

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: P345432

Luminaire Tested: **PR4FS12D010 PR4M12WW8FSMMS 1000Lm4000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345432  
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 1000Lm4000K  
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 836.5 lumens  
Efficiency: N/A  
Efficacy: 80.4 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

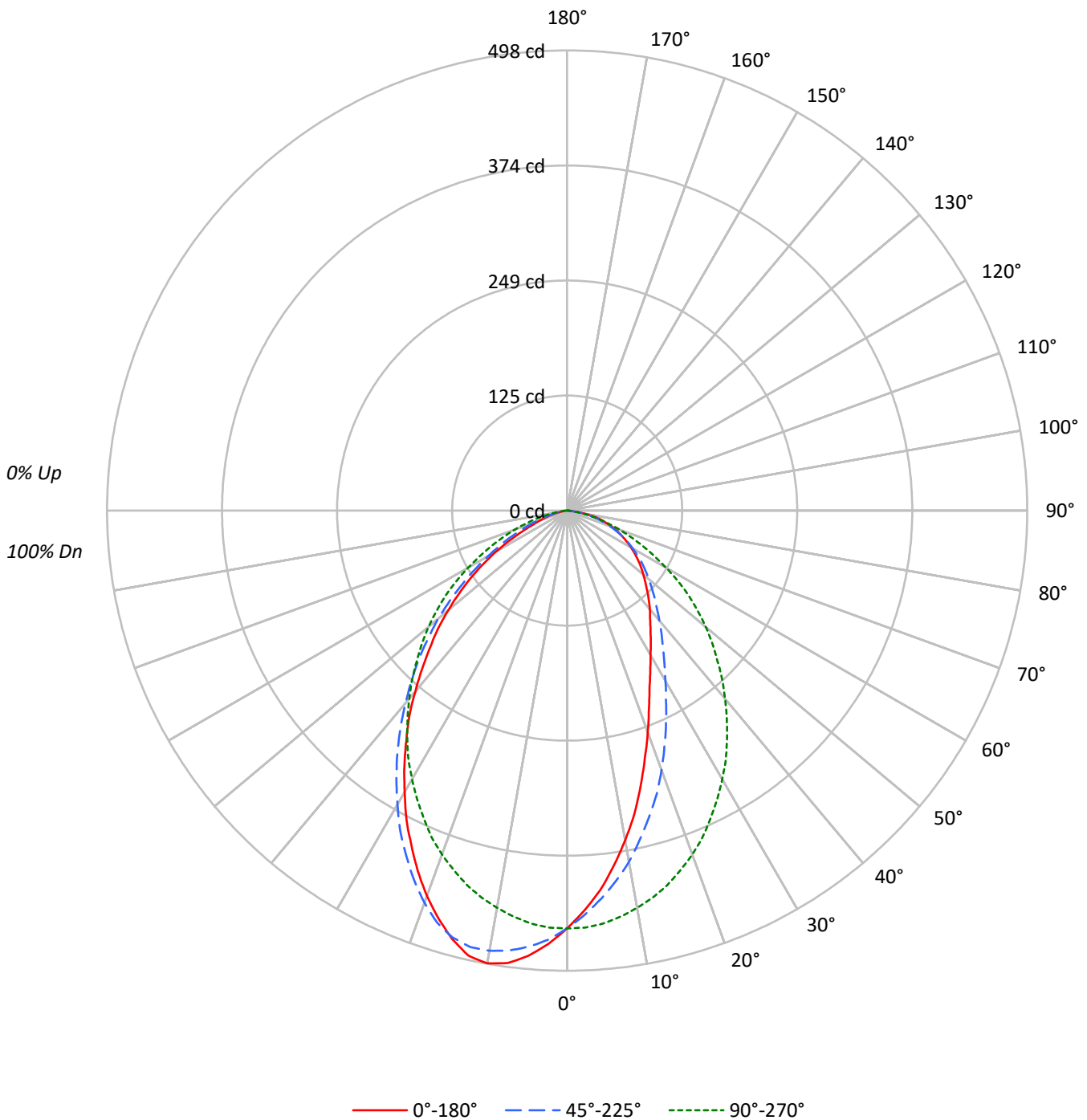
Input Watts (W): 10.4  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: PR4FS12D010 PR4M12WW8FSMMS 1000lm4000K

