

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: P345441

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1500Lm4000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P345441  
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 PR4M12WW9FSMMS 1500Lm4000K  
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH  
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 924.7 lumens  
Efficiency: N/A  
Efficacy: 66.5 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

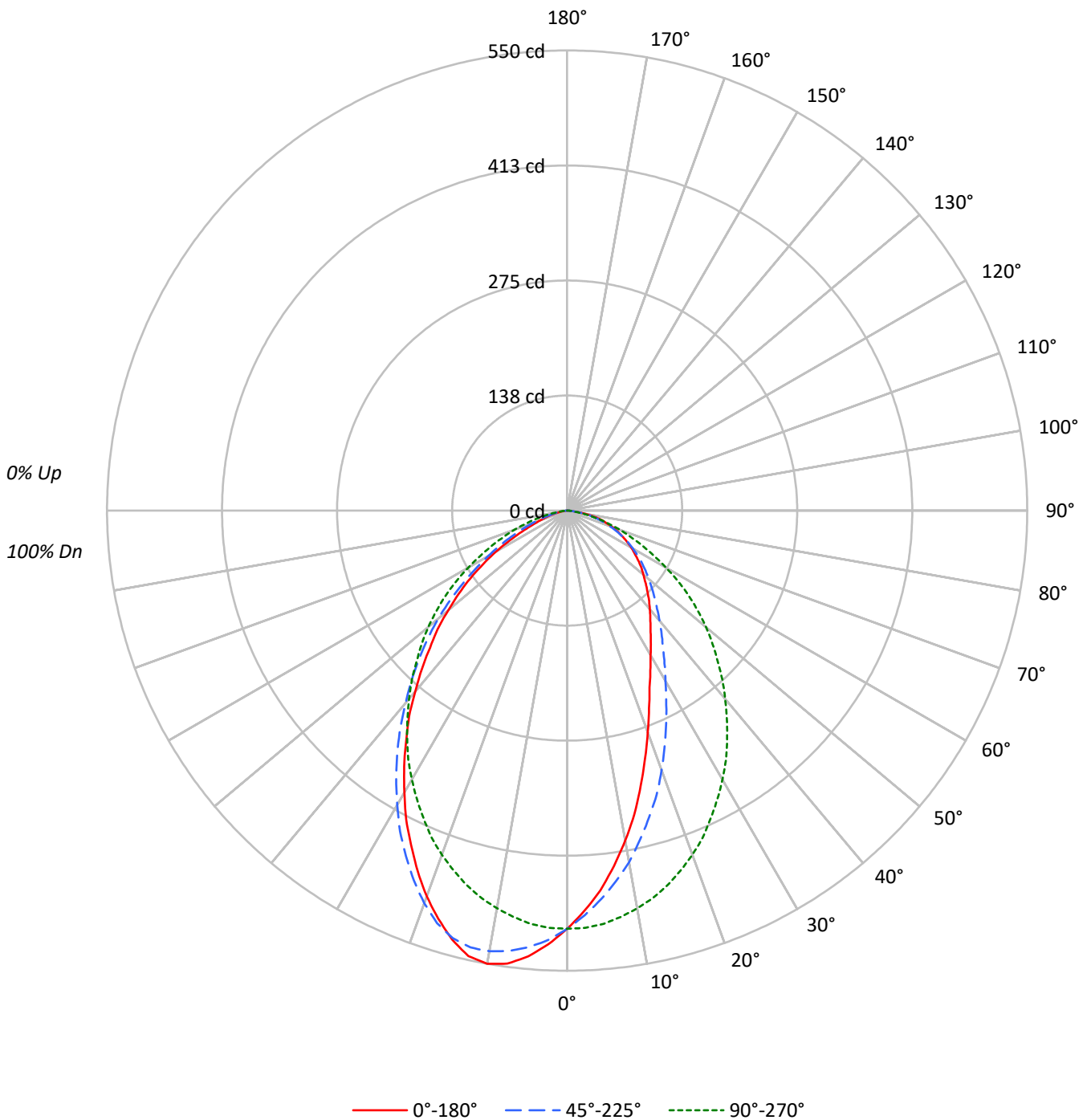
Input Watts (W): 13.9  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P345441

