

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: P345431

Luminaire Tested: **PR4FS12D010 PR4M12WW8FSMMS 1000Lm3500K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345431  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-8)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: PR4FS12D010 PR4M12WW8FSMMS 1000Lm3500K  
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 856.9 lumens  
Efficiency: N/A  
Efficacy: 84.8 lumens/watt  
Spacing Criteria (0/90/45): 0.94 / 1.12 / 1.1  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

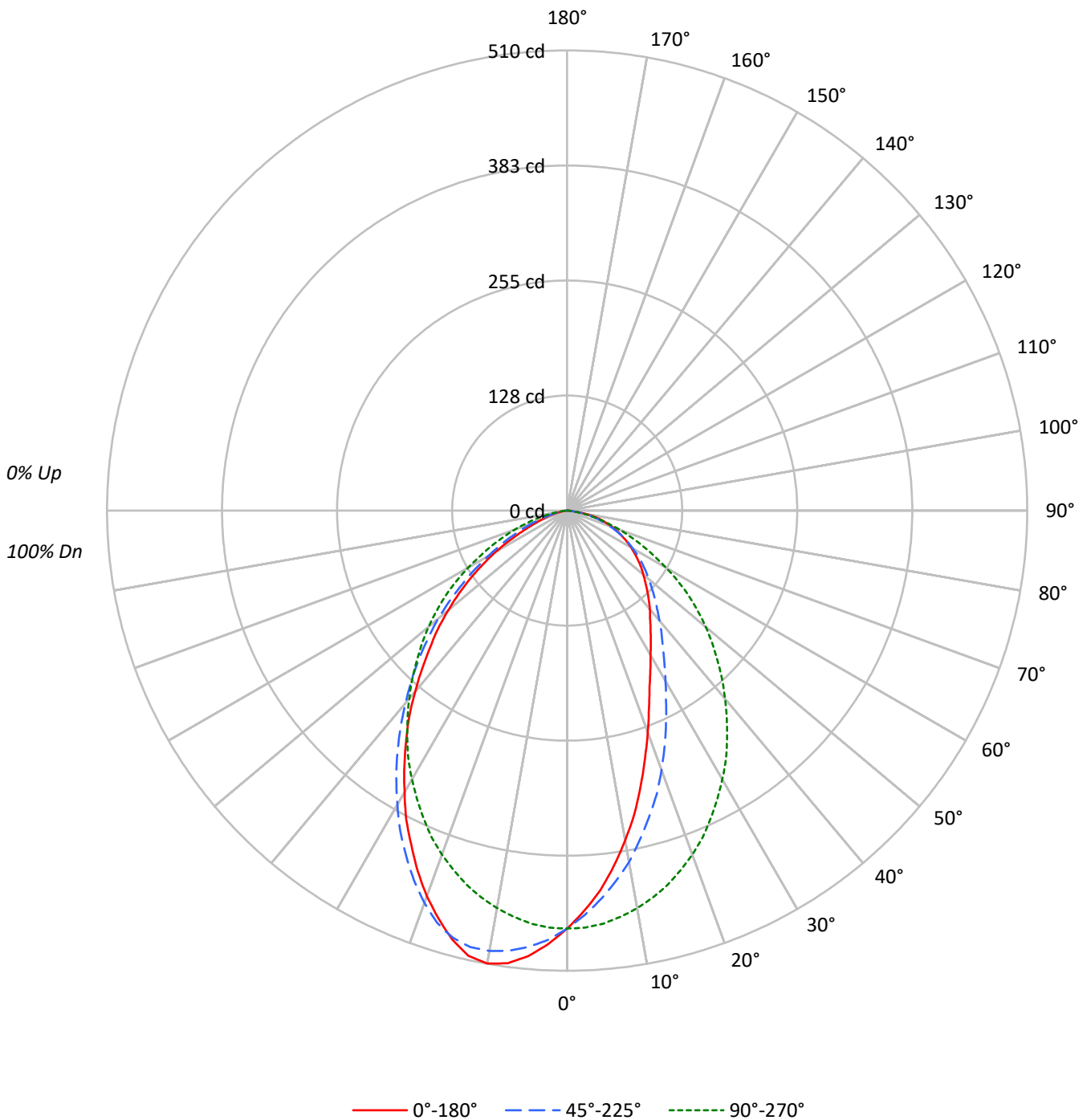
Input Watts (W): 10.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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	36	45	39	35	34
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	37	32	31

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

	0°	90°	180°
0°	45143	45143	45143
5°	41304	44953	48485
10°	36695	44265	50441
15°	31792	43335	49641
20°	27100	42076	47148
25°	23227	40465	43949
30°	20796	38701	40558
35°	19143	36763	36977
40°	18142	34643	33320
45°	17283	32472	29605
50°	16693	30430	26063
55°	16329	27968	22242
60°	15983	24696	17776
65°	15520	21170	12706
70°	15159	17610	9061
75°	14497	13593	6439
80°	10327	7913	3760
85°	2684	4137	671



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.3	5.1
10°-20°	117.3	13.7
20°-30°	158.1	18.4
30°-40°	166.0	19.4
40°-50°	149.6	17.5
50°-60°	115.5	13.5
60°-70°	71.1	8.3
70°-80°	31.3	3.7
80°-90°	4.6	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°	318.7	37.2
0°-40°	484.7	56.6
0°-60°	749.9	87.5
0°-90°	856.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	856.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	463	463	463	463	463	
5°	422	432	460	485	496	39
15°	315	351	430	490	492	88
25°	216	259	376	422	409	100
35°	161	185	309	328	311	101
45°	125	137	236	232	215	97
55°	96	101	165	141	131	86
65°	67	67	92	68	55	67
75°	38	34	36	21	17	39
85°	2	3	4	2	1	6
90°	0	0	0	0	0	



TEST NUMBER: P345431

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	443.6	443.0	442.4	443.6	443.6	444.2	444.2	445.5	445.5	446.7	448.5
5°	422.2	421.0	421.6	421.6	423.4	423.4	424.7	425.9	427.7	430.2	432.0
7.5°	397.1	397.1	397.7	399.0	400.8	400.8	402.6	404.5	407.5	410.6	414.2
