

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: P345434

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1000Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345434
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 1000Lm3500K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 718.8 lumens
Efficiency: N/A
Efficacy: 71.2 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

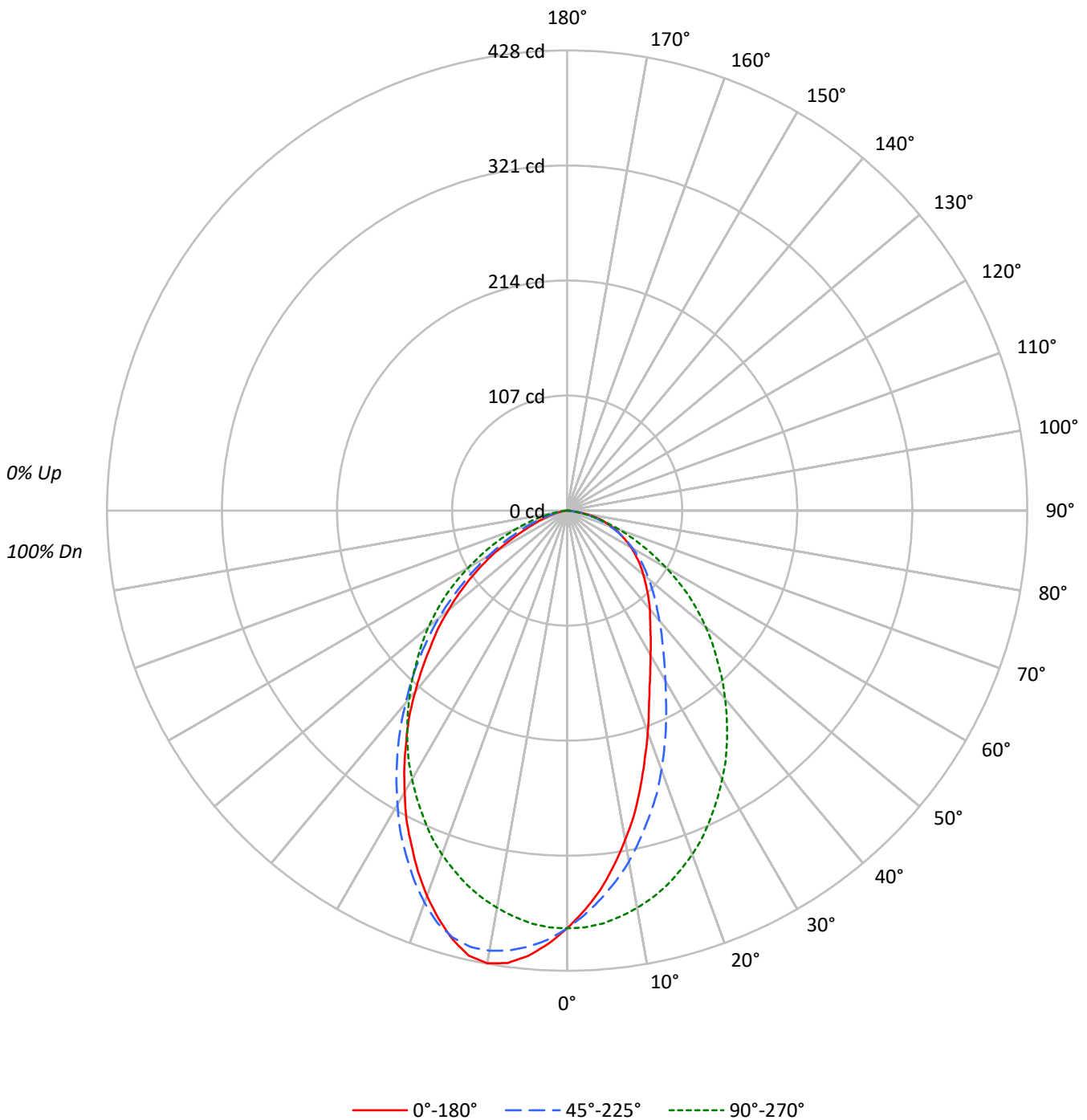
Input Watts (W): 10.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000lm3500K

Luminous Intensity Polar Plot





TEST NUMBER: P345434

CATALOG NUMBER: PR4F512D010 PR4M12WW9FSMMS 1000lm3500K

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	36	32					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37862	37862	37862
5°	34642	37704	40668
10°	30777	37130	42306
15°	26667	36353	41630
20°	22734	35293	39546
25°	19485	33937	36862
30°	17443	32455	34019
35°	16062	30838	31017
40°	15216	29058	27951
45°	14499	27235	24823
50°	14009	25517	21863
55°	13695	23465	18656
60°	13410	20700	14911
65°	13029	17757	10654
70°	12737	14760	7608
75°	12163	11409	5422
80°	8643	6623	3143
85°	2348	3466	559



