

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: P345397

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMW 1000Lm3000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345397  
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 1000Lm3000K  
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 675.4 lumens  
Efficiency: N/A  
Efficacy: 64.9 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

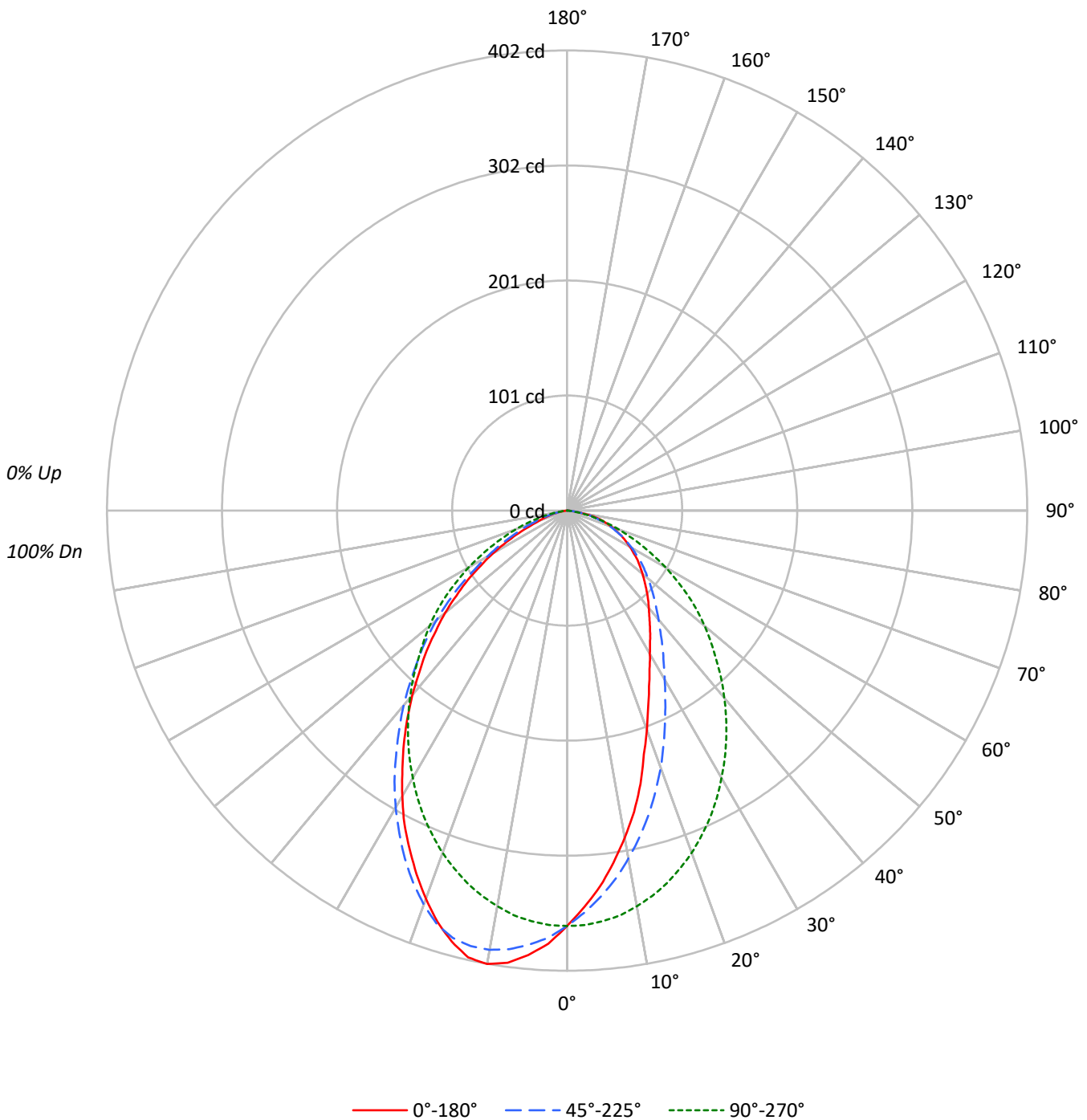
Input Watts (W): 10.4  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	31743	31743	31743
5°	28949	31609	34217
10°	25749	31167	35723
15°	22385	30508	35289
20°	18942	29619	33594
25°	16349	28539	31453
30°	14595	27240	29088
35°	13476	25884	26546
40°	12663	24390	24001
45°	12110	22798	21487
50°	11689	21351	18942
55°	11422	19611	16180
60°	11091	17389	13103
65°	10825	14798	9645
70°	10562	12148	6624
75°	10071	9260	5036
80°	7002	5339	2922
85°	2910	1907	1004



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.0	5.0
10°-20°	92.2	13.6
20°-30°	124.5	18.4
30°-40°	131.1	19.4
40°-50°	118.1	17.5
50°-60°	91.2	13.5
60°-70°	56.1	8.3
70°-80°	24.7	3.7
80°-90°	3.5	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°	250.7	37.1
0°-40°	381.8	56.5
0°-60°	591.0	87.5
0°-90°	675.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	675.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	363	363	363	363	363	
5°	330	338	360	381	390	30
15°	247	275	337	386	390	69
25°	169	202	296	336	326	78
35°	126	145	242	261	249	79
45°	98	107	184	184	174	76
55°	75	79	129	114	106	67
65°	52	52	72	54	47	52
75°	30	26	27	18	15	31
85°	3	2	2	1	1	5
90°	0	0	0	0	0	



TEST NUMBER: P345397

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9
2.5°	346.5	347.0	347.0	347.0	347.5	348.0	348.0	348.9	349.4	350.4	351.3
5°	329.7	329.3	329.3	330.2	331.2	331.7	331.7	333.6	335.0	336.5	338.4
7.5°	310.1	309.6	311.0	311.5	312.5	313.9	314.9	316.8	318.2	321.6	324.5
10°	289.9	289.9	290.9	292.3	293.7	295.2	296.1	298.5	301.4	304.8	308.6
12.5°	269.7	268.3	269.7	271.7	273.1	274.5	276.0	278.9	283.2	287.5	292.3
15°	247.2	246.7	247.7	249.6	252.9	253.9	255.3	259.7	264.0	269.7	275.0
17.5°	223.2	224.6	225.1	228.0	231.3	232.8	234.2	238.5	244.8	250.5	256.8
