

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: P345413

Luminaire Tested: **PR4FS24D010 PR4M24WW8FSMW 2000Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345413
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 2000Lm3500K
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: 1845.2 lumens
Efficiency: N/A
Efficacy: 90.5 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

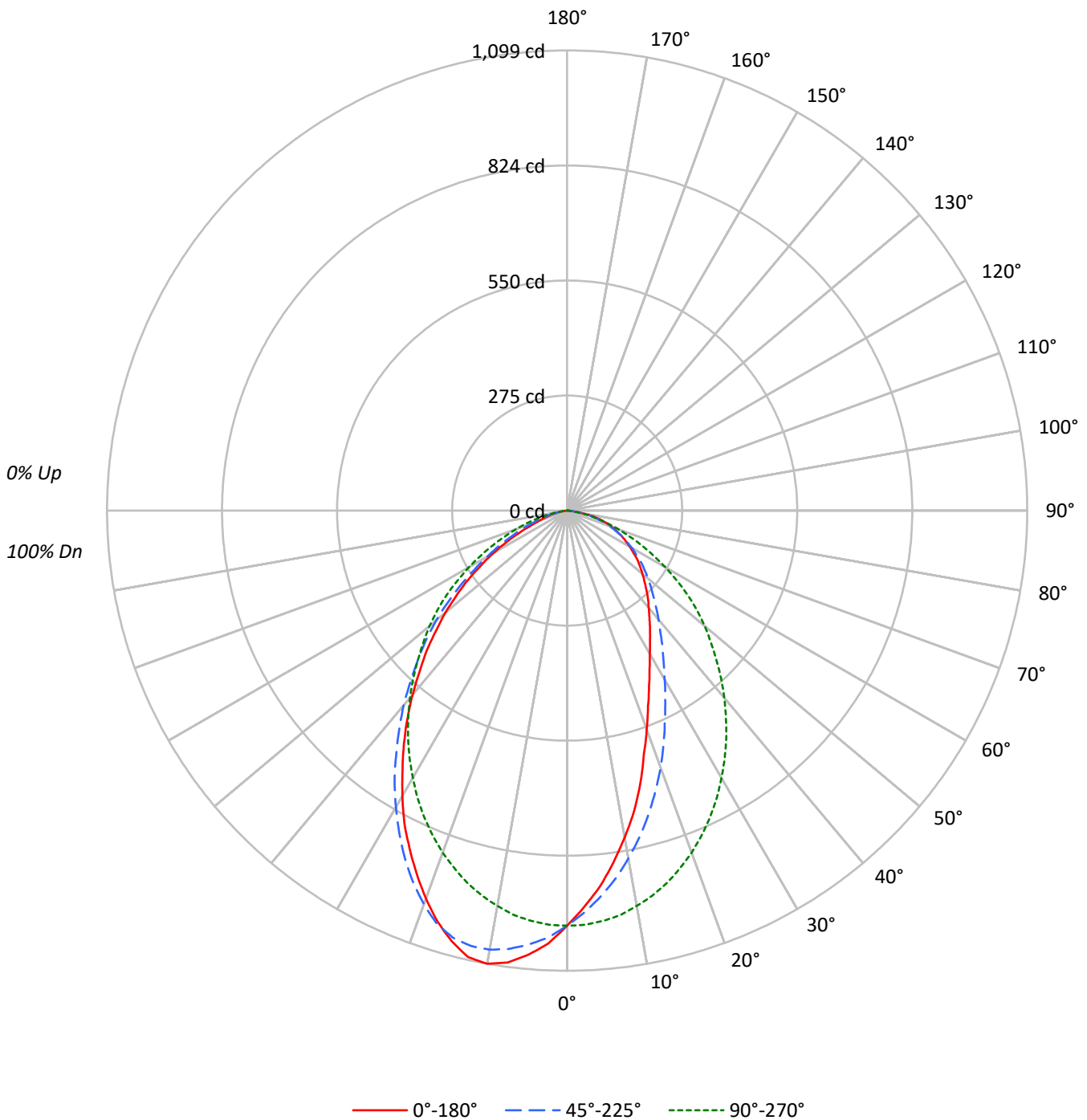
Input Watts (W): 20.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	86717	86717	86717
5°	79102	86364	93502
10°	70353	85142	97612
15°	61161	83365	96432
20°	51754	80936	91798
25°	44675	77962	85934
30°	39865	74438	79468
35°	36829	70721	72536
40°	34586	66637	65587
45°	33090	62296	58721
50°	31938	58350	51751
55°	31201	53603	44194
60°	30282	47496	35792
65°	29576	40442	26327
70°	28848	33196	18107
75°	27476	25279	13755
80°	19141	14557	7908
85°	7928	5219	2609



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.9	5.0
10°-20°	251.8	13.6
20°-30°	340.2	18.4
30°-40°	358.1	19.4
40°-50°	322.6	17.5
50°-60°	249.1	13.5
60°-70°	153.3	8.3
70°-80°	67.4	3.7
80°-90°	9.6	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°	684.9	37.1
0°-40°	1043.1	56.5
0°-60°	1614.8	87.5
0°-90°	1845.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1845.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	991	991	991	991	991	
5°	901	924	984	1040	1065	83
15°	675	751	921	1056	1065	188
25°	463	552	808	917	890	214
35°	345	396	662	712	679	216
45°	268	292	504	504	475	207
55°	205	215	352	311	290	182
65°	143	143	195	148	127	141
75°	81	72	75	48	41	83
85°	8	7	5	4	3	14
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°	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4
2.5°	946.8	948.1	948.1	948.1	949.5	950.8	950.8	953.4	954.7	957.3	960.0
5°	900.9	899.6	899.6	902.2	904.9	906.2	906.2	911.4	915.4	919.3	924.5
7.5°	847.2	845.9	849.8	851.1	853.7	857.7	860.3	865.5	869.5	878.6	886.5
10°	792.1	792.1	794.7	798.6	802.6	806.5	809.1	815.7	823.6	832.7	843.2
12.5°	737.0	733.1	737.0	742.3	746.2	750.1	754.1	761.9	773.7	785.5	798.6
15°	675.4	674.1	676.7	681.9	691.1	693.7	697.7	709.5	721.3	737.0	751.4
17.5°	609.8	613.7	615.1	622.9	632.1	636.0	640.0	651.8	668.8	684.6	701.6
20°	556.0	553.4	558.7	563.9	571.8	578.3	583.6	596.7	615.1	632.1	653.1