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.4	5.1
10°-20°	98.4	13.7
20°-30°	132.6	18.4
30°-40°	139.2	19.4
40°-50°	125.5	17.5
50°-60°	96.9	13.5
60°-70°	59.6	8.3
70°-80°	26.3	3.7
80°-90°	3.9	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°	267.3	37.2
0°-40°	406.6	56.6
0°-60°	629.0	87.5
0°-90°	718.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	718.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	388	388	388	388	388	
5°	354	362	385	407	416	32
15°	264	295	360	411	413	74
25°	181	218	316	354	343	84
35°	135	155	259	275	261	85
45°	105	115	198	194	180	81
55°	81	85	138	119	110	72
65°	56	56	77	57	46	56
75°	32	29	30	18	14	33
85°	2	3	3	2	0	5
90°	0	0	0	0	0	



TEST NUMBER: P345434

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000lm3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	372.1	371.6	371.1	372.1	372.1	372.6	372.6	373.6	373.6	374.7	376.2
5°	354.1	353.1	353.6	353.6	355.2	355.2	356.2	357.2	358.8	360.8	362.3
7.5°	333.1	333.1	333.6	334.6	336.2	336.2	337.7	339.2	341.8	344.4	347.5
10°	311.0	312.0	312.6	313.6	316.2	317.2	317.7	320.3	323.9	326.4	331.5
12.5°	289.0	289.0	290.0	292.0	294.1	295.6	296.6	300.2	303.8	308.5	313.1
15°	264.3	264.8	266.4	268.4	272.0	273.0	275.1	279.2	284.3	290.0	294.6
17.5°	240.7	241.7	242.8	245.8	248.4	249.9	253.0	257.6	263.3	269.4	276.6
20°	219.2	217.6	219.7	221.7	224.3	227.9	229.9	235.1	241.2	249.4	256.6
22.5°	198.6	198.6	200.2	201.7	204.3	206.8	209.4	213.5	220.2	228.4	236.6
25°	181.2	181.7	183.2	184.8	187.3	188.9	191.4	195.5	202.2	208.4	217.6
27.5°	167.3	167.8	168.3	170.4	172.4	174.0	175.5	179.6	184.8	191.4	199.1
30°	155.0	155.0	155.5	157.6	158.6	160.6	161.7	165.3	169.9	175.5	182.7
32.5°	144.7	144.7	145.2	146.3	148.3	149.4	149.9	153.5	157.0	162.7	168.3
35°	135.0	135.0	135.5	136.5	138.1	138.6	140.1	142.2	145.8	149.9	155.0
37.5°	126.8	126.8	127.3	127.8	128.8	129.8	130.9	132.9	135.0	139.1	144.2
40°	119.6	119.1	119.6	120.1	121.6	121.6	122.1	124.2	126.3	129.3	133.4
42.5°	112.4	112.4	112.4	112.9	113.9	114.5	115.0	116.0	118.0	120.6	123.7
45°	105.2	105.2	105.7	106.2	106.8	107.3	108.3	109.3	110.3	111.9	115.0
47.5°	98.5	99.1	99.1	99.6	100.1	100.6	101.1	102.1	103.2	104.7	106.8
50°	92.4	92.9	92.9	93.4	93.9	93.9	94.4	95.5	96.5	97.5	99.1
52.5°	86.7	86.7	86.2	86.7	87.2	87.2	87.8	88.3	89.3	90.8	91.9
55°	80.6	80.6	80.6	81.1	81.1	81.1	81.6	82.1	82.6	83.1	84.7
57.5°	74.4	74.4	74.9	74.4	74.9	74.9	74.9	75.4	76.0	77.0	77.5
60°	68.8	68.8	68.8	68.8	68.8	68.8	69.3	69.3	69.3	69.8	70.3
62.5°	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6	63.1	63.1	63.6
65°	56.5	56.5	57.0	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5
67.5°	50.8	50.3	50.8	50.3	50.3	50.3	50.3	49.8	49.8	49.8	49.3
70°	44.7	44.1	44.1	44.1	44.1	43.6	44.1	43.6	43.1	42.6	42.1
72.5°	38.0	38.0	38.0	38.0	38.0	37.5	37.0	37.0	36.4	35.9	35.4
75°	32.3	32.3	31.8	31.3	30.8	30.8	30.8	30.3	29.8	29.3	28.7
77.5°	25.1	24.6	24.6	24.1	23.6	23.1	23.6	23.1	22.6	22.1	21.6
80°	15.4	15.4	15.4	15.4	15.4	15.4	14.9	15.4	14.9	14.4	14.4
82.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.6
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