### Luminous Intensity Polar Plot





TEST NUMBER: P345432

CATALOG NUMBER: PR4F512D010 PR4M12WW8FSMMS 1000Lm4000K

**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	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°	44071	44071	44071
5°	40316	43887	47330
10°	35824	43207	49243
15°	31036	42306	48450
20°	26447	41070	46028
25°	22668	39497	42906
30°	20301	37778	39590
35°	18691	35883	36097
40°	17709	33816	32518
45°	16870	31700	28902
50°	16299	29702	25441
55°	15938	27305	21715
60°	15593	24092	17348
65°	15151	20662	12407
70°	14817	17182	8862
75°	14158	13255	6288
80°	10046	7689	3704
85°	2684	4026	671



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	42.3	5.1
10°-20°	114.5	13.7
20°-30°	154.3	18.4
30°-40°	162.0	19.4
40°-50°	146.0	17.5
50°-60°	112.8	13.5
60°-70°	69.4	8.3
70°-80°	30.6	3.7
80°-90°	4.5	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°	311.1	37.2
0°-40°	473.2	56.6
0°-60°	732.0	87.5
0°-90°	836.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	836.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	452	452	452	452	452	
5°	412	422	449	474	484	38
15°	308	343	419	478	480	86
25°	211	253	367	412	399	98
35°	157	180	302	320	303	99
45°	122	134	230	226	210	95
55°	94	99	161	138	128	84
65°	66	66	90	66	54	65
75°	38	33	35	21	17	39
85°	2	3	4	2	1	6
90°	0	0	0	0	0	