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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	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°	48710	48710	48710
5°	44572	48514	52320
10°	39595	47769	54429
15°	34305	46765	53566
20°	29237	45405	50881
25°	25066	43669	47433
30°	22439	41762	43765
35°	20666	39666	39904
40°	19567	37378	35953
45°	18662	35036	31948
50°	18027	32840	28125
55°	17620	30177	24009
60°	17250	26645	19180
65°	16742	22830	13698
70°	16356	19006	9774
75°	15664	14685	6966
80°	11113	8531	4097
85°	2907	4473	783



TEST NUMBER: P345441

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm4000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	46.8	5.1
10°-20°	126.6	13.7
20°-30°	170.6	18.4
30°-40°	179.1	19.4
40°-50°	161.4	17.5
50°-60°	124.7	13.5
60°-70°	76.7	8.3
70°-80°	33.8	3.7
80°-90°	4.9	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°	343.9	37.2
0°-40°	523.1	56.6
0°-60°	809.2	87.5
0°-90°	924.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	924.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	500	500	500	500	500	
5°	456	466	496	524	535	42
15°	340	379	464	529	531	95
25°	233	280	406	456	441	108
35°	174	199	333	354	335	109
45°	135	148	254	250	232	105
55°	104	109	178	152	141	93
65°	73	73	99	73	59	72
75°	42	37	39	23	18	43
85°	3	3	4	2	1	6
90°	0	0	0	0	0	



TEST NUMBER: P345441

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm4000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8
2.5°	478.7	478.0	477.4	478.7	478.7	479.4	479.4	480.7	480.7	482.0	484.0
5°	455.6	454.3	454.9	454.9	456.9	456.9	458.2	459.6	461.5	464.2	466.2
7.5°	428.5	428.5	429.2	430.5	432.5	432.5	434.5	436.4	439.7	443.1	447.0
10°	400.1	401.5	402.1	403.4	406.7	408.1	408.7	412.0	416.6	419.9	426.5
12.5°	371.7	371.7	373.1	375.7	378.3	380.3	381.6	386.3	390.9	396.8	402.8
15°	340.0	340.7	342.7	345.3	350.0	351.3	353.9	359.2	365.8	373.1	379.0
17.5°	309.7	311.0	312.3	316.3	319.6	321.6	325.5	331.5	338.7	346.6	355.9
20°	281.9	280.0	282.6	285.2	288.5	293.2	295.8	302.4	310.3	320.9	330.1
22.5°	255.5	255.5	257.5	259.5	262.8	266.1	269.4	274.7	283.3	293.8	304.4
25°	233.1	233.7	235.7	237.7	241.0	243.0	246.3	251.6	260.2	268.1	280.0
27.5°	215.3	215.9	216.6	219.2	221.9	223.8	225.8	231.1	237.7	246.3	256.2
30°	199.4	199.4	200.1	202.7	204.0	206.7	208.0	212.6	218.6	225.8	235.1
32.5°	186.2	186.2	186.9	188.2	190.8	192.1	192.8	197.4	202.0	209.3	216.6
35°	173.7	173.7	174.3	175.6	177.6	178.3	180.3	182.9	187.5	192.8	199.4
37.5°	163.1	163.1	163.8	164.4	165.7	167.1	168.4	171.0	173.7	178.9	185.5
40°	153.8	153.2	153.8	154.5	156.5	156.5	157.1	159.8	162.4	166.4	171.7
42.5°	144.6	144.6	144.6	145.3	146.6	147.2	147.9	149.2	151.9	155.2	159.1
45°	135.4	135.4	136.0	136.7	137.3	138.0	139.3	140.6	142.0	143.9	147.9
47.5°	126.8	127.4	127.4	128.1	128.8	129.4	130.1	131.4	132.7	134.7	137.3
50°	118.9	119.5	119.5	120.2	120.8	120.8	121.5	122.8	124.1	125.5	127.4
52.5°	111.6	111.6	110.9	111.6	112.2	112.2	112.9	113.6	114.9	116.9	118.2
55°	103.7	103.7	103.7	104.3	104.3	104.3	105.0	105.6	106.3	107.0	108.9
57.5°	95.7	95.7	96.4	95.7	96.4	96.4	96.4	97.1	97.7	99.0	99.7
60°	88.5	88.5	88.5	88.5	88.5	88.5	89.1	89.1	89.1	89.8	90.5
62.5°	80.6	80.6	80.6	80.6	80.6	80.6	80.6	80.6	81.2	81.2	81.9
65°	72.6	72.6	73.3	72.6	72.6	72.6	72.6	72.6	72.6	72.6	72.6
67.5°	65.4	64.7	65.4	64.7	64.7	64.7	64.7	64.0	64.0	64.0	63.4
70°	57.4	56.8	56.8	56.8	56.8	56.1	56.8	56.1	55.5	54.8	54.1
72.5°	48.9	48.9	48.9	48.9	48.9	48.2	47.5	47.5	46.9	46.2	45.6
75°	41.6	41.6	40.9	40.3	39.6	39.6	39.6	39.0	38.3	37.6	37.0
77.5°	32.4	31.7	31.7	31.0	30.4	29.7	30.4	29.7	29.1	28.4	27.7
80°	19.8	19.8	19.8	19.8	19.8	19.8	19.1	19.8	19.1	18.5	18.5
82.5°	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.3	3.3
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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



