

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: P345473

Luminaire Tested: **PR4FS12D010 PR4M12WW8FSBZ 1500Lm3500K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345473  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-9)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: PR4FS12D010 PR4M12WW8FSBZ 1500lm3500K  
Description: PR4 WALLWASH ASSEMBLY WITH, BRONZE FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1121.6 lumens  
Efficiency: N/A  
Efficacy: 84.3 lumens/watt  
Spacing Criteria (0/90/45): 0.94 / 1.12 / 1.1  
Luminous Opening: Circular (Dia: 0.4' x H: 0')  
CIE Type: Direct

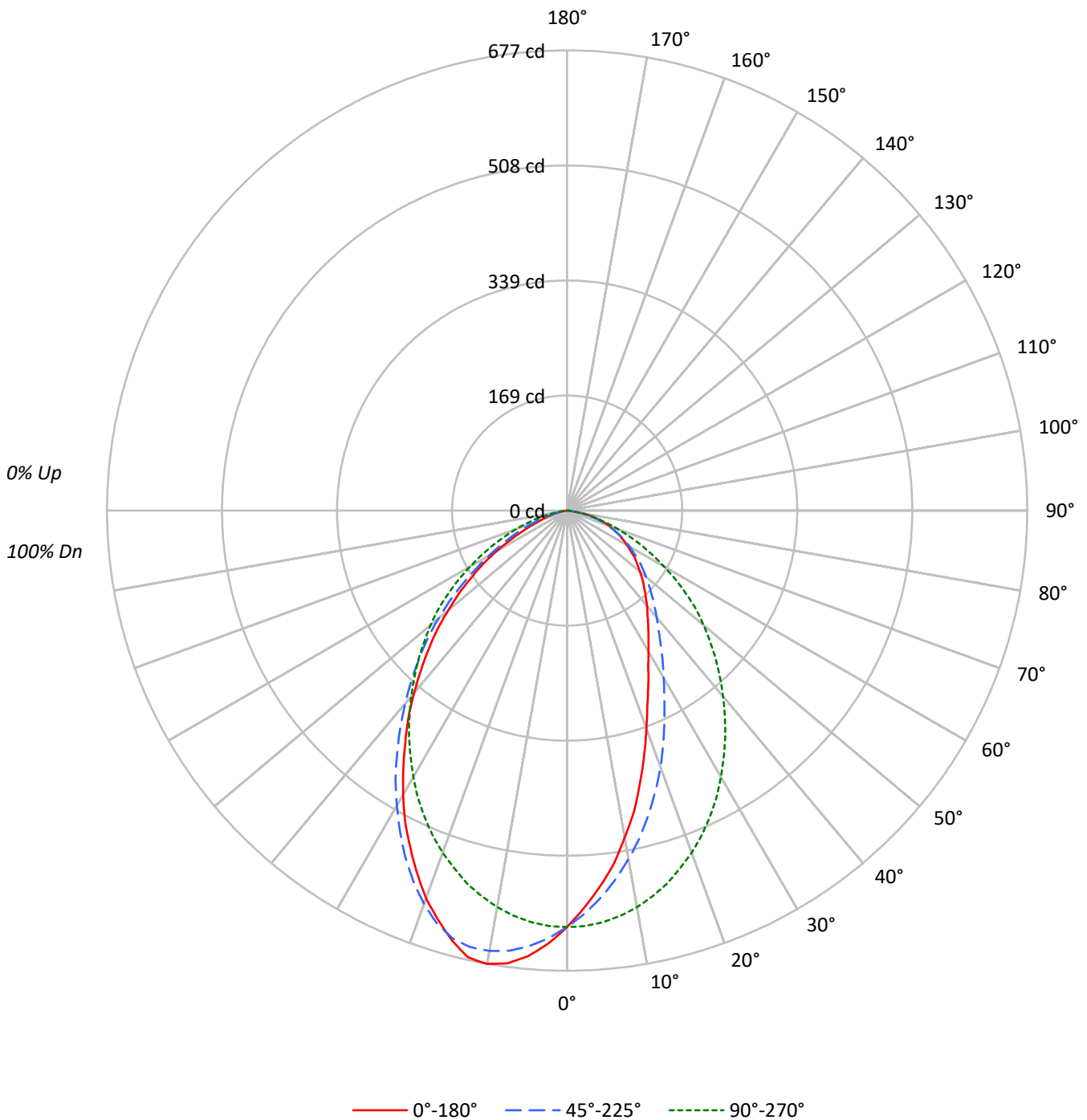
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90					88				
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78					76				
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68					66				
4	87	76	69	63	85	75	68	62	73	66	61	70	65	61	68	64	60					58				
5	81	69	61	55	79	68	60	55	66	59	54	64	58	54	62	57	53					51				
6	75	63	55	49	73	62	54	49	60	53	48	59	53	48	57	52	48					46				
7	70	58	50	44	68	57	49	44	55	48	43	54	48	43	53	47	43					41				
8	65	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39					37				
9	61	49	41	36	60	48	41	36	47	41	36	46	40	36	45	40	36					34				
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33					31				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	53584	53584	53584
5°	48740	53358	57766
10°	43344	52616	60157
15°	37517	51444	59286
20°	31713	49865	56492
25°	27255	47957	52715
30°	24190	45693	48713
35°	22210	43289	44325
40°	20884	40752	40010
45°	19817	38236	35638
50°	19051	35680	31053
55°	18513	32574	26291
60°	17844	28742	21098
65°	17427	24795	15233
70°	16751	20280	10562
75°	15580	15309	7367
80°	10578	8160	3677
85°	803	3212	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	57.4	5.1
10°-20°	155.2	13.8
20°-30°	208.9	18.6
30°-40°	218.9	19.5
40°-50°	196.3	17.5
50°-60°	150.3	13.4
60°-70°	91.5	8.2
70°-80°	38.9	3.5
80°-90°	4.4	0.4
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°	421.5	37.6
0°-40°	640.3	57.1
0°-60°	986.8	88.0
0°-90°	1121.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1121.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	613	613	613	613	613	
5°	555	571	608	643	658	51
15°	414	463	568	651	655	115
25°	282	338	497	563	546	130
35°	208	240	405	436	415	131
