2	18.2	16.7	16.7	15.1	15.1
85°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.1	6.1	6.1	6.1
87.5°	4.5	4.5	4.5	4.5	4.5	3.0	3.0	3.0	3.0	3.0	3.0
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4
2.5°	1150.5	1155.0	1159.6	1161.1	1162.6	1167.1	1170.2	1174.7	1177.7	1179.2	1182.3
5°	1152.0	1159.6	1167.1	1171.7	1174.7	1182.3	1188.3	1195.9	1200.4	1208.0	1212.6
7.5°	1147.5	1159.6	1170.2	1176.2	1182.3	1192.9	1202.0	1211.0	1218.6	1226.2	1233.7
10°	1138.4	1153.5	1168.7	1174.7	1182.3	1194.4	1208.0	1218.6	1229.2	1238.3	1247.4
12.5°	1124.8	1142.9	1161.1	1168.7	1176.2	1192.9	1206.5	1218.6	1229.2	1238.3	1244.3
15°	1106.6	1127.8	1147.5	1158.1	1167.1	1183.8	1197.4	1209.5	1218.6	1224.7	1229.2
17.5°	1083.9	1108.1	1130.8	1139.9	1150.5	1165.6	1179.2	1188.3	1194.4	1194.4	1195.9
20°	1058.1	1083.9	1106.6	1117.2	1127.8	1139.9	1150.5	1155.0	1155.0	1155.0	1152.0
22.5°	1027.9	1055.1	1077.8	1088.4	1097.5	1106.6	1112.6	1112.6	1109.6	1105.1	1100.5
25°	993.1	1021.8	1043.0	1053.6	1058.1	1065.7	1064.2	1062.7	1058.1	1053.6	1047.5
27.5°	955.2	984.0	1006.7	1011.2	1014.2	1015.8	1011.2	1008.2	1002.1	996.1	991.5
30°	915.8	943.1	961.3	962.8	965.8	964.3	958.2	950.7	944.6	937.0	931.0
32.5°	873.5	899.2	911.3	914.3	912.8	906.8	900.7	893.1	885.6	876.5	868.9
35°	828.0	852.3	859.8	858.3	856.8	849.2	840.2	832.6	822.0	815.9	805.3
37.5°	781.1	803.8	806.9	802.3	797.8	788.7	779.6	772.0	759.9	753.9	746.3
40°	734.2	749.3	749.3	744.8	741.8	732.7	720.6	710.0	700.9	690.3	685.8
42.5°	685.8	697.9	691.8	688.8	684.2	670.6	661.5	650.9	638.8	632.8	625.2
45°	637.3	644.9	637.3	631.3	626.7	614.6	605.5	591.9	581.3	575.2	566.2
47.5°	587.4	590.4	584.3	575.2	572.2	558.6	548.0	537.4	526.8	516.2	508.6
50°	541.9	538.9	529.8	523.8	519.2	504.1	492.0	479.9	470.8	461.7	454.1
52.5°	490.5	487.4	475.3	467.8	460.2	448.1	432.9	423.9	413.3	405.7	398.1
55°	437.5	428.4	419.3	411.8	404.2	392.1	378.4	366.3	358.8	349.7	345.1
57.5°	383.0	376.9	361.8	355.7	349.7	337.6	324.0	313.4	302.8	296.7	293.7
60°	334.5	324.0	311.8	304.3	298.2	286.1	274.0	263.4	255.8	252.8	248.3
62.5°	283.1	274.0	260.4	254.3	249.8	237.7	227.1	218.0	211.9	205.9	202.8
65°	236.2	225.6	215.0	208.9	202.8	192.3	184.7	178.6	171.1	166.5	163.5
67.5°	190.7	181.7	172.6	168.0	163.5	154.4	146.8	142.3	136.2	131.7	125.6
70°	149.9	142.3	136.2	131.7	127.2	119.6	113.5	109.0	104.5	99.9	95.4
72.5°	116.6	109.0	101.4	99.9	96.9	90.8	86.3	81.7	77.2	74.2	71.1