TEST NUMBER: P345441

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm4000K

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8
2.5°	485.3	486.6	488.6	489.9	490.6	491.3	493.2	495.2	497.2	499.2	500.5
5°	469.5	472.8	474.7	478.0	480.0	482.0	485.3	488.6	491.9	495.9	499.2
7.5°	450.3	455.6	459.6	464.2	466.8	469.5	474.1	479.4	484.6	489.9	495.2
10°	431.8	436.4	443.7	450.3	452.3	456.3	463.5	469.5	476.7	482.7	489.9
12.5°	410.7	416.6	424.6	432.5	437.1	441.1	449.7	457.6	466.2	474.1	482.7
15°	387.6	396.8	405.4	414.7	420.6	424.6	434.5	444.4	453.6	463.5	473.4
17.5°	364.5	375.0	385.6	396.8	401.5	407.4	418.6	429.2	440.4	451.0	462.2
20°	341.4	352.6	363.8	376.4	383.0	388.9	400.8	413.3	425.9	437.8	449.7
22.5°	316.9	328.8	342.0	355.9	363.2	368.4	382.3	396.2	409.4	423.2	435.8
25°	292.5	306.4	320.2	334.8	342.0	350.0	363.8	378.3	392.2	406.1	420.6
27.5°	268.7	283.3	297.8	314.3	321.6	329.5	344.7	359.2	374.4	388.9	403.4
30°	246.9	260.8	276.7	293.2	301.1	309.0	324.9	340.7	355.9	371.1	384.9
32.5°	227.1	239.0	255.5	272.0	280.6	288.5	305.1	321.6	337.4	353.3	367.1
35°	208.6	219.9	233.7	251.6	259.5	268.1	285.2	301.1	317.6	333.4	348.0
37.5°	192.1	202.7	215.3	230.4	240.3	248.3	265.4	281.9	297.8	313.6	328.2
40°	177.6	186.9	197.4	211.3	220.5	229.1	246.3	262.8	278.6	293.8	308.4
42.5°	164.4	171.7	181.6	194.1	201.4	210.0	227.8	243.6	259.5	274.7	287.9
45°	151.9	157.8	166.4	177.6	183.6	192.8	209.3	225.2	240.3	254.2	268.7
47.5°	140.6	145.9	152.5	161.8	167.7	175.0	191.5	207.3	221.9	235.7	248.3
50°	130.7	134.7	140.6	148.6	153.2	158.5	175.0	190.2	203.4	216.6	228.5
52.5°	120.8	123.5	128.1	134.7	139.3	143.9	157.8	172.3	185.5	196.8	209.3
55°	110.3	113.6	117.5	122.2	125.5	129.4	140.6	154.5	165.7	177.6	187.5
57.5°	101.0	103.0	105.6	109.6	112.2	115.5	124.1	136.0	147.2	157.1	167.1
60°	91.8	93.1	95.1	97.7	99.7	102.3	108.3	118.9	128.8	136.7	145.3
62.5°	82.5	82.5	83.9	85.8	87.2	89.1	94.4	102.3	110.9	116.9	124.1
65°	72.6	73.3	74.0	75.3	75.9	77.3	80.6	86.5	93.1	99.0	104.3
67.5°	63.4	63.4	64.0	64.7	64.7	65.4	67.3	71.3	77.9	81.9	85.8
70°	54.1	54.1	54.1	54.1	54.8	54.1	55.5	58.1	62.7	66.7	68.7
72.5°	45.6	44.9	44.2	44.2	44.2	44.2	44.9	46.9	49.5	51.5	54.1
75°	36.3	35.7	35.0	34.3	35.0	35.0	35.0	35.7	37.0	39.0	39.6
77.5°	27.1	27.1	25.8	25.1	25.8	25.1	24.4	24.4	25.1	25.8	25.8
80°	18.5	17.8	17.2	16.5	16.5	16.5	15.8	15.2	15.2	15.2	14.5
82.5°	9.2	9.2	8.6	8.6	8.6	8.6	8.6	7.9	7.9	7.3	7.3
85°	3.3	3.3	3.3	3.3	4.0	3.3	4.0	4.0	4.0	4.0	4.0
87.5°	2.0	2.0	2.6	2.6	2.6	2.6	2.6	3.3	3.3	3.3	2.6
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: P345441