20°	203.5	202.5	204.5	206.4	209.3	211.7	213.6	218.4	225.1	231.3	239.0
22.5°	184.8	184.3	185.7	188.1	190.5	192.5	194.4	199.2	204.5	211.7	220.3
25°	169.4	168.9	170.4	171.8	174.7	176.1	177.6	182.4	188.1	193.9	202.1
27.5°	156.0	156.0	156.9	157.9	160.3	161.7	163.7	167.5	172.3	178.1	185.7
30°	144.5	144.5	145.4	146.4	148.8	149.8	151.2	154.1	157.9	164.1	170.4
32.5°	134.9	134.9	135.4	136.8	137.8	138.7	140.2	142.6	146.4	151.2	156.9
35°	126.2	126.2	126.7	127.7	129.1	129.6	130.6	133.0	135.8	139.7	145.0
37.5°	118.1	118.6	118.6	119.5	120.5	121.0	121.9	123.8	126.2	129.6	133.9
40°	110.9	111.4	111.4	112.3	113.3	113.8	114.2	115.2	118.1	120.5	124.3
42.5°	104.6	104.6	104.6	105.1	106.1	106.6	107.0	108.5	109.9	112.3	115.2
45°	97.9	97.9	98.4	98.9	99.8	99.8	100.3	101.8	102.7	104.6	107.0
47.5°	91.7	91.7	92.2	92.2	93.1	93.1	93.6	94.6	95.5	97.4	99.4
50°	85.9	85.9	85.9	86.4	86.9	87.4	87.4	88.3	89.3	90.7	92.2
52.5°	80.2	80.2	80.2	80.2	80.6	81.1	81.1	82.1	83.0	84.0	85.4
55°	74.9	74.4	74.9	74.9	74.9	75.4	75.4	76.3	76.3	77.3	78.7
57.5°	68.6	69.1	69.1	68.6	69.1	69.6	69.6	69.6	70.1	71.0	71.5
60°	63.4	63.4	63.4	63.4	63.8	63.8	63.8	63.8	64.3	64.3	65.3
62.5°	57.6	57.6	58.1	58.1	57.6	58.1	58.1	58.1	58.6	58.6	58.6
65°	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
67.5°	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.1	46.1	46.1	45.6
70°	41.3	41.3	41.3	40.8	40.8	40.8	40.8	40.3	40.3	39.8	39.4
72.5°	35.5	35.5	35.5	35.0	35.0	35.0	34.6	34.1	33.6	33.1	33.1
75°	29.8	29.8	29.3	28.8	28.8	28.3	28.3	27.8	27.8	26.9	26.4
77.5°	23.0	22.6	22.6	22.6	22.1	21.6	21.6	21.1	20.6	20.6	20.2
80°	13.9	13.9	14.4	13.9	14.4	13.9	13.9	14.4	13.9	13.4	13.4
82.5°	6.7	6.7	7.2	6.7	7.2	7.2	7.2	6.7	6.7	6.7	6.7
85°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4
87.5°	1.9	1.4	1.4	1.4	1.4	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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9
2.5°	352.3	353.7	354.2	355.7	356.1	357.1	358.1	359.5	360.9	362.4	363.3
5°	340.3	342.7	344.6	347.0	348.5	349.4	352.3	354.7	357.6	360.0	362.4
7.5°	327.3	330.2	334.5	337.4	338.9	341.3	344.6	348.5	352.3	356.6	360.0
10°	312.5	316.8	321.1	326.4	328.8	331.2	335.5	340.8	346.1	350.9	356.1