10°	370.8	372.0	372.6	373.9	376.9	378.1	378.8	381.8	386.1	389.2	395.3
12.5°	344.5	344.5	345.7	348.2	350.6	352.4	353.7	358.0	362.2	367.7	373.3
15°	315.1	315.7	317.6	320.0	324.3	325.5	328.0	332.9	339.0	345.7	351.2
17.5°	287.0	288.2	289.4	293.1	296.2	298.0	301.7	307.2	313.9	321.2	329.8
20°	261.3	259.4	261.9	264.3	267.4	271.7	274.1	280.2	287.6	297.4	305.9
22.5°	236.8	236.8	238.6	240.5	243.5	246.6	249.7	254.5	262.5	272.3	282.1
25°	216.0	216.6	218.4	220.3	223.3	225.2	228.2	233.1	241.1	248.4	259.4
27.5°	199.5	200.1	200.7	203.1	205.6	207.4	209.3	214.2	220.3	228.2	237.4
30°	184.8	184.8	185.4	187.8	189.1	191.5	192.7	197.0	202.5	209.3	217.8
32.5°	172.6	172.6	173.2	174.4	176.8	178.1	178.7	183.0	187.2	194.0	200.7
35°	160.9	160.9	161.5	162.8	164.6	165.2	167.0	169.5	173.8	178.7	184.8
37.5°	151.1	151.1	151.7	152.4	153.6	154.8	156.0	158.5	160.9	165.8	171.9
40°	142.6	142.0	142.6	143.2	145.0	145.0	145.6	148.1	150.5	154.2	159.1
42.5°	134.0	134.0	134.0	134.6	135.8	136.5	137.1	138.3	140.7	143.8	147.5
45°	125.4	125.4	126.0	126.7	127.3	127.9	129.1	130.3	131.6	133.4	137.1
47.5°	117.5	118.1	118.1	118.7	119.3	119.9	120.5	121.8	123.0	124.8	127.3
50°	110.1	110.8	110.8	111.4	112.0	112.0	112.6	113.8	115.0	116.3	118.1
52.5°	103.4	103.4	102.8	103.4	104.0	104.0	104.6	105.2	106.5	108.3	109.5
55°	96.1	96.1	96.1	96.7	96.7	96.7	97.3	97.9	98.5	99.1	101.0
57.5°	88.7	88.7	89.3	88.7	89.3	89.3	89.3	89.9	90.6	91.8	92.4
60°	82.0	82.0	82.0	82.0	82.0	82.0	82.6	82.6	82.6	83.2	83.8
62.5°	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	75.3	75.3	75.9
65°	67.3	67.3	67.9	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3
67.5°	60.6	60.0	60.6	60.0	60.0	60.0	60.0	59.4	59.4	59.4	58.7
70°	53.2	52.6	52.6	52.6	52.6	52.0	52.6	52.0	51.4	50.8	50.2
72.5°	45.3	45.3	45.3	45.3	45.3	44.7	44.1	44.1	43.4	42.8	42.2
75°	38.5	38.5	37.9	37.3	36.7	36.7	36.7	36.1	35.5	34.9	34.3
77.5°	30.0	29.4	29.4	28.8	28.1	27.5	28.1	27.5	26.9	26.3	25.7
80°	18.4	18.4	18.4	18.4	18.4	18.4	17.7	18.4	17.7	17.1	17.1
82.5°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.1	3.1
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8
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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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	449.7	451.0	452.8	454.0	454.6	455.2	457.1	458.9	460.8	462.6	463.8