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm4000K

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8
2.5°	502.5	504.5	505.8	507.1	507.8	509.1	511.1	512.4	513.7	515.0	516.3
5°	502.5	506.4	509.1	511.1	513.0	515.7	519.0	521.6	523.6	526.2	528.2
7.5°	500.5	505.8	510.4	513.0	515.7	519.6	523.6	527.6	530.9	534.2	536.8
10°	496.5	503.1	509.7	512.4	515.7	521.0	526.2	530.9	534.8	538.8	542.1
12.5°	490.6	498.5	506.4	509.7	513.0	519.6	525.6	530.9	534.8	538.1	540.1
15°	482.7	491.9	500.5	504.5	508.4	515.0	521.0	525.6	528.9	530.9	532.2
17.5°	472.8	482.7	491.9	496.5	501.2	507.8	512.4	515.0	517.0	517.0	516.3
20°	461.5	472.1	482.0	486.6	490.6	495.9	499.2	499.8	499.2	497.9	496.5
22.5°	447.7	459.6	469.5	473.4	476.7	480.7	480.7	480.0	478.7	476.7	476.1
25°	433.1	444.4	454.3	458.2	459.6	462.2	460.2	458.9	455.6	453.6	451.6
27.5°	417.3	429.2	436.4	439.1	440.4	439.1	437.1	434.5	432.5	429.2	426.5
30°	400.1	410.7	416.6	418.6	418.0	416.0	414.0	409.4	406.1	402.8	399.5
32.5°	380.3	390.9	395.5	396.2	394.2	390.9	387.6	384.3	380.3	376.4	374.4
35°	361.2	370.4	373.1	371.7	369.8	365.8	361.2	357.2	353.9	349.3	346.0
37.5°	340.7	348.6	348.6	346.6	345.3	340.7	336.1	332.1	327.5	323.5	318.9
40°	320.2	326.2	324.2	322.2	320.2	315.0	311.0	305.1	300.4	295.8	292.5
42.5°	299.8	303.1	300.4	297.8	295.1	289.9	285.9	279.3	275.3	270.7	268.1
45°	279.3	280.0	276.0	274.0	271.4	264.8	259.5	254.9	250.2	245.0	241.7
47.5°	258.2	256.9	252.2	249.6	246.9	241.0	235.7	230.4	225.2	221.2	217.2
50°	237.0	233.7	229.1	226.5	223.2	217.9	212.0	206.0	201.4	197.4	194.1
52.5°	213.9	211.3	206.0	202.0	199.4	192.1	186.9	181.6	176.3	172.3	169.7
55°	190.8	186.9	180.9	178.3	174.3	168.4	163.1	156.5	152.5	149.2	145.9
57.5°	167.7	163.1	157.8	154.5	150.5	144.6	138.7	134.7	130.7	126.8	124.8
60°	145.3	140.6	134.0	132.7	128.8	122.8	117.5	112.9	108.9	106.3	104.3
62.5°	124.1	119.5	112.9	110.3	107.6	101.7	97.1	93.1	90.5	87.8	85.8
65°	103.0	99.0	93.8	90.5	87.8	83.2	79.2	75.3	73.3	70.0	68.0
67.5°	83.9	79.2	75.3	72.6	70.7	66.0	62.7	60.1	57.4	55.5	52.8
70°	66.0	62.1	58.1	56.8	54.8	51.5	48.9	46.2	44.2	42.3	39.6
72.5°	50.8	48.2	44.2	42.9	41.6	39.0	37.0	35.0	32.4	31.0	29.7
75°	37.6	35.0	32.4	31.0	30.4	27.7	26.4	24.4	23.1	22.4	21.1
77.5°	24.4	22.4	21.1	20.5	19.8	18.5	17.2	16.5	15.2	14.5	14.5
80°	13.9	13.2	12.5	11.9	11.2	10.6	10.6	9.9	9.2	8.6	7.9
82.5°	6.6	6.6	5.9	5.9	5.9	5.3	5.3	4.6	4.6	4.0	4.0
85°	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6	2.0	2.0	1.3
87.5°	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	1.3	1.3	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