45°	160	176	309	308	288	124
55°	121	129	214	187	172	108
65°	84	85	120	89	74	83
75°	46	41	45	28	22	47
85°	1	2	3	1	0	5
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°	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6
2.5°	584.3	585.1	586.7	585.9	587.5	587.5	587.5	589.1	590.7	591.5	593.2
5°	555.1	555.9	556.7	558.4	559.2	558.4	560.8	563.2	565.6	568.9	571.3
7.5°	524.4	524.4	523.6	526.0	529.2	530.0	531.7	534.1	537.3	542.2	547.0
10°	488.0	488.8	490.4	491.2	496.1	496.9	499.3	502.5	508.2	513.9	520.3
12.5°	454.0	453.2	454.0	456.4	459.6	463.7	466.1	470.2	477.4	484.7	492.8
15°	414.3	415.1	417.6	420.0	424.8	427.3	431.3	438.6	445.9	453.2	462.9
17.5°	377.1	376.3	379.5	383.6	387.6	391.7	394.9	401.4	411.1	421.6	432.1
20°	340.7	339.9	342.3	345.5	352.0	354.4	358.5	368.2	377.1	388.4	401.4
22.5°	308.3	308.3	310.7	314.8	318.8	321.3	325.3	333.4	343.9	356.9	369.8
25°	282.4	282.4	284.0	286.5	291.3	293.7	297.8	303.5	313.2	325.3	338.3
27.5°	258.1	259.8	260.6	263.0	267.0	269.5	271.9	278.4	286.5	297.0	309.1
30°	239.5	240.3	241.1	242.8	246.0	247.6	250.9	256.5	263.8	272.7	284.0
32.5°	222.5	223.3	223.3	225.8	228.2	230.6	232.2	237.1	242.0	250.9	261.4
35°	208.0	208.0	209.6	210.4	212.0	213.6	215.3	219.3	225.0	231.4	239.5
37.5°	194.2	194.2	195.0	196.6	198.3	199.9	200.7	203.9	208.8	214.4	220.9
40°	182.9	182.9	182.9	184.5	186.1	186.9	187.7	191.0	195.0	199.1	204.7
42.5°	170.7	171.6	172.4	173.2	174.0	175.6	176.4	178.0	181.3	184.5	190.2
45°	160.2	161.0	161.0	161.8	163.5	163.5	164.3	166.7	169.1	172.4	176.4
47.5°	150.5	150.5	150.5	151.3	152.1	152.9	153.8	155.4	157.8	159.4	163.5
50°	140.0	140.0	140.8	141.6	142.4	142.4	143.2	144.0	146.5	148.1	151.3
52.5°	130.3	130.3	131.1	131.1	131.9	131.9	132.7	134.3	135.1	137.6	140.0
55°	121.4	120.6	121.4	121.4	121.4	122.2	122.2	123.8	125.4	126.2	128.7
57.5°	110.9	111.7	111.7	112.5	112.5	112.5	113.3	113.3	114.9	115.7	116.5
60°	102.0	102.8	102.8	102.8	102.8	102.8	103.6	103.6	104.4	105.2	106.0
62.5°	93.1	93.1	93.1	93.1	93.1	93.9	93.9	93.9	93.9	94.7	95.5
65°	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	85.0
67.5°	74.4	74.4	74.4	75.3	74.4	74.4	74.4	74.4	74.4	74.4	73.6
70°	65.5	65.5	65.5	65.5	65.5	64.7	64.7	63.9	63.9	63.1	63.1
72.5°	55.8	55.8	55.8	55.0	55.0	55.0	54.2	53.4	52.6	52.6	52.6
75°	46.1	46.1	45.3	45.3	44.5	44.5	43.7	42.9	42.1	41.3	41.3