5°	435.1	438.1	439.9	443.0	444.8	446.7	449.7	452.8	455.9	459.5	462.6
7.5°	417.3	422.2	425.9	430.2	432.6	435.1	439.3	444.2	449.1	454.0	458.9
10°	400.2	404.5	411.2	417.3	419.1	422.8	429.5	435.1	441.8	447.3	454.0
12.5°	380.6	386.1	393.4	400.8	405.1	408.7	416.7	424.0	432.0	439.3	447.3
15°	359.2	367.7	375.7	384.3	389.8	393.4	402.6	411.8	420.4	429.5	438.7
17.5°	337.8	347.6	357.3	367.7	372.0	377.5	387.9	397.7	408.1	417.9	428.3
20°	316.3	326.7	337.2	348.8	354.9	360.4	371.4	383.0	394.7	405.7	416.7
22.5°	293.7	304.7	317.0	329.8	336.5	341.4	354.3	367.1	379.4	392.2	403.8
25°	271.1	283.9	296.8	310.2	317.0	324.3	337.2	350.6	363.5	376.3	389.8
27.5°	249.0	262.5	276.0	291.3	298.0	305.3	319.4	332.9	346.9	360.4	373.9
30°	228.8	241.7	256.4	271.7	279.0	286.4	301.0	315.7	329.8	343.9	356.7
32.5°	210.5	221.5	236.8	252.1	260.1	267.4	282.7	298.0	312.7	327.4	340.2
35°	193.4	203.8	216.6	233.1	240.5	248.4	264.3	279.0	294.3	309.0	322.5
37.5°	178.1	187.8	199.5	213.5	222.7	230.1	246.0	261.3	276.0	290.6	304.1
40°	164.6	173.2	183.0	195.8	204.4	212.3	228.2	243.5	258.2	272.3	285.8
42.5°	152.4	159.1	168.3	179.9	186.6	194.6	211.1	225.8	240.5	254.5	266.8
45°	140.7	146.2	154.2	164.6	170.1	178.7	194.0	208.7	222.7	235.6	249.0
47.5°	130.3	135.2	141.3	149.9	155.4	162.2	177.4	192.1	205.6	218.4	230.1
50°	121.2	124.8	130.3	137.7	142.0	146.9	162.2	176.2	188.5	200.7	211.7
52.5°	112.0	114.4	118.7	124.8	129.1	133.4	146.2	159.7	171.9	182.3	194.0
55°	102.2	105.2	108.9	113.2	116.3	119.9	130.3	143.2	153.6	164.6	173.8
57.5°	93.6	95.5	97.9	101.6	104.0	107.1	115.0	126.0	136.5	145.6	154.8
60°	85.1	86.3	88.1	90.6	92.4	94.8	100.3	110.1	119.3	126.7	134.6
62.5°	76.5	76.5	77.7	79.5	80.8	82.6	87.5	94.8	102.8	108.3	115.0
65°	67.3	67.9	68.5	69.8	70.4	71.6	74.7	80.2	86.3	91.8	96.7
67.5°	58.7	58.7	59.4	60.0	60.0	60.6	62.4	66.1	72.2	75.9	79.5
70°	50.2	50.2	50.2	50.2	50.8	50.2	51.4	53.8	58.1	61.8	63.6
72.5°	42.2	41.6	41.0	41.0	41.0	41.0	41.6	43.4	45.9	47.7	50.2
75°	33.7	33.0	32.4	31.8	32.4	32.4	32.4	33.0	34.3	36.1	36.7
77.5°	25.1	25.1	23.9	23.3	23.9	23.3	22.6	22.6	23.3	23.9	23.9
80°	17.1	16.5	15.9	15.3	15.3	15.3	14.7	14.1	14.1	14.1	13.5
82.5°	8.6	8.6	8.0	8.0	8.0	8.0	8.0	7.3	7.3	6.7	6.7
85°	3.1	3.1	3.1	3.1	3.7	3.1	3.7	3.7	3.7	3.7	3.7
87.5°	1.8	1.8	2.4	2.4	2.4	2.4	2.4	3.1	3.1	3.1	2.4