22.5°	504.9	503.6	507.5	514.1	520.6	525.9	531.1	544.2	558.7	578.3	601.9
25°	462.9	461.6	465.6	469.5	477.4	481.3	485.2	498.3	514.1	529.8	552.1
27.5°	426.2	426.2	428.8	431.5	438.0	441.9	447.2	457.7	470.8	486.5	507.5
30°	394.7	394.7	397.4	400.0	406.5	409.2	413.1	421.0	431.5	448.5	465.6
32.5°	368.5	368.5	369.8	373.8	376.4	379.0	382.9	389.5	400.0	413.1	428.8
35°	344.9	344.9	346.2	348.8	352.8	354.1	356.7	363.3	371.1	381.6	396.0
37.5°	322.6	323.9	323.9	326.5	329.2	330.5	333.1	338.3	344.9	354.1	365.9
40°	302.9	304.2	304.2	306.9	309.5	310.8	312.1	314.7	322.6	329.2	339.7
42.5°	285.9	285.9	285.9	287.2	289.8	291.1	292.4	296.4	300.3	306.9	314.7
45°	267.5	267.5	268.8	270.2	272.8	272.8	274.1	278.0	280.6	285.9	292.4
47.5°	250.5	250.5	251.8	251.8	254.4	254.4	255.7	258.3	261.0	266.2	271.5
50°	234.7	234.7	234.7	236.1	237.4	238.7	238.7	241.3	243.9	247.9	251.8
52.5°	219.0	219.0	219.0	219.0	220.3	221.6	221.6	224.3	226.9	229.5	233.4
55°	204.6	203.3	204.6	204.6	204.6	205.9	205.9	208.5	208.5	211.1	215.1
57.5°	187.5	188.8	188.8	187.5	188.8	190.2	190.2	190.2	191.5	194.1	195.4
60°	173.1	173.1	173.1	173.1	174.4	174.4	174.4	174.4	175.7	175.7	178.4
62.5°	157.4	157.4	158.7	158.7	157.4	158.7	158.7	158.7	160.0	160.0	160.0
65°	142.9	142.9	142.9	142.9	142.9	142.9	142.9	142.9	142.9	142.9	142.9
67.5°	127.2	127.2	127.2	127.2	127.2	127.2	127.2	125.9	125.9	125.9	124.6
70°	112.8	112.8	112.8	111.5	111.5	111.5	111.5	110.2	110.2	108.8	107.5
72.5°	97.0	97.0	97.0	95.7	95.7	95.7	94.4	93.1	91.8	90.5	90.5
75°	81.3	81.3	80.0	78.7	78.7	77.4	77.4	76.1	76.1	73.4	72.1
77.5°	62.9	61.6	61.6	61.6	60.3	59.0	59.0	57.7	56.4	56.4	55.1
80°	38.0	38.0	39.3	38.0	39.3	38.0	38.0	39.3	38.0	36.7	36.7
82.5°	18.4	18.4	19.7	18.4	19.7	19.7	19.7	18.4	18.4	18.4	18.4
85°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	6.6	6.6	6.6
87.5°	5.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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°	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4
2.5°	962.6	966.5	967.8	971.8	973.1	975.7	978.3	982.2	986.2	990.1	992.7
5°	929.8	936.3	941.6	948.1	952.1	954.7	962.6	969.1	977.0	983.6	990.1
7.5°	894.4	902.2	914.1	921.9	925.9	932.4	941.6	952.1	962.6	974.4	983.6
10°	853.7	865.5	877.3	891.8	898.3	904.9	916.7	931.1	945.5	958.6	973.1