TEST NUMBER: P345432

CATALOG NUMBER: PR4FS12D010 PR4M12WW8FSMMS 1000Lm4000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2
2.5°	433.0	432.4	431.8	433.0	433.0	433.6	433.6	434.8	434.8	436.0	437.8
5°	412.1	410.9	411.5	411.5	413.3	413.3	414.5	415.7	417.5	419.9	421.7
7.5°	387.6	387.6	388.2	389.4	391.2	391.2	393.0	394.8	397.8	400.8	404.4
10°	362.0	363.2	363.8	365.0	367.9	369.1	369.7	372.7	376.9	379.9	385.9
12.5°	336.3	336.3	337.5	339.9	342.3	344.0	345.2	349.4	353.6	359.0	364.4
15°	307.6	308.2	310.0	312.4	316.6	317.8	320.2	324.9	330.9	337.5	342.9
17.5°	280.1	281.3	282.5	286.1	289.1	290.9	294.5	299.8	306.4	313.6	321.9
20°	255.0	253.3	255.6	258.0	261.0	265.2	267.6	273.6	280.7	290.3	298.7
22.5°	231.2	231.2	232.9	234.7	237.7	240.7	243.7	248.5	256.2	265.8	275.4
25°	210.8	211.4	213.2	215.0	218.0	219.8	222.8	227.6	235.3	242.5	253.3
27.5°	194.7	195.3	195.9	198.3	200.7	202.5	204.3	209.1	215.0	222.8	231.8
30°	180.4	180.4	181.0	183.4	184.6	187.0	188.1	192.3	197.7	204.3	212.6
32.5°	168.4	168.4	169.0	170.2	172.6	173.8	174.4	178.6	182.8	189.3	195.9
35°	157.1	157.1	157.7	158.9	160.7	161.3	163.1	165.5	169.6	174.4	180.4
37.5°	147.5	147.5	148.1	148.7	149.9	151.1	152.3	154.7	157.1	161.9	167.8
40°	139.2	138.6	139.2	139.8	141.6	141.6	142.2	144.5	146.9	150.5	155.3
42.5°	130.8	130.8	130.8	131.4	132.6	133.2	133.8	135.0	137.4	140.4	143.9
45°	122.4	122.4	123.0	123.6	124.2	124.8	126.0	127.2	128.4	130.2	133.8
47.5°	114.7	115.3	115.3	115.9	116.5	117.1	117.7	118.9	120.1	121.8	124.2
50°	107.5	108.1	108.1	108.7	109.3	109.3	109.9	111.1	112.3	113.5	115.3
52.5°	100.9	100.9	100.3	100.9	101.5	101.5	102.1	102.7	103.9	105.7	106.9
55°	93.8	93.8	93.8	94.4	94.4	94.4	95.0	95.6	96.2	96.8	98.6
57.5°	86.6	86.6	87.2	86.6	87.2	87.2	87.2	87.8	88.4	89.6	90.2
60°	80.0	80.0	80.0	80.0	80.0	80.0	80.6	80.6	80.6	81.2	81.8
62.5°	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	73.5	73.5	74.1
65°	65.7	65.7	66.3	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
67.5°	59.1	58.5	59.1	58.5	58.5	58.5	58.5	57.9	57.9	57.9	57.3
70°	52.0	51.4	51.4	51.4	51.4	50.8	51.4	50.8	50.2	49.6	49.0
72.5°	44.2	44.2	44.2	44.2	44.2	43.6	43.0	43.0	42.4	41.8	41.2
75°	37.6	37.6	37.0	36.4	35.8	35.8	35.8	35.2	34.6	34.0	33.4
77.5°	29.3	28.7	28.7	28.1	27.5	26.9	27.5	26.9	26.3	25.7	25.1
80°	17.9	17.9	17.9	17.9	17.9	17.9	17.3	17.9	17.3	16.7	16.7
82.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.0	3.0
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°	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2
2.5°	439.0	440.2	442.0	443.2	443.8	444.4	446.2	448.0	449.8	451.6	452.8
5°	424.7	427.7	429.5	432.4	434.2	436.0	439.0	442.0	445.0	448.6	451.6
7.5°	407.4	412.1	415.7	419.9	422.3	424.7	428.9	433.6	438.4	443.2	448.0
10°	390.6	394.8	401.4	407.4	409.2	412.7	419.3	424.7	431.3	436.6	443.2
12.5°	371.5	376.9	384.1	391.2	395.4	399.0	406.8	413.9	421.7	428.9	436.6
15°	350.6	359.0	366.7	375.1	380.5	384.1	393.0	402.0	410.3	419.3	428.3
17.5°	329.7	339.3	348.8	359.0	363.2	368.5	378.7	388.2	398.4	408.0	418.1
20°	308.8	319.0	329.1	340.5	346.4	351.8	362.6	373.9	385.3	396.0	406.8
22.5°	286.7	297.5	309.4	321.9	328.5	333.3	345.8	358.4	370.3	382.9	394.2
25°	264.6	277.1	289.7	302.8	309.4	316.6	329.1	342.3	354.8	367.3	380.5
27.5°	243.1	256.2	269.4	284.3	290.9	298.1	311.8	324.9	338.7	351.8	365.0
30°	223.4	235.9	250.3	265.2	272.4	279.5	293.9	308.2	321.9	335.7	348.2
32.5°	205.5	216.2	231.2	246.1	253.9	261.0	276.0	290.9	305.2	319.6	332.1
35°	188.7	198.9	211.4	227.6	234.7	242.5	258.0	272.4	287.3	301.6	314.8
37.5°	173.8	183.4	194.7	208.5	217.4	224.6	240.1	255.0	269.4	283.7	296.9
40°	160.7	169.0	178.6	191.1	199.5	207.3	222.8	237.7	252.1	265.8	278.9