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°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	465.6	467.5	468.7	469.9	470.5	471.8	473.6	474.8	476.0	477.3	478.5
5°	465.6	469.3	471.8	473.6	475.4	477.9	480.9	483.4	485.2	487.7	489.5
7.5°	463.8	468.7	473.0	475.4	477.9	481.6	485.2	488.9	492.0	495.0	497.5
10°	460.1	466.3	472.4	474.8	477.9	482.8	487.7	492.0	495.6	499.3	502.4
12.5°	454.6	462.0	469.3	472.4	475.4	481.6	487.1	492.0	495.6	498.7	500.5
15°	447.3	455.9	463.8	467.5	471.2	477.3	482.8	487.1	490.1	492.0	493.2
17.5°	438.1	447.3	455.9	460.1	464.4	470.5	474.8	477.3	479.1	479.1	478.5
20°	427.7	437.5	446.7	451.0	454.6	459.5	462.6	463.2	462.6	461.4	460.1
22.5°	414.9	425.9	435.1	438.7	441.8	445.5	445.5	444.8	443.6	441.8	441.2
25°	401.4	411.8	421.0	424.7	425.9	428.3	426.5	425.3	422.2	420.4	418.5
27.5°	386.7	397.7	404.5	406.9	408.1	406.9	405.1	402.6	400.8	397.7	395.3
30°	370.8	380.6	386.1	387.9	387.3	385.5	383.7	379.4	376.3	373.3	370.2
32.5°	352.4	362.2	366.5	367.1	365.3	362.2	359.2	356.1	352.4	348.8	346.9
35°	334.7	343.3	345.7	344.5	342.7	339.0	334.7	331.0	328.0	323.7	320.6
37.5°	315.7	323.1	323.1	321.2	320.0	315.7	311.5	307.8	303.5	299.8	295.5
40°	296.8	302.3	300.4	298.6	296.8	291.9	288.2	282.7	278.4	274.1	271.1
42.5°	277.8	280.9	278.4	276.0	273.5	268.6	264.9	258.8	255.2	250.9	248.4
45°	258.8	259.4	255.8	253.9	251.5	245.4	240.5	236.2	231.9	227.0	224.0
47.5°	239.2	238.0	233.7	231.3	228.8	223.3	218.4	213.5	208.7	205.0	201.3
50°	219.7	216.6	212.3	209.9	206.8	201.9	196.4	190.9	186.6	183.0	179.9
52.5°	198.3	195.8	190.9	187.2	184.8	178.1	173.2	168.3	163.4	159.7	157.3
55°	176.8	173.2	167.7	165.2	161.5	156.0	151.1	145.0	141.3	138.3	135.2
57.5°	155.4	151.1	146.2	143.2	139.5	134.0	128.5	124.8	121.2	117.5	115.6
60°	134.6	130.3	124.2	123.0	119.3	113.8	108.9	104.6	101.0	98.5	96.7
62.5°	115.0	110.8	104.6	102.2	99.7	94.2	89.9	86.3	83.8	81.4	79.5
65°	95.5	91.8	86.9	83.8	81.4	77.1	73.4	69.8	67.9	64.9	63.0
67.5°	77.7	73.4	69.8	67.3	65.5	61.2	58.1	55.7	53.2	51.4	49.0
70°	61.2	57.5	53.8	52.6	50.8	47.7	45.3	42.8	41.0	39.2	36.7
72.5°	47.1	44.7	41.0	39.8	38.5	36.1	34.3	32.4	30.0	28.8	27.5
75°	34.9	32.4	30.0	28.8	28.1	25.7	24.5	22.6	21.4	20.8	19.6
77.5°	22.6	20.8	19.6	19.0	18.4	17.1	15.9	15.3	14.1	13.5	13.5