12.5°	810.5	826.2	841.9	856.4	865.5	873.4	891.8	907.5	924.5	941.6	957.3
15°	768.5	785.5	803.9	822.3	832.7	841.9	860.3	880.0	900.9	920.6	939.0
17.5°	722.6	742.3	763.2	784.2	794.7	806.5	830.1	851.1	874.7	895.7	918.0
20°	675.4	697.7	720.0	746.2	756.7	769.8	793.4	819.6	844.5	869.5	893.1
22.5°	626.9	651.8	676.7	704.2	718.7	731.8	759.3	785.5	813.1	839.3	865.5
25°	577.0	605.9	634.7	662.3	678.0	691.1	721.3	751.4	780.3	807.8	835.4
27.5°	531.1	558.7	590.1	620.3	636.0	650.5	683.2	712.1	743.6	773.7	801.3
30°	489.2	515.4	546.9	579.6	595.4	611.1	643.9	676.7	705.5	737.0	767.2
32.5°	449.8	473.4	504.9	537.7	556.0	570.5	604.6	636.0	668.8	700.3	730.5
35°	413.1	436.7	464.2	497.0	512.8	529.8	565.2	598.0	629.5	662.3	689.8
37.5°	381.6	400.0	424.9	456.4	473.4	490.5	525.9	558.7	590.1	622.9	651.8
40°	351.5	368.5	390.8	418.3	435.4	452.4	486.5	519.3	550.8	583.6	613.7
42.5°	326.5	339.7	358.0	384.2	398.7	415.7	449.8	481.3	512.8	544.2	573.1
45°	301.6	313.4	329.2	350.1	364.6	380.3	413.1	445.9	474.7	503.6	532.4
47.5°	278.0	287.2	301.6	320.0	331.8	346.2	377.7	409.2	438.0	465.6	491.8
50°	257.0	264.9	278.0	291.1	301.6	314.7	342.3	373.8	401.3	428.8	452.4
52.5°	237.4	243.9	253.1	266.2	274.1	284.6	310.8	338.3	365.9	390.8	413.1
55°	219.0	222.9	230.8	240.0	246.5	255.7	278.0	304.2	329.2	351.5	369.8
57.5°	198.0	203.3	208.5	215.1	221.6	226.9	243.9	267.5	289.8	309.5	327.9
60°	179.7	183.6	186.2	192.8	195.4	200.6	213.8	233.4	254.4	271.5	284.6
62.5°	161.3	162.6	165.2	170.5	171.8	175.7	184.9	200.6	216.4	232.1	245.2
65°	142.9	142.9	145.6	146.9	149.5	150.8	157.4	169.2	183.6	195.4	203.3
67.5°	124.6	124.6	125.9	125.9	128.5	128.5	132.5	141.6	150.8	161.3	167.9
70°	106.2	106.2	106.2	106.2	106.2	107.5	110.2	115.4	122.0	129.8	133.8
72.5°	89.2	87.9	87.9	86.6	86.6	86.6	87.9	90.5	95.7	101.0	104.9
75°	70.8	69.5	68.2	68.2	66.9	66.9	66.9	69.5	72.1	74.8	76.1
77.5°	52.5	52.5	51.1	48.5	48.5	47.2	47.2	47.2	48.5	51.1	49.8
80°	36.7	34.1	32.8	32.8	31.5	31.5	30.2	28.9	28.9	28.9	27.5
82.5°	17.0	17.0	17.0	15.7	15.7	15.7	15.7	14.4	14.4	13.1	13.1
85°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	5.2	5.2	5.2	5.2
87.5°	3.9	3.9	3.9	3.9	3.9	2.6	2.6	2.6	2.6	2.6	2.6
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°	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4
