

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: P345404

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMW 1500Lm3500K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345404  
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: PR4FS12D010 PR4M12WW9FSMW 1500Lm3500K  
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 955.0 lumens  
Efficiency: N/A  
Efficacy: 71.8 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

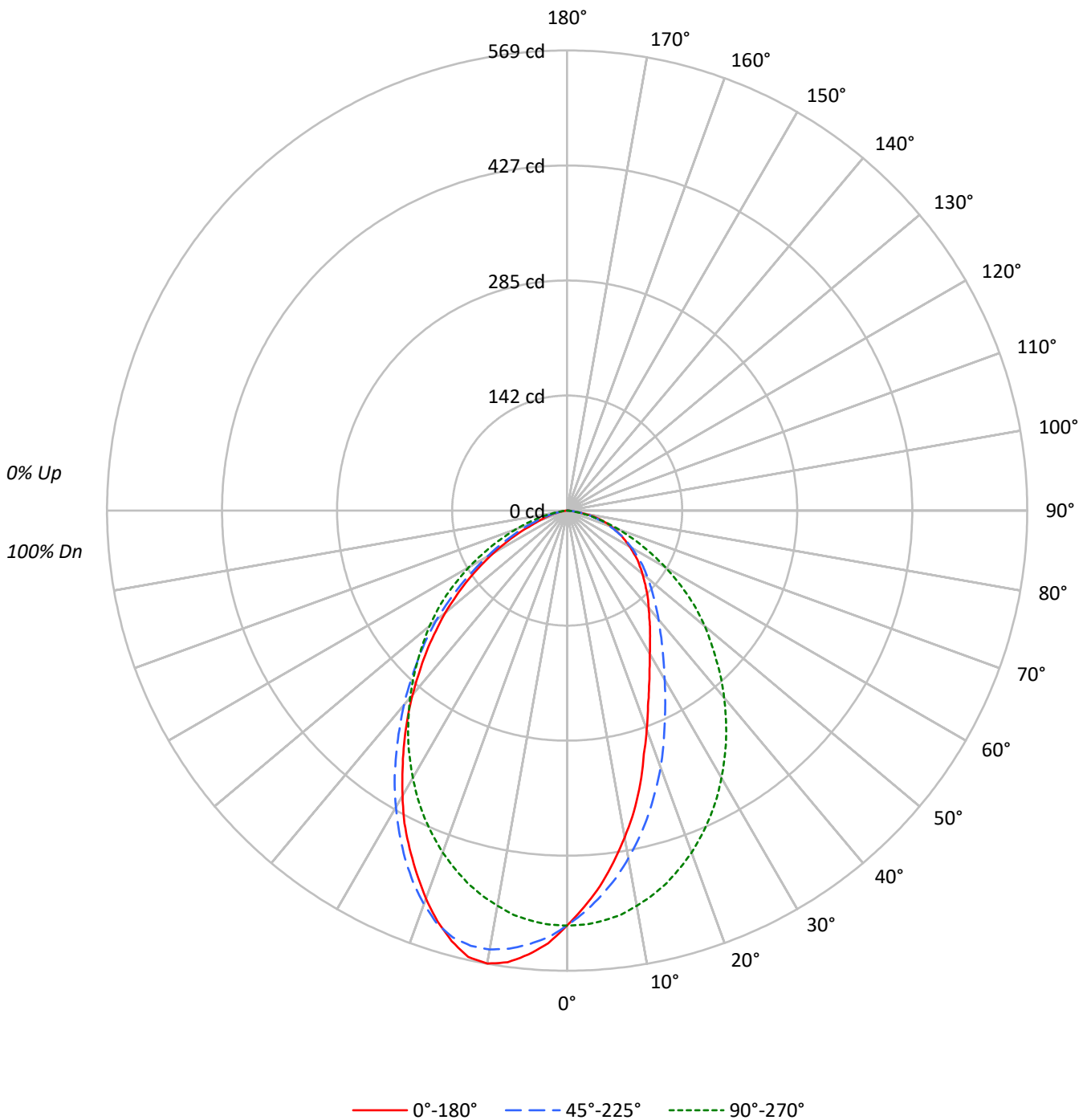
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	44881	44881	44881
5°	40943	44701	48389
10°	36416	44072	50520
15°	31658	43149	49905
20°	26789	41887	47510
25°	23124	40352	44482
30°	20635	38532	41128
35°	19060	36604	37544
40°	17904	34483	33947
45°	17133	32236	30393
50°	16534	30196	26780
55°	16150	27739	22875
60°	15675	24579	18526
65°	15316	20925	13619
70°	14935	17186	9386
75°	14228	13079	7097
80°	9923	7505	4080
85°	4115	2710	1405



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	48.1	5.0
10°-20°	130.3	13.6
20°-30°	176.1	18.4
30°-40°	185.4	19.4
40°-50°	167.0	17.5
50°-60°	128.9	13.5
60°-70°	79.4	8.3
70°-80°	34.9	3.7
80°-90°	5.0	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°	354.5	37.1
0°-40°	539.9	56.5
0°-60°	835.8	87.5
0°-90°	955.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	955.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	513	513	513	513	513	
5°	466	478	509	538	551	43
15°	350	389	476	546	551	97
25°	240	286	418	474	461	111
35°	178	205	343	369	352	112
45°	138	151	261	261	246	107
55°	106	111	182	161	150	94
65°	74	74	101	77	66	73
75°	42	37	39	25	21	43
85°	4	3	3	2	1	7
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°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1
2.5°	490.1	490.7	490.7	490.7	491.4	492.1	492.1	493.4	494.1	495.5	496.8
5°	466.3	465.6	465.6	467.0	468.3	469.0	469.0	471.7	473.8	475.8	478.5
7.5°	438.5	437.8	439.8	440.5	441.9	443.9	445.3	448.0	450.0	454.8	458.8
10°	410.0	410.0	411.3	413.4	415.4	417.4	418.8	422.2	426.2	431.0	436.4
12.5°	381.5	379.4	381.5	384.2	386.2	388.2	390.3	394.3	400.5	406.6	413.4
15°	349.6	348.9	350.2	352.9	357.7	359.1	361.1	367.2	373.3	381.5	388.9
17.5°	315.6	317.7	318.3	322.4	327.2	329.2	331.2	337.3	346.2	354.3	363.1