12.5°	296.6	302.4	308.1	313.4	316.8	319.7	326.4	332.1	338.4	344.6	350.4
15°	281.3	287.5	294.2	300.9	304.8	308.1	314.9	322.1	329.7	336.9	343.7
17.5°	264.5	271.7	279.3	287.0	290.9	295.2	303.8	311.5	320.1	327.8	336.0
20°	247.2	255.3	263.5	273.1	276.9	281.7	290.4	300.0	309.1	318.2	326.9
22.5°	229.4	238.5	247.7	257.7	263.0	267.8	277.9	287.5	297.6	307.2	316.8
25°	211.2	221.7	232.3	242.4	248.1	252.9	264.0	275.0	285.6	295.7	305.7
27.5°	194.4	204.5	216.0	227.0	232.8	238.1	250.1	260.6	272.1	283.2	293.3
30°	179.0	188.6	200.1	212.1	217.9	223.7	235.7	247.7	258.2	269.7	280.8
32.5°	164.6	173.3	184.8	196.8	203.5	208.8	221.3	232.8	244.8	256.3	267.3
35°	151.2	159.8	169.9	181.9	187.7	193.9	206.9	218.9	230.4	242.4	252.5
37.5°	139.7	146.4	155.5	167.0	173.3	179.5	192.5	204.5	216.0	228.0	238.5
40°	128.6	134.9	143.0	153.1	159.3	165.6	178.1	190.1	201.6	213.6	224.6
42.5°	119.5	124.3	131.0	140.6	145.9	152.2	164.6	176.1	187.7	199.2	209.7
45°	110.4	114.7	120.5	128.2	133.4	139.2	151.2	163.2	173.7	184.3	194.9
47.5°	101.8	105.1	110.4	117.1	121.4	126.7	138.2	149.8	160.3	170.4	180.0
50°	94.1	97.0	101.8	106.6	110.4	115.2	125.3	136.8	146.9	156.9	165.6
52.5°	86.9	89.3	92.6	97.4	100.3	104.2	113.8	123.8	133.9	143.0	151.2
55°	80.2	81.6	84.5	87.8	90.2	93.6	101.8	111.4	120.5	128.6	135.4
57.5°	72.5	74.4	76.3	78.7	81.1	83.0	89.3	97.9	106.1	113.3	120.0
60°	65.8	67.2	68.2	70.6	71.5	73.4	78.2	85.4	93.1	99.4	104.2
62.5°	59.0	59.5	60.5	62.4	62.9	64.3	67.7	73.4	79.2	85.0	89.8
65°	52.3	52.3	53.3	53.8	54.7	55.2	57.6	61.9	67.2	71.5	74.4
67.5°	45.6	45.6	46.1	46.1	47.0	47.0	48.5	51.8	55.2	59.0	61.4
70°	38.9	38.9	38.9	38.9	38.9	39.4	40.3	42.2	44.6	47.5	49.0
72.5°	32.6	32.2	32.2	31.7	31.7	31.7	32.2	33.1	35.0	37.0	38.4
75°	25.9	25.4	25.0	25.0	24.5	24.5	24.5	25.4	26.4	27.4	27.8
77.5°	19.2	19.2	18.7	17.8	17.8	17.3	17.3	17.3	17.8	18.7	18.2
80°	13.4	12.5	12.0	12.0	11.5	11.5	11.0	10.6	10.6	10.6	10.1
82.5°	6.2	6.2	6.2	5.8	5.8	5.8	5.8	5.3	5.3	4.8	4.8
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
87.5°	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	1.0	1.0	1.0
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°	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9