42.5°	148.7	155.3	164.3	175.6	182.2	189.9	206.1	220.4	234.7	248.5	260.4
45°	137.4	142.8	150.5	160.7	166.0	174.4	189.3	203.7	217.4	230.0	243.1
47.5°	127.2	132.0	138.0	146.3	151.7	158.3	173.2	187.6	200.7	213.2	224.6
50°	118.3	121.8	127.2	134.4	138.6	143.4	158.3	172.0	184.0	195.9	206.7
52.5°	109.3	111.7	115.9	121.8	126.0	130.2	142.8	155.9	167.8	178.0	189.3
55°	99.7	102.7	106.3	110.5	113.5	117.1	127.2	139.8	149.9	160.7	169.6
57.5°	91.4	93.2	95.6	99.2	101.5	104.5	112.3	123.0	133.2	142.2	151.1
60°	83.0	84.2	86.0	88.4	90.2	92.6	98.0	107.5	116.5	123.6	131.4
62.5°	74.7	74.7	75.9	77.6	78.8	80.6	85.4	92.6	100.3	105.7	112.3
65°	65.7	66.3	66.9	68.1	68.7	69.9	72.9	78.2	84.2	89.6	94.4
67.5°	57.3	57.3	57.9	58.5	58.5	59.1	60.9	64.5	70.5	74.1	77.6
70°	49.0	49.0	49.0	49.0	49.6	49.0	50.2	52.6	56.7	60.3	62.1
72.5°	41.2	40.6	40.0	40.0	40.0	40.0	40.6	42.4	44.8	46.6	49.0
75°	32.9	32.3	31.7	31.1	31.7	31.7	31.7	32.3	33.4	35.2	35.8
77.5°	24.5	24.5	23.3	22.7	23.3	22.7	22.1	22.1	22.7	23.3	23.3
80°	16.7	16.1	15.5	14.9	14.9	14.9	14.3	13.7	13.7	13.7	13.1
82.5°	8.4	8.4	7.8	7.8	7.8	7.8	7.8	7.2	7.2	6.6	6.6
85°	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6	3.6	3.6	3.6
87.5°	1.8	1.8	2.4	2.4	2.4	2.4	2.4	3.0	3.0	3.0	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°	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2
2.5°	454.5	456.3	457.5	458.7	459.3	460.5	462.3	463.5	464.7	465.9	467.1
5°	454.5	458.1	460.5	462.3	464.1	466.5	469.5	471.9	473.7	476.0	477.8
7.5°	452.8	457.5	461.7	464.1	466.5	470.1	473.7	477.2	480.2	483.2	485.6
10°	449.2	455.1	461.1	463.5	466.5	471.3	476.0	480.2	483.8	487.4	490.4
12.5°	443.8	451.0	458.1	461.1	464.1	470.1	475.5	480.2	483.8	486.8	488.6
15°	436.6	445.0	452.8	456.3	459.9	465.9	471.3	475.5	478.4	480.2	481.4
17.5°	427.7	436.6	445.0	449.2	453.4	459.3	463.5	465.9	467.7	467.7	467.1
20°	417.5	427.1	436.0	440.2	443.8	448.6	451.6	452.2	451.6	450.4	449.2
22.5°	405.0	415.7	424.7	428.3	431.3	434.8	434.8	434.2	433.0	431.3	430.7
25°	391.8	402.0	410.9	414.5	415.7	418.1	416.3	415.1	412.1	410.3	408.6
27.5°	377.5	388.2	394.8	397.2	398.4	397.2	395.4	393.0	391.2	388.2	385.9
30°	362.0	371.5	376.9	378.7	378.1	376.3	374.5	370.3	367.3	364.4	361.4
32.5°	344.0	353.6	357.8	358.4	356.6	353.6	350.6	347.6	344.0	340.5	338.7
35°	326.7	335.1	337.5	336.3	334.5	330.9	326.7	323.1	320.2	316.0	313.0
37.5°	308.2	315.4	315.4	313.6	312.4	308.2	304.0	300.4	296.3	292.7	288.5
40°	289.7	295.1	293.3	291.5	289.7	284.9	281.3	276.0	271.8	267.6	264.6
42.5°	271.2	274.2	271.8	269.4	267.0	262.2	258.6	252.7	249.1	244.9	242.5
45°	252.7	253.3	249.7	247.9	245.5	239.5	234.7	230.6	226.4	221.6	218.6
47.5°	233.5	232.4	228.2	225.8	223.4	218.0	213.2	208.5	203.7	200.1	196.5
50°	214.4	211.4	207.3	204.9	201.9	197.1	191.7	186.4	182.2	178.6	175.6
52.5°	193.5	191.1	186.4	182.8	180.4	173.8	169.0	164.3	159.5	155.9	153.5
55°	172.6	169.0	163.7	161.3	157.7	152.3	147.5	141.6	138.0	135.0	132.0
57.5°	151.7	147.5	142.8	139.8	136.2	130.8	125.4	121.8	118.3	114.7	112.9
60°	131.4	127.2	121.3	120.1	116.5	111.1	106.3	102.1	98.6	96.2	94.4
62.5°	112.3	108.1	102.1	99.7	97.4	92.0	87.8	84.2	81.8	79.4	77.6
65°	93.2	89.6	84.8	81.8	79.4	75.3	71.7	68.1	66.3	63.3	61.5
67.5°	75.9	71.7	68.1	65.7	63.9	59.7	56.7	54.4	52.0	50.2	47.8
70°	59.7	56.1	52.6	51.4	49.6	46.6	44.2	41.8	40.0	38.2	35.8
72.5°	46.0	43.6	40.0	38.8	37.6	35.2	33.4	31.7	29.3	28.1	26.9
75°	34.0	31.7	29.3	28.1	27.5	25.1	23.9	22.1	20.9	20.3	19.1
77.5°	22.1	20.3	19.1	18.5	17.9	16.7	15.5	14.9	13.7	13.1	13.1
80°	12.5	11.9	11.3	10.8	10.2	9.6	9.6	9.0	8.4	7.8	7.2
82.5°	6.0	6.0	5.4	5.4	5.4	4.8	4.8	4.2	4.2	3.6	3.6
85°	3.0	3.0	3.0	3.0	3.0	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