20°	287.8	286.4	289.1	291.9	295.9	299.3	302.0	308.8	318.3	327.2	338.0
22.5°	261.3	260.6	262.7	266.1	269.5	272.2	274.9	281.7	289.1	299.3	311.5
25°	239.6	238.9	241.0	243.0	247.1	249.1	251.1	257.9	266.1	274.2	285.7
27.5°	220.6	220.6	221.9	223.3	226.7	228.7	231.5	236.9	243.7	251.8	262.7
30°	204.3	204.3	205.7	207.0	210.4	211.8	213.8	217.9	223.3	232.1	241.0
32.5°	190.7	190.7	191.4	193.4	194.8	196.2	198.2	201.6	207.0	213.8	221.9
35°	178.5	178.5	179.2	180.5	182.6	183.3	184.6	188.0	192.1	197.5	205.0
37.5°	167.0	167.6	167.6	169.0	170.4	171.0	172.4	175.1	178.5	183.3	189.4
40°	156.8	157.5	157.5	158.8	160.2	160.9	161.5	162.9	167.0	170.4	175.8
42.5°	148.0	148.0	148.0	148.6	150.0	150.7	151.4	153.4	155.4	158.8	162.9
45°	138.5	138.5	139.1	139.8	141.2	141.2	141.9	143.9	145.3	148.0	151.4
47.5°	129.6	129.6	130.3	130.3	131.7	131.7	132.4	133.7	135.1	137.8	140.5
50°	121.5	121.5	121.5	122.2	122.9	123.5	123.5	124.9	126.2	128.3	130.3
52.5°	113.3	113.3	113.3	113.3	114.0	114.7	114.7	116.1	117.4	118.8	120.8
55°	105.9	105.2	105.9	105.9	105.9	106.6	106.6	107.9	107.9	109.3	111.3
57.5°	97.1	97.7	97.7	97.1	97.7	98.4	98.4	98.4	99.1	100.5	101.1
60°	89.6	89.6	89.6	89.6	90.3	90.3	90.3	90.3	91.0	91.0	92.3
62.5°	81.4	81.4	82.1	82.1	81.4	82.1	82.1	82.1	82.8	82.8	82.8
65°	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0
67.5°	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.2	65.2	65.2	64.5
70°	58.4	58.4	58.4	57.7	57.7	57.7	57.7	57.0	57.0	56.3	55.7
72.5°	50.2	50.2	50.2	49.5	49.5	49.5	48.9	48.2	47.5	46.8	46.8
75°	42.1	42.1	41.4	40.7	40.7	40.0	40.0	39.4	39.4	38.0	37.3
77.5°	32.6	31.9	31.9	31.9	31.2	30.5	30.5	29.9	29.2	29.2	28.5
80°	19.7	19.7	20.4	19.7	20.4	19.7	19.7	20.4	19.7	19.0	19.0
82.5°	9.5	9.5	10.2	9.5	10.2	10.2	10.2	9.5	9.5	9.5	9.5
85°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.4	3.4	3.4
87.5°	2.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1
2.5°	498.2	500.2	500.9	502.9	503.6	505.0	506.3	508.4	510.4	512.4	513.8
5°	481.2	484.6	487.3	490.7	492.8	494.1	498.2	501.6	505.7	509.1	512.4
7.5°	462.9	467.0	473.1	477.2	479.2	482.6	487.3	492.8	498.2	504.3	509.1
10°	441.9	448.0	454.1	461.5	464.9	468.3	474.4	481.9	489.4	496.2	503.6