75°	83.3	80.2	74.2	71.1	69.6	65.1	60.6	57.5	56.0	53.0	51.5
77.5°	54.5	51.5	46.9	46.9	45.4	43.9	40.9	37.8	37.8	36.3	36.3
80°	30.3	28.8	27.2	25.7	27.2	25.7	24.2	22.7	22.7	22.7	21.2
82.5°	13.6	13.6	12.1	12.1	12.1	12.1	12.1	10.6	10.6	10.6	10.6
85°	6.1	6.1	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
87.5°	3.0	3.0	3.0	3.0	3.0	3.0	1.5	1.5	1.5	1.5	1.5
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: P345418

CATALOG NUMBER: PR4FS24D010 PR4M24WW8FSMW 3000lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4	1144.4
2.5°	1185.3	1186.8	1188.3	1189.8	1191.4	1191.4	1192.9	1194.4
5°	1215.6	1220.1	1221.6	1223.1	1226.2	1227.7	1227.7	1229.2
7.5°	1239.8	1245.9	1247.4	1250.4	1253.4	1254.9	1256.5	1256.5
10°	1253.4	1258.0	1259.5	1262.5	1265.5	1267.0	1268.6	1268.6
12.5°	1248.9	1253.4	1254.9	1256.5	1259.5	1261.0	1261.0	1261.0
15°	1232.2	1232.2	1232.2	1232.2	1230.7	1232.2	1232.2	1229.2
17.5°	1194.4	1192.9	1194.4	1191.4	1189.8	1189.8	1188.3	1188.3
20°	1149.0	1147.5	1145.9	1145.9	1144.4	1141.4	1139.9	1138.4
22.5°	1097.5	1094.5	1093.0	1093.0	1089.9	1088.4	1086.9	1083.9
25°	1044.5	1037.0	1037.0	1037.0	1033.9	1033.9	1030.9	1027.9
27.5°	984.0	979.4	979.4	976.4	973.4	971.9	970.3	971.9
30°	926.4	920.4	917.4	915.8	914.3	914.3	909.8	908.3
32.5°	862.9	858.3	855.3	853.8	850.8	849.2	847.7	844.7
35°	800.8	796.3	793.2	793.2	787.2	785.7	784.1	784.1
37.5°	737.2	734.2	732.7	728.1	726.6	725.1	725.1	723.6
40°	678.2	673.6	672.1	667.6	666.1	666.1	661.5	663.0
42.5°	617.6	611.6	610.1	608.5	607.0	604.0	605.5	602.5
45°	560.1	555.6	552.5	552.5	551.0	548.0	546.5	548.0
47.5°	504.1	498.0	498.0	496.5	495.0	493.5	493.5	490.5
50°	451.1	446.6	443.5	440.5	442.0	440.5	437.5	439.0
52.5°	393.6	389.0	387.5	387.5	386.0	386.0	384.5	384.5
55°	342.1	337.6	337.6	336.1	336.1	336.1	334.5	334.5
57.5°	290.6	287.6	286.1	286.1	283.1	284.6	283.1	281.6
60°	245.2	240.7	237.7	239.2	237.7	237.7	234.6	236.2
62.5°	198.3	195.3	193.8	193.8	190.7	190.7	187.7	189.2
65°	158.9	154.4	152.9	151.4	148.4	146.8	146.8	146.8
67.5°	122.6	119.6	118.1	115.0	112.0	110.5	109.0	107.5
70°	92.3	89.3	87.8	86.3	84.8	83.3	83.3	81.7
72.5°	69.6	66.6	66.6	65.1	65.1	63.6	63.6	63.6
75°	50.0	50.0	48.4	48.4	46.9	48.4	46.9	46.9
77.5°	34.8	33.3	34.8	33.3	31.8	31.8	31.8	31.8
80°	19.7	19.7	19.7	19.7	19.7	19.7	19.7	18.2
82.5°	10.6	10.6	10.6	9.1	9.1	9.1	9.1	9.1
85°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
87.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)