2.5°	364.8	366.2	367.7	368.1	368.6	370.1	371.0	372.5	373.4	373.9	374.9
5°	365.3	367.7	370.1	371.5	372.5	374.9	376.8	379.2	380.6	383.0	384.5
7.5°	363.8	367.7	371.0	372.9	374.9	378.2	381.1	384.0	386.4	388.8	391.2
10°	360.9	365.7	370.5	372.5	374.9	378.7	383.0	386.4	389.7	392.6	395.5
12.5°	356.6	362.4	368.1	370.5	372.9	378.2	382.5	386.4	389.7	392.6	394.5
15°	350.9	357.6	363.8	367.2	370.1	375.3	379.7	383.5	386.4	388.3	389.7
17.5°	343.7	351.3	358.5	361.4	364.8	369.6	373.9	376.8	378.7	378.7	379.2
20°	335.5	343.7	350.9	354.2	357.6	361.4	364.8	366.2	366.2	366.2	365.3
22.5°	325.9	334.5	341.7	345.1	348.0	350.9	352.8	352.8	351.8	350.4	348.9
25°	314.9	324.0	330.7	334.1	335.5	337.9	337.4	336.9	335.5	334.1	332.1
27.5°	302.9	312.0	319.2	320.6	321.6	322.1	320.6	319.7	317.7	315.8	314.4
30°	290.4	299.0	304.8	305.3	306.2	305.7	303.8	301.4	299.5	297.1	295.2
32.5°	276.9	285.1	288.9	289.9	289.4	287.5	285.6	283.2	280.8	277.9	275.5
35°	262.5	270.2	272.6	272.1	271.7	269.3	266.4	264.0	260.6	258.7	255.3
37.5°	247.7	254.9	255.8	254.4	252.9	250.1	247.2	244.8	240.9	239.0	236.6
40°	232.8	237.6	237.6	236.1	235.2	232.3	228.5	225.1	222.2	218.9	217.4
42.5°	217.4	221.3	219.3	218.4	216.9	212.6	209.7	206.4	202.5	200.6	198.2
45°	202.1	204.5	202.1	200.1	198.7	194.9	192.0	187.7	184.3	182.4	179.5
47.5°	186.2	187.2	185.3	182.4	181.4	177.1	173.7	170.4	167.0	163.7	161.3
50°	171.8	170.9	168.0	166.1	164.6	159.8	156.0	152.2	149.3	146.4	144.0
52.5°	155.5	154.6	150.7	148.3	145.9	142.1	137.3	134.4	131.0	128.6	126.2
55°	138.7	135.8	133.0	130.6	128.2	124.3	120.0	116.2	113.8	110.9	109.4
57.5°	121.4	119.5	114.7	112.8	110.9	107.0	102.7	99.4	96.0	94.1	93.1
60°	106.1	102.7	98.9	96.5	94.6	90.7	86.9	83.5	81.1	80.2	78.7
62.5°	89.8	86.9	82.6	80.6	79.2	75.4	72.0	69.1	67.2	65.3	64.3
65°	74.9	71.5	68.2	66.2	64.3	61.0	58.6	56.6	54.2	52.8	51.8
67.5°	60.5	57.6	54.7	53.3	51.8	49.0	46.6	45.1	43.2	41.8	39.8
70°	47.5	45.1	43.2	41.8	40.3	37.9	36.0	34.6	33.1	31.7	30.2
72.5°	37.0	34.6	32.2	31.7	30.7	28.8	27.4	25.9	24.5	23.5	22.6
75°	26.4	25.4	23.5	22.6	22.1	20.6	19.2	18.2	17.8	16.8	16.3
77.5°	17.3	16.3	14.9	14.9	14.4	13.9	13.0	12.0	12.0	11.5	11.5