77.5°	34.8	34.8	34.8	34.8	34.0	33.2	33.2	32.4	31.6	31.6	30.8
80°	21.0	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	19.4	19.4
82.5°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6
2.5°	594.8	596.4	598.8	600.4	601.3	602.1	604.5	606.9	609.3	611.8	613.4
5°	575.4	578.6	581.8	585.9	587.5	589.9	594.8	598.8	602.9	607.7	611.8
7.5°	551.9	557.6	563.2	569.7	572.1	574.5	581.0	588.3	594.0	601.3	607.7
10°	527.6	534.1	541.4	550.3	554.3	558.4	566.5	575.4	583.4	592.4	600.4
12.5°	500.1	510.6	520.3	530.0	534.1	538.9	549.5	560.0	570.5	581.0	590.7
15°	472.6	483.1	495.2	506.6	512.2	518.7	530.8	543.8	555.9	568.1	579.4
17.5°	445.1	455.6	468.5	483.1	490.4	496.9	509.8	524.4	538.9	551.9	566.5
20°	414.3	428.1	443.5	458.8	466.1	474.2	489.6	505.0	521.1	535.7	551.1
22.5°	384.4	398.9	417.6	432.9	441.0	449.1	466.9	484.7	500.9	517.1	532.5
25°	354.4	371.4	389.2	407.8	416.7	425.7	444.3	461.3	479.9	496.9	514.7
27.5°	325.3	343.1	361.7	381.1	390.9	400.6	419.2	438.6	457.2	475.8	493.6
30°	297.8	314.8	335.0	355.2	365.0	375.5	394.9	415.1	433.7	452.4	471.8
32.5°	273.5	288.1	308.3	328.5	339.1	349.6	370.6	390.9	409.5	428.9	449.1
35°	250.9	264.6	282.4	303.5	314.0	324.5	345.5	366.6	386.8	405.4	424.8
37.5°	231.4	243.6	259.0	277.6	289.7	300.2	321.3	342.3	361.7	381.1	399.8
40°	212.8	223.3	237.9	255.7	265.4	275.9	297.0	318.8	338.3	356.9	375.5
42.5°	196.6	205.5	217.7	233.1	243.6	252.5	274.3	295.4	314.0	332.6	351.2
45°	182.1	189.4	199.1	212.0	220.9	232.2	252.5	271.9	290.5	309.1	326.9
47.5°	167.5	174.0	182.1	194.2	201.5	210.4	230.6	249.2	267.9	284.8	301.8
50°	155.4	160.2	166.7	176.4	183.7	190.2	208.8	228.2	245.2	262.2	277.6
52.5°	143.2	146.5	152.1	161.0	165.9	172.4	188.5	206.4	223.3	239.5	253.3
55°	131.1	134.3	138.4	144.9	149.7	154.6	168.3	185.3	200.7	213.6	227.4
57.5°	119.0	121.4	124.6	130.3	133.5	137.6	148.9	162.7	176.4	189.4	199.9
60°	108.4	110.1	112.5	115.7	118.1	120.6	128.7	141.6	154.6	164.3	174.0
62.5°	96.3	97.1	98.7	102.0	103.6	105.2	110.9	122.2	132.7	141.6	149.7
65°	85.0	85.8	86.6	88.2	89.8	90.6	95.5	103.6	112.5	119.8	125.4
67.5°	73.6	74.4	74.4	76.1	76.1	77.7	80.1	85.0	93.1	98.7	103.6
70°	62.3	63.1	63.1	63.9	63.1	63.9	66.4	69.6	74.4	79.3	82.5
72.5°	51.8	51.0	51.0	51.0	51.0	51.8	52.6	54.2	58.3	62.3	63.1
75°	40.5	40.5	39.7	39.7	39.7	39.7	39.7	40.5	42.9	45.3	46.1
77.5°	29.9	29.1	29.1	28.3	28.3	28.3	27.5	27.5	28.3	29.9	29.9