80°	12.8	12.2	11.6	11.0	10.4	9.8	9.8	9.2	8.6	8.0	7.3
82.5°	6.1	6.1	5.5	5.5	5.5	4.9	4.9	4.3	4.3	3.7	3.7
85°	3.1	3.1	3.1	3.1	3.1	2.4	2.4	2.4	1.8	1.8	1.2
87.5°	2.4	2.4	2.4	2.4	2.4	1.8	1.8	1.8	1.2	1.2	0.6
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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CATALOG NUMBER: PR4FS12D010 PR4M12WW8FSMMS 1000lm3500K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	463.2	463.2	463.2	463.2	463.2	463.2	463.2	463.2
2.5°	478.5	479.1	479.7	480.3	480.3	480.9	481.6	480.9
5°	490.7	492.6	493.2	493.8	494.4	495.0	495.6	495.6
7.5°	499.9	502.4	503.0	503.0	504.8	505.4	506.0	506.0
10°	504.8	506.0	507.3	507.3	508.5	508.5	509.7	509.7
12.5°	502.4	503.6	504.2	504.8	504.8	505.4	505.4	505.4
15°	493.8	493.2	493.2	492.6	492.6	492.0	492.0	492.0
17.5°	477.9	477.3	476.7	476.7	475.4	475.4	474.2	474.2
20°	458.9	457.7	457.1	456.5	456.5	455.9	454.6	454.6
22.5°	438.7	437.5	436.3	435.1	433.8	433.2	432.6	432.6
25°	416.1	414.2	413.6	413.0	411.2	410.6	409.4	408.7
27.5°	392.8	389.8	389.2	388.5	387.3	386.7	386.1	386.1
30°	368.4	366.5	365.3	364.7	362.8	362.2	360.4	360.4
32.5°	343.9	340.8	339.6	339.0	337.8	336.5	335.9	335.9
35°	318.2	316.3	315.7	313.9	312.1	312.1	310.8	310.8
37.5°	293.7	291.9	290.0	289.4	288.2	286.4	285.8	287.6
40°	269.2	266.8	265.6	264.9	263.7	261.9	261.9	261.9
42.5°	245.4	243.5	242.9	241.7	240.5	239.9	238.6	238.0
45°	220.9	219.7	219.1	217.8	217.2	216.0	214.8	214.8
47.5°	199.5	197.0	197.0	195.8	194.6	194.0	194.0	194.6
50°	178.1	176.2	175.0	174.4	173.2	173.2	172.6	171.9
52.5°	154.8	153.6	153.0	153.0	151.7	151.7	151.1	151.1
55°	133.4	133.4	132.8	132.2	130.9	130.9	130.9	130.9
57.5°	114.4	113.2	112.6	112.0	111.4	110.8	110.8	110.1
60°	94.8	94.2	93.0	93.6	91.8	91.8	91.8	91.2
62.5°	77.1	75.9	75.3	74.7	73.4	73.4	72.2	71.6
65°	61.8	60.0	58.7	58.7	57.5	56.3	55.7	55.1
67.5°	46.5	45.3	44.7	44.1	42.8	41.6	41.6	41.0
70°	35.5	34.3	33.7	33.0	32.4	31.8	31.8	31.8
72.5°	26.3	25.7	25.1	25.1	24.5	23.9	23.9	24.5
75°	19.0	18.4	18.4	18.4	17.7	17.7	17.7	17.1
77.5°	12.8	12.2	12.2	11.6	11.6	11.6	11.6	11.6
80°	7.3	6.7	6.7	6.7	6.7	6.7	6.7	6.7
82.5°	3.1	3.1	3.1	3.1	2.4	2.4	2.4	2.4
85°	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6
87.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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