80°	9.6	9.1	8.6	8.2	8.6	8.2	7.7	7.2	7.2	7.2	6.7
82.5°	4.3	4.3	3.8	3.8	3.8	3.8	3.8	3.4	3.4	3.4	3.4
85°	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5
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: P345397

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMW 1000lm3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9
2.5°	375.8	376.3	376.8	377.3	377.7	377.7	378.2	378.7
5°	385.4	386.9	387.3	387.8	388.8	389.3	389.3	389.7
7.5°	393.1	395.0	395.5	396.5	397.4	397.9	398.4	398.4
10°	397.4	398.9	399.3	400.3	401.3	401.7	402.2	402.2
12.5°	396.0	397.4	397.9	398.4	399.3	399.8	399.8	399.8
15°	390.7	390.7	390.7	390.7	390.2	390.7	390.7	389.7
17.5°	378.7	378.2	378.7	377.7	377.3	377.3	376.8	376.8
20°	364.3	363.8	363.3	363.3	362.9	361.9	361.4	360.9
22.5°	348.0	347.0	346.5	346.5	345.6	345.1	344.6	343.7
25°	331.2	328.8	328.8	328.8	327.8	327.8	326.9	325.9
27.5°	312.0	310.5	310.5	309.6	308.6	308.1	307.7	308.1
30°	293.7	291.8	290.9	290.4	289.9	289.9	288.5	288.0
32.5°	273.6	272.1	271.2	270.7	269.7	269.3	268.8	267.8
35°	253.9	252.5	251.5	251.5	249.6	249.1	248.6	248.6
37.5°	233.7	232.8	232.3	230.9	230.4	229.9	229.9	229.4
40°	215.0	213.6	213.1	211.7	211.2	211.2	209.7	210.2
42.5°	195.8	193.9	193.4	192.9	192.5	191.5	192.0	191.0
45°	177.6	176.1	175.2	175.2	174.7	173.7	173.3	173.7
47.5°	159.8	157.9	157.9	157.4	156.9	156.5	156.5	155.5
50°	143.0	141.6	140.6	139.7	140.2	139.7	138.7	139.2
52.5°	124.8	123.4	122.9	122.9	122.4	122.4	121.9	121.9
55°	108.5	107.0	107.0	106.6	106.6	106.6	106.1	106.1
57.5°	92.2	91.2	90.7	90.7	89.8	90.2	89.8	89.3
60°	77.8	76.3	75.4	75.8	75.4	75.4	74.4	74.9
62.5°	62.9	61.9	61.4	61.4	60.5	60.5	59.5	60.0
65°	50.4	49.0	48.5	48.0	47.0	46.6	46.6	46.6
67.5°	38.9	37.9	37.4	36.5	35.5	35.0	34.6	34.1
70°	29.3	28.3	27.8	27.4	26.9	26.4	26.4	25.9
72.5°	22.1	21.1	21.1	20.6	20.6	20.2	20.2	20.2
75°	15.8	15.8	15.4	15.4	14.9	15.4	14.9	14.9
77.5°	11.0	10.6	11.0	10.6	10.1	10.1	10.1	10.1
80°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	5.8
82.5°	3.4	3.4	3.4	2.9	2.9	2.9	2.9	2.9
85°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
87.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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