80°	19.4	18.6	17.8	18.6	17.0	17.8	17.0	16.2	16.2	16.2	15.4
82.5°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.3	7.3	7.3
85°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	2.4
87.5°	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2
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°	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6
2.5°	615.8	618.2	620.7	621.5	622.3	624.7	626.3	628.8	629.6	631.2	632.8
5°	615.8	620.7	624.7	627.1	628.8	632.8	636.9	639.3	643.3	645.8	648.2
7.5°	614.2	620.7	626.3	629.6	632.8	637.7	643.3	648.2	653.0	656.3	660.3
10°	609.3	617.4	624.7	628.8	632.8	640.1	646.6	652.2	657.9	662.8	666.8
12.5°	602.1	611.8	620.7	625.5	629.6	638.5	645.8	652.2	657.9	661.9	665.2
15°	591.5	603.7	614.2	619.1	623.9	633.6	640.9	646.6	651.4	653.9	656.3
17.5°	579.4	592.4	604.5	610.2	615.0	623.9	630.4	634.4	636.9	638.5	637.7
20°	565.6	579.4	591.5	597.2	602.9	610.2	615.0	616.6	615.8	615.0	613.4
22.5°	548.7	563.2	576.2	581.0	585.9	591.5	593.2	592.4	590.7	589.1	586.7
25°	530.8	545.4	557.6	561.6	565.6	568.1	567.3	565.6	563.2	560.8	556.7
27.5°	510.6	526.0	535.7	540.6	541.4	541.4	538.9	536.5	532.5	529.2	525.2
30°	489.6	502.5	512.2	513.9	514.7	513.0	510.6	506.6	500.9	498.5	494.4
32.5°	465.3	479.1	486.3	486.3	484.7	482.3	477.4	473.4	470.2	464.5	460.4
35°	442.6	453.2	457.2	457.2	454.8	450.7	446.7	441.0	436.2	432.9	427.3
37.5°	416.7	427.3	428.9	426.5	424.8	420.0	413.5	408.7	403.0	398.9	394.9
40°	392.5	399.8	398.1	395.7	394.1	389.2	382.0	376.3	370.6	365.8	361.7
42.5°	365.0	369.8	367.4	365.8	362.5	356.9	350.4	344.7	339.1	334.2	330.2
45°	339.9	342.3	338.3	335.0	332.6	326.1	321.3	313.2	307.5	302.6	299.4
47.5°	313.2	313.2	309.1	305.9	301.8	295.4	289.7	281.6	278.4	271.9	268.7
50°	287.3	284.8	280.0	275.9	272.7	265.4	258.1	252.5	246.8	242.0	238.7
52.5°	259.8	256.5	250.0	246.0	244.4	235.5	229.0	221.7	216.9	211.2	208.0
55°	232.2	227.4	220.1	216.9	213.6	206.4	199.1	191.8	186.9	182.9	179.6
57.5°	203.9	198.3	191.8	187.7	183.7	176.4	169.1	162.7	158.6	154.6	152.1
60°	174.8	170.7	164.3	160.2	156.2	149.7	141.6	136.8	133.5	128.7	127.9
62.5°	149.7	144.0	136.8	133.5	130.3	123.8	117.3	113.3	109.2	106.8	103.6
65°	124.6	119.0	112.5	109.2	106.8	101.2	96.3	92.3	89.0	85.8	83.3
67.5°	100.3	96.3	90.6	88.2	85.0	80.1	76.1	72.8	69.6	66.4	63.9
70°	80.1	75.3	70.4	68.8	67.2	62.3	59.1	55.8	52.6	50.2	47.7