2.5°	996.7	1000.6	1004.5	1005.9	1007.2	1011.1	1013.7	1017.7	1020.3	1021.6	1024.2
5°	998.0	1004.5	1011.1	1015.0	1017.7	1024.2	1029.5	1036.0	1039.9	1046.5	1050.4
7.5°	994.0	1004.5	1013.7	1019.0	1024.2	1033.4	1041.3	1049.1	1055.7	1062.2	1068.8
10°	986.2	999.3	1012.4	1017.7	1024.2	1034.7	1046.5	1055.7	1064.9	1072.7	1080.6
12.5°	974.4	990.1	1005.9	1012.4	1019.0	1033.4	1045.2	1055.7	1064.9	1072.7	1078.0
15°	958.6	977.0	994.0	1003.2	1011.1	1025.5	1037.3	1047.8	1055.7	1060.9	1064.9
17.5°	939.0	960.0	979.6	987.5	996.7	1009.8	1021.6	1029.5	1034.7	1034.7	1036.0
20°	916.7	939.0	958.6	967.8	977.0	987.5	996.7	1000.6	1000.6	1000.6	998.0
22.5°	890.4	914.1	933.7	942.9	950.8	958.6	963.9	963.9	961.3	957.3	953.4
25°	860.3	885.2	903.6	912.7	916.7	923.2	921.9	920.6	916.7	912.7	907.5
27.5°	827.5	852.4	872.1	876.0	878.6	880.0	876.0	873.4	868.2	862.9	859.0
30°	793.4	817.0	832.7	834.1	836.7	835.4	830.1	823.6	818.3	811.8	806.5
32.5°	756.7	779.0	789.5	792.1	790.8	785.5	780.3	773.7	767.2	759.3	752.7
35°	717.3	738.3	744.9	743.6	742.3	735.7	727.8	721.3	712.1	706.8	697.7
37.5°	676.7	696.4	699.0	695.0	691.1	683.2	675.4	668.8	658.3	653.1	646.5
40°	636.0	649.1	649.1	645.2	642.6	634.7	624.2	615.1	607.2	598.0	594.1
42.5°	594.1	604.6	599.3	596.7	592.8	581.0	573.1	563.9	553.4	548.2	541.6
45°	552.1	558.7	552.1	546.9	542.9	532.4	524.6	512.8	503.6	498.3	490.5
47.5°	508.8	511.4	506.2	498.3	495.7	483.9	474.7	465.6	456.4	447.2	440.6
50°	469.5	466.9	459.0	453.7	449.8	436.7	426.2	415.7	407.8	400.0	393.4
52.5°	424.9	422.3	411.8	405.2	398.7	388.2	375.1	367.2	358.0	351.5	344.9
55°	379.0	371.1	363.3	356.7	350.1	339.7	327.9	317.4	310.8	302.9	299.0
57.5°	331.8	326.5	313.4	308.2	302.9	292.4	280.6	271.5	262.3	257.0	254.4
60°	289.8	280.6	270.2	263.6	258.3	247.9	237.4	228.2	221.6	219.0	215.1
62.5°	245.2	237.4	225.6	220.3	216.4	205.9	196.7	188.8	183.6	178.4	175.7
65°	204.6	195.4	186.2	181.0	175.7	166.5	160.0	154.7	148.2	144.3	141.6
67.5°	165.2	157.4	149.5	145.6	141.6	133.8	127.2	123.3	118.0	114.1	108.8
70°	129.8	123.3	118.0	114.1	110.2	103.6	98.4	94.4	90.5	86.6	82.6
72.5°	101.0	94.4	87.9	86.6	83.9	78.7	74.8	70.8	66.9	64.3	61.6
75°	72.1	69.5	64.3	61.6	60.3	56.4	52.5	49.8	48.5	45.9	44.6
77.5°	47.2	44.6	40.7	40.7	39.3	38.0	35.4	32.8	32.8	31.5	31.5
80°	26.2	24.9	23.6	22.3	23.6	22.3	21.0	19.7	19.7	19.7	18.4