TEST NUMBER: P345441

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	499.8	499.8	499.8	499.8	499.8	499.8	499.8	499.8
2.5°	516.3	517.0	517.7	518.3	518.3	519.0	519.6	519.0
5°	529.5	531.5	532.2	532.8	533.5	534.2	534.8	534.8
7.5°	539.5	542.1	542.8	542.8	544.7	545.4	546.1	546.1
10°	544.7	546.1	547.4	547.4	548.7	548.7	550.0	550.0
12.5°	542.1	543.4	544.1	544.7	544.7	545.4	545.4	545.4
15°	532.8	532.2	532.2	531.5	531.5	530.9	530.9	530.9
17.5°	515.7	515.0	514.4	514.4	513.0	513.0	511.7	511.7
20°	495.2	493.9	493.2	492.6	492.6	491.9	490.6	490.6
22.5°	473.4	472.1	470.8	469.5	468.1	467.5	466.8	466.8
25°	449.0	447.0	446.4	445.7	443.7	443.1	441.7	441.1
27.5°	423.9	420.6	419.9	419.3	418.0	417.3	416.6	416.6
30°	397.5	395.5	394.2	393.5	391.5	390.9	388.9	388.9
32.5°	371.1	367.8	366.5	365.8	364.5	363.2	362.5	362.5
35°	343.3	341.4	340.7	338.7	336.7	336.7	335.4	335.4
37.5°	316.9	315.0	313.0	312.3	311.0	309.0	308.4	310.3
40°	290.5	287.9	286.6	285.9	284.6	282.6	282.6	282.6
42.5°	264.8	262.8	262.1	260.8	259.5	258.8	257.5	256.9
45°	238.4	237.0	236.4	235.1	234.4	233.1	231.8	231.8
47.5°	215.3	212.6	212.6	211.3	210.0	209.3	209.3	210.0
50°	192.1	190.2	188.8	188.2	186.9	186.9	186.2	185.5
52.5°	167.1	165.7	165.1	165.1	163.8	163.8	163.1	163.1
55°	143.9	143.9	143.3	142.6	141.3	141.3	141.3	141.3
57.5°	123.5	122.2	121.5	120.8	120.2	119.5	119.5	118.9
60°	102.3	101.7	100.4	101.0	99.0	99.0	99.0	98.4
62.5°	83.2	81.9	81.2	80.6	79.2	79.2	77.9	77.3
65°	66.7	64.7	63.4	63.4	62.1	60.7	60.1	59.4
67.5°	50.2	48.9	48.2	47.5	46.2	44.9	44.9	44.2
70°	38.3	37.0	36.3	35.7	35.0	34.3	34.3	34.3
72.5°	28.4	27.7	27.1	27.1	26.4	25.8	25.8	26.4
75°	20.5	19.8	19.8	19.8	19.1	19.1	19.1	18.5
77.5°	13.9	13.2	13.2	12.5	12.5	12.5	12.5	12.5
80°	7.9	7.3	7.3	7.3	7.3	7.3	7.3	7.3
82.5°	3.3	3.3	3.3	3.3	2.6	2.6	2.6	2.6
85°	1.3	1.3	1.3	1.3	1.3	0.7	0.7	0.7
87.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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