TEST NUMBER: P345432

CATALOG NUMBER: PR4FS12D010 PR4M12WW8FSMMS 1000Lm4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	452.2	452.2	452.2	452.2	452.2	452.2	452.2	452.2
2.5°	467.1	467.7	468.3	468.9	468.9	469.5	470.1	469.5
5°	479.0	480.8	481.4	482.0	482.6	483.2	483.8	483.8
7.5°	488.0	490.4	491.0	491.0	492.8	493.4	494.0	494.0
10°	492.8	494.0	495.2	495.2	496.4	496.4	497.6	497.6
12.5°	490.4	491.6	492.2	492.8	492.8	493.4	493.4	493.4
15°	482.0	481.4	481.4	480.8	480.8	480.2	480.2	480.2
17.5°	466.5	465.9	465.3	465.3	464.1	464.1	462.9	462.9
20°	448.0	446.8	446.2	445.6	445.6	445.0	443.8	443.8
22.5°	428.3	427.1	425.9	424.7	423.5	422.9	422.3	422.3
25°	406.2	404.4	403.8	403.2	401.4	400.8	399.6	399.0
27.5°	383.5	380.5	379.9	379.3	378.1	377.5	376.9	376.9
30°	359.6	357.8	356.6	356.0	354.2	353.6	351.8	351.8
32.5°	335.7	332.7	331.5	330.9	329.7	328.5	327.9	327.9
35°	310.6	308.8	308.2	306.4	304.6	304.6	303.4	303.4
37.5°	286.7	284.9	283.1	282.5	281.3	279.5	278.9	280.7
40°	262.8	260.4	259.2	258.6	257.4	255.6	255.6	255.6
42.5°	239.5	237.7	237.1	235.9	234.7	234.1	232.9	232.4
45°	215.6	214.4	213.8	212.6	212.0	210.8	209.7	209.7
47.5°	194.7	192.3	192.3	191.1	189.9	189.3	189.3	189.9
50°	173.8	172.0	170.8	170.2	169.0	169.0	168.4	167.8
52.5°	151.1	149.9	149.3	149.3	148.1	148.1	147.5	147.5
55°	130.2	130.2	129.6	129.0	127.8	127.8	127.8	127.8
57.5°	111.7	110.5	109.9	109.3	108.7	108.1	108.1	107.5
60°	92.6	92.0	90.8	91.4	89.6	89.6	89.6	89.0
62.5°	75.3	74.1	73.5	72.9	71.7	71.7	70.5	69.9
65°	60.3	58.5	57.3	57.3	56.1	55.0	54.4	53.8
67.5°	45.4	44.2	43.6	43.0	41.8	40.6	40.6	40.0
70°	34.6	33.4	32.9	32.3	31.7	31.1	31.1	31.1
72.5°	25.7	25.1	24.5	24.5	23.9	23.3	23.3	23.9
75°	18.5	17.9	17.9	17.9	17.3	17.3	17.3	16.7
77.5°	12.5	11.9	11.9	11.3	11.3	11.3	11.3	11.3
80°	7.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6
82.5°	3.0	3.0	3.0	3.0	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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