82.5°	11.8	11.8	10.5	10.5	10.5	10.5	10.5	9.2	9.2	9.2	9.2
85°	5.2	5.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3	1.3
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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CATALOG NUMBER: PR4FS24D010 PR4M24WW8FSMW 2000lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	991.4	991.4	991.4	991.4	991.4	991.4	991.4	991.4
2.5°	1026.8	1028.1	1029.5	1030.8	1032.1	1032.1	1033.4	1034.7
5°	1053.1	1057.0	1058.3	1059.6	1062.2	1063.6	1063.6	1064.9
7.5°	1074.0	1079.3	1080.6	1083.2	1085.8	1087.2	1088.5	1088.5
10°	1085.8	1089.8	1091.1	1093.7	1096.3	1097.6	1099.0	1099.0
12.5°	1081.9	1085.8	1087.2	1088.5	1091.1	1092.4	1092.4	1092.4
15°	1067.5	1067.5	1067.5	1067.5	1066.2	1067.5	1067.5	1064.9
17.5°	1034.7	1033.4	1034.7	1032.1	1030.8	1030.8	1029.5	1029.5
20°	995.4	994.0	992.7	992.7	991.4	988.8	987.5	986.2
22.5°	950.8	948.1	946.8	946.8	944.2	942.9	941.6	939.0
25°	904.9	898.3	898.3	898.3	895.7	895.7	893.1	890.4
27.5°	852.4	848.5	848.5	845.9	843.2	841.9	840.6	841.9
30°	802.6	797.3	794.7	793.4	792.1	792.1	788.2	786.8
32.5°	747.5	743.6	740.9	739.6	737.0	735.7	734.4	731.8
35°	693.7	689.8	687.2	687.2	681.9	680.6	679.3	679.3
37.5°	638.7	636.0	634.7	630.8	629.5	628.2	628.2	626.9
40°	587.5	583.6	582.3	578.3	577.0	577.0	573.1	574.4
42.5°	535.1	529.8	528.5	527.2	525.9	523.3	524.6	521.9
45°	485.2	481.3	478.7	478.7	477.4	474.7	473.4	474.7
47.5°	436.7	431.5	431.5	430.1	428.8	427.5	427.5	424.9
50°	390.8	386.9	384.2	381.6	382.9	381.6	379.0	380.3
52.5°	341.0	337.0	335.7	335.7	334.4	334.4	333.1	333.1
55°	296.4	292.4	292.4	291.1	291.1	291.1	289.8	289.8
57.5°	251.8	249.2	247.9	247.9	245.2	246.5	245.2	243.9
60°	212.4	208.5	205.9	207.2	205.9	205.9	203.3	204.6
62.5°	171.8	169.2	167.9	167.9	165.2	165.2	162.6	163.9
65°	137.7	133.8	132.5	131.1	128.5	127.2	127.2	127.2
67.5°	106.2	103.6	102.3	99.7	97.0	95.7	94.4	93.1
70°	80.0	77.4	76.1	74.8	73.4	72.1	72.1	70.8
72.5°	60.3	57.7	57.7	56.4	56.4	55.1	55.1	55.1
75°	43.3	43.3	42.0	42.0	40.7	42.0	40.7	40.7
77.5°	30.2	28.9	30.2	28.9	27.5	27.5	27.5	27.5
80°	17.0	17.0	17.0	17.0	17.0	17.0	17.0	15.7
82.5°	9.2	9.2	9.2	7.9	7.9	7.9	7.9	7.9
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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