12.5°	419.5	427.6	435.8	443.2	448.0	452.0	461.5	469.7	478.5	487.3	495.5
15°	397.7	406.6	416.1	425.6	431.0	435.8	445.3	455.4	466.3	476.5	486.0
17.5°	374.0	384.2	395.0	405.9	411.3	417.4	429.6	440.5	452.7	463.6	475.1
20°	349.6	361.1	372.6	386.2	391.6	398.4	410.6	424.2	437.1	450.0	462.2
22.5°	324.4	337.3	350.2	364.5	371.9	378.7	393.0	406.6	420.8	434.4	448.0
25°	298.6	313.6	328.5	342.8	350.9	357.7	373.3	388.9	403.9	418.1	432.4
27.5°	274.9	289.1	305.4	321.0	329.2	336.7	353.6	368.6	384.8	400.5	414.7
30°	253.2	266.7	283.0	300.0	308.1	316.3	333.3	350.2	365.2	381.5	397.1
32.5°	232.8	245.0	261.3	278.3	287.8	295.3	312.9	329.2	346.2	362.4	378.1
35°	213.8	226.0	240.3	257.2	265.4	274.2	292.5	309.5	325.8	342.8	357.0
37.5°	197.5	207.0	219.9	236.2	245.0	253.8	272.2	289.1	305.4	322.4	337.3
40°	181.9	190.7	202.3	216.5	225.3	234.2	251.8	268.8	285.1	302.0	317.7
42.5°	169.0	175.8	185.3	198.9	206.3	215.2	232.8	249.1	265.4	281.7	296.6
45°	156.1	162.2	170.4	181.2	188.7	196.8	213.8	230.8	245.7	260.6	275.6
47.5°	143.9	148.6	156.1	165.6	171.7	179.2	195.5	211.8	226.7	241.0	254.5
50°	133.0	137.1	143.9	150.7	156.1	162.9	177.2	193.4	207.7	221.9	234.2
52.5°	122.9	126.2	131.0	137.8	141.9	147.3	160.9	175.1	189.4	202.3	213.8
55°	113.3	115.4	119.5	124.2	127.6	132.4	143.9	157.5	170.4	181.9	191.4
57.5°	102.5	105.2	107.9	111.3	114.7	117.4	126.2	138.5	150.0	160.2	169.7
60°	93.0	95.0	96.4	99.8	101.1	103.8	110.6	120.8	131.7	140.5	147.3
62.5°	83.5	84.2	85.5	88.2	88.9	91.0	95.7	103.8	112.0	120.1	126.9
65°	74.0	74.0	75.3	76.0	77.4	78.1	81.4	87.6	95.0	101.1	105.2
67.5°	64.5	64.5	65.2	65.2	66.5	66.5	68.6	73.3	78.1	83.5	86.9
70°	55.0	55.0	55.0	55.0	55.0	55.7	57.0	59.7	63.1	67.2	69.2
72.5°	46.2	45.5	45.5	44.8	44.8	44.8	45.5	46.8	49.5	52.3	54.3
75°	36.7	36.0	35.3	35.3	34.6	34.6	34.6	36.0	37.3	38.7	39.4
77.5°	27.1	27.1	26.5	25.1	25.1	24.4	24.4	24.4	25.1	26.5	25.8
80°	19.0	17.6	17.0	17.0	16.3	16.3	15.6	14.9	14.9	14.9	14.3
82.5°	8.8	8.8	8.8	8.1	8.1	8.1	8.1	7.5	7.5	6.8	6.8
85°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.7	2.7	2.7	2.7
87.5°	2.0	2.0	2.0	2.0	2.0	1.4	1.4	1.4	1.4	1.4	1.4
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°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1