72.5°	61.5	57.5	53.4	51.0	49.4	46.9	44.5	41.3	38.8	36.4	34.8
75°	43.7	41.3	38.0	36.4	34.8	33.2	29.9	28.3	27.5	25.9	24.3
77.5°	28.3	25.9	24.3	22.7	22.7	21.0	19.4	18.6	17.0	17.0	16.2
80°	14.6	13.8	12.9	12.9	12.9	11.3	10.5	10.5	9.7	8.9	8.9
82.5°	6.5	6.5	5.7	5.7	5.7	4.9	4.9	4.0	4.0	3.2	3.2
85°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	0.8	0.8	0.8
87.5°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	0.8	0.8	0.8
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 PR4M12WW8FSBZ 1500lm3500K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6
2.5°	633.6	635.2	635.2	636.0	636.9	637.7	636.9	637.7
5°	650.6	653.0	653.9	653.9	655.5	656.3	657.9	657.9
7.5°	663.6	666.0	667.6	668.4	670.0	671.7	671.7	671.7
10°	670.0	672.5	673.3	674.9	675.7	676.5	677.3	677.3
12.5°	667.6	670.0	670.8	670.8	672.5	672.5	672.5	673.3
15°	657.1	656.3	656.3	656.3	655.5	655.5	655.5	654.7
17.5°	636.0	635.2	635.2	635.2	634.4	633.6	632.8	631.2
20°	612.6	611.0	609.3	610.2	608.5	607.7	606.9	606.9
22.5°	585.1	582.6	581.8	581.0	579.4	578.6	577.0	577.0
25°	555.1	553.5	551.1	550.3	549.5	547.8	546.2	546.2
27.5°	523.6	521.1	520.3	518.7	517.9	516.3	515.5	516.3
30°	491.2	488.8	488.0	486.3	483.1	484.7	483.1	482.3
32.5°	457.2	454.8	453.2	451.5	451.5	449.1	449.1	448.3
35°	424.0	421.6	420.0	419.2	417.6	417.6	415.9	415.1
37.5°	391.7	389.2	387.6	386.8	385.2	383.6	382.8	383.6
40°	358.5	356.1	354.4	353.6	352.0	350.4	350.4	350.4
42.5°	326.1	323.7	323.7	322.1	319.6	318.8	318.0	318.0
45°	296.2	292.9	292.1	290.5	290.5	288.9	288.1	288.1
47.5°	264.6	262.2	261.4	260.6	259.8	259.0	259.0	259.0
50°	235.5	232.2	232.2	230.6	229.8	230.6	229.0	228.2
52.5°	206.4	203.9	203.1	203.1	201.5	201.5	201.5	200.7
55°	177.2	175.6	175.6	174.8	173.2	174.0	174.0	172.4
57.5°	150.5	148.1	148.1	147.3	147.3	147.3	145.7	147.3
60°	125.4	123.8	123.0	122.2	121.4	121.4	121.4	120.6
62.5°	102.0	100.3	99.5	98.7	97.1	97.1	95.5	94.7
65°	80.9	79.3	77.7	76.9	75.3	74.4	74.4	73.6
67.5°	61.5	59.9	58.3	57.5	55.8	55.0	54.2	54.2
70°	46.1	43.7	43.7	42.9	42.1	42.1	41.3	41.3
72.5°	33.2	33.2	32.4	32.4	31.6	31.6	31.6	31.6
75°	23.5	23.5	23.5	23.5	22.7	22.7	21.8	21.8
77.5°	15.4	15.4	15.4	14.6	14.6	14.6	14.6	14.6
80°	8.1	8.1	8.1	8.1	8.1	7.3	8.1	7.3
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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