2.5°	515.8	517.9	519.9	520.6	521.3	523.3	524.7	526.7	528.1	528.7	530.1
5°	516.5	519.9	523.3	525.3	526.7	530.1	532.8	536.2	538.2	541.6	543.7
7.5°	514.5	519.9	524.7	527.4	530.1	534.8	538.9	543.0	546.4	549.8	553.2
10°	510.4	517.2	524.0	526.7	530.1	535.5	541.6	546.4	551.1	555.2	559.3
12.5°	504.3	512.4	520.6	524.0	527.4	534.8	541.0	546.4	551.1	555.2	557.9
15°	496.2	505.7	514.5	519.2	523.3	530.8	536.9	542.3	546.4	549.1	551.1
17.5°	486.0	496.8	507.0	511.1	515.8	522.6	528.7	532.8	535.5	535.5	536.2
20°	474.4	486.0	496.2	500.9	505.7	511.1	515.8	517.9	517.9	517.9	516.5
22.5°	460.9	473.1	483.3	488.0	492.1	496.2	498.9	498.9	497.5	495.5	493.4
25°	445.3	458.1	467.7	472.4	474.4	477.8	477.2	476.5	474.4	472.4	469.7
27.5°	428.3	441.2	451.4	453.4	454.8	455.4	453.4	452.0	449.3	446.6	444.6
30°	410.6	422.9	431.0	431.7	433.0	432.4	429.6	426.2	423.5	420.1	417.4
32.5°	391.6	403.2	408.6	410.0	409.3	406.6	403.9	400.5	397.1	393.0	389.6
35°	371.3	382.1	385.5	384.8	384.2	380.8	376.7	373.3	368.6	365.8	361.1
37.5°	350.2	360.4	361.8	359.7	357.7	353.6	349.6	346.2	340.7	338.0	334.6
40°	329.2	336.0	336.0	333.9	332.6	328.5	323.1	318.3	314.3	309.5	307.5
42.5°	307.5	312.9	310.2	308.8	306.8	300.7	296.6	291.9	286.4	283.7	280.3
45°	285.7	289.1	285.7	283.0	281.0	275.6	271.5	265.4	260.6	257.9	253.8
47.5°	263.4	264.7	262.0	257.9	256.6	250.5	245.7	241.0	236.2	231.5	228.1
50°	243.0	241.6	237.6	234.8	232.8	226.0	220.6	215.2	211.1	207.0	203.6
52.5°	219.9	218.6	213.1	209.7	206.3	200.9	194.1	190.0	185.3	181.9	178.5
55°	196.2	192.1	188.0	184.6	181.2	175.8	169.7	164.3	160.9	156.8	154.8
57.5°	171.7	169.0	162.2	159.5	156.8	151.4	145.3	140.5	135.7	133.0	131.7
60°	150.0	145.3	139.8	136.4	133.7	128.3	122.9	118.1	114.7	113.3	111.3
62.5°	126.9	122.9	116.7	114.0	112.0	106.6	101.8	97.7	95.0	92.3	91.0
65°	105.9	101.1	96.4	93.7	91.0	86.2	82.8	80.1	76.7	74.7	73.3
67.5°	85.5	81.4	77.4	75.3	73.3	69.2	65.8	63.8	61.1	59.1	56.3
70°	67.2	63.8	61.1	59.1	57.0	53.6	50.9	48.9	46.8	44.8	42.8
72.5°	52.3	48.9	45.5	44.8	43.4	40.7	38.7	36.7	34.6	33.3	31.9
75°	37.3	36.0	33.3	31.9	31.2	29.2	27.1	25.8	25.1	23.8	23.1
77.5°	24.4	23.1	21.0	21.0	20.4	19.7	18.3	17.0	17.0	16.3	16.3
80°	13.6	12.9	12.2	11.5	12.2	11.5	10.9	10.2	10.2	10.2	9.5
82.5°	6.1	6.1	5.4	5.4	5.4	5.4	5.4	4.8	4.8	4.8	4.8
85°	2.7	2.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7	0.7
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: PR4FS12D010 PR4M12WW9FSMW 1500lm3500K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	513.1	513.1	513.1	513.1	513.1	513.1	513.1	513.1
2.5°	531.5	532.1	532.8	533.5	534.2	534.2	534.8	535.5
5°	545.0	547.1	547.7	548.4	549.8	550.5	550.5	551.1
7.5°	555.9	558.6	559.3	560.6	562.0	562.7	563.4	563.4
10°	562.0	564.0	564.7	566.1	567.4	568.1	568.8	568.8
12.5°	560.0	562.0	562.7	563.4	564.7	565.4	565.4	565.4
15°	552.5	552.5	552.5	552.5	551.8	552.5	552.5	551.1
17.5°	535.5	534.8	535.5	534.2	533.5	533.5	532.8	532.8
20°	515.2	514.5	513.8	513.8	513.1	511.8	511.1	510.4
22.5°	492.1	490.7	490.1	490.1	488.7	488.0	487.3	486.0
25°	468.3	464.9	464.9	464.9	463.6	463.6	462.2	460.9
27.5°	441.2	439.1	439.1	437.8	436.4	435.8	435.1	435.8
30°	415.4	412.7	411.3	410.6	410.0	410.0	407.9	407.2
32.5°	386.9	384.8	383.5	382.8	381.5	380.8	380.1	378.7
35°	359.1	357.0	355.7	355.7	352.9	352.3	351.6	351.6
37.5°	330.5	329.2	328.5	326.5	325.8	325.1	325.1	324.4
40°	304.1	302.0	301.4	299.3	298.6	298.6	296.6	297.3
42.5°	276.9	274.2	273.5	272.9	272.2	270.8	271.5	270.1
45°	251.1	249.1	247.7	247.7	247.1	245.7	245.0	245.7
47.5°	226.0	223.3	223.3	222.6	221.9	221.3	221.3	219.9
50°	202.3	200.2	198.9	197.5	198.2	197.5	196.2	196.8
52.5°	176.5	174.4	173.8	173.8	173.1	173.1	172.4	172.4
55°	153.4	151.4	151.4	150.7	150.7	150.7	150.0	150.0
57.5°	130.3	129.0	128.3	128.3	126.9	127.6	126.9	126.2
60°	110.0	107.9	106.6	107.2	106.6	106.6	105.2	105.9
62.5°	88.9	87.6	86.9	86.9	85.5	85.5	84.2	84.8
65°	71.3	69.2	68.6	67.9	66.5	65.8	65.8	65.8
67.5°	55.0	53.6	52.9	51.6	50.2	49.5	48.9	48.2
70°	41.4	40.0	39.4	38.7	38.0	37.3	37.3	36.7
72.5°	31.2	29.9	29.9	29.2	29.2	28.5	28.5	28.5
75°	22.4	22.4	21.7	21.7	21.0	21.7	21.0	21.0
77.5°	15.6	14.9	15.6	14.9	14.3	14.3	14.3	14.3
80°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.1
82.5°	4.8	4.8	4.8	4.1	4.1	4.1	4.1	4.1
85°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
87.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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