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 PR4M12WW9FSMMS 1000Lm3500K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	377.2	378.3	379.8	380.8	381.3	381.8	383.4	384.9	386.5	388.0	389.0
5°	364.9	367.5	369.0	371.6	373.1	374.7	377.2	379.8	382.4	385.4	388.0
7.5°	350.0	354.1	357.2	360.8	362.9	364.9	368.5	372.6	376.7	380.8	384.9
10°	335.7	339.2	344.9	350.0	351.6	354.6	360.3	364.9	370.6	375.2	380.8
12.5°	319.2	323.9	330.0	336.2	339.8	342.8	349.5	355.7	362.3	368.5	375.2
15°	301.3	308.5	315.1	322.3	326.9	330.0	337.7	345.4	352.6	360.3	368.0
17.5°	283.3	291.5	299.7	308.5	312.0	316.7	325.4	333.6	342.3	350.5	359.3
20°	265.3	274.1	282.8	292.5	297.7	302.3	311.5	321.3	331.0	340.3	349.5
22.5°	246.4	255.6	265.9	276.6	282.3	286.4	297.2	307.9	318.2	329.0	338.7
25°	227.4	238.1	248.9	260.2	265.9	272.0	282.8	294.1	304.9	315.6	326.9
27.5°	208.9	220.2	231.5	244.3	249.9	256.1	267.9	279.2	291.0	302.3	313.6
30°	191.9	202.7	215.0	227.9	234.0	240.2	252.5	264.8	276.6	288.4	299.2
32.5°	176.6	185.8	198.6	211.5	218.1	224.3	237.1	249.9	262.3	274.6	285.4
35°	162.2	170.9	181.7	195.5	201.7	208.4	221.7	234.0	246.9	259.2	270.5
37.5°	149.4	157.6	167.3	179.1	186.8	193.0	206.3	219.2	231.5	243.8	255.1
40°	138.1	145.2	153.5	164.2	171.4	178.1	191.4	204.3	216.6	228.4	239.7
42.5°	127.8	133.4	141.1	150.9	156.5	163.2	177.1	189.4	201.7	213.5	223.8
45°	118.0	122.7	129.3	138.1	142.7	149.9	162.7	175.0	186.8	197.6	208.9
47.5°	109.3	113.4	118.6	125.7	130.4	136.0	148.8	161.2	172.4	183.2	193.0
50°	101.6	104.7	109.3	115.5	119.1	123.2	136.0	147.8	158.1	168.3	177.6
52.5°	93.9	96.0	99.6	104.7	108.3	111.9	122.7	134.0	144.2	152.9	162.7
55°	85.7	88.3	91.4	94.9	97.5	100.6	109.3	120.1	128.8	138.1	145.8
57.5°	78.5	80.1	82.1	85.2	87.2	89.8	96.5	105.7	114.5	122.1	129.8
60°	71.3	72.4	73.9	76.0	77.5	79.6	84.2	92.4	100.1	106.2	112.9
62.5°	64.2	64.2	65.2	66.7	67.7	69.3	73.4	79.6	86.2	90.8	96.5
65°	56.5	57.0	57.5	58.5	59.0	60.0	62.6	67.2	72.4	77.0	81.1
67.5°	49.3	49.3	49.8	50.3	50.3	50.8	52.3	55.4	60.6	63.6	66.7
70°	42.1	42.1	42.1	42.1	42.6	42.1	43.1	45.2	48.8	51.8	53.4
72.5°	35.4	34.9	34.4	34.4	34.4	34.4	34.9	36.4	38.5	40.0	42.1
75°	28.2	27.7	27.2	26.7	27.2	27.2	27.2	27.7	28.7	30.3	30.8
77.5°	21.0	21.0	20.0	19.5	20.0	19.5	19.0	19.0	19.5	20.0	20.0
80°	14.4	13.9	13.3	12.8	12.8	12.8	12.3	11.8	11.8	11.8	11.3
82.5°	7.2	7.2	6.7	6.7	6.7	6.7	6.7	6.2	6.2	5.6	5.6
85°	2.6	2.6	2.6	2.6	3.1	2.6	3.1	3.1	3.1	3.1	3.1
87.5°	1.5	1.5	2.1	2.1	2.1	2.1	2.1	2.6	2.6	2.6	2.1
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: P345434

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm3500K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	390.6	392.1	393.1	394.2	394.7	395.7	397.2	398.3	399.3	400.3	401.3
5°	390.6	393.7	395.7	397.2	398.8	400.8	403.4	405.5	407.0	409.0	410.6
7.5°	389.0	393.1	396.7	398.8	400.8	403.9	407.0	410.1	412.6	415.2	417.3
10°	386.0	391.1	396.2	398.3	400.8	404.9	409.0	412.6	415.7	418.8	421.4
12.5°	381.3	387.5	393.7	396.2	398.8	403.9	408.5	412.6	415.7	418.3	419.8
15°	375.2	382.4	389.0	392.1	395.2	400.3	404.9	408.5	411.1	412.6	413.7
17.5°	367.5	375.2	382.4	386.0	389.5	394.7	398.3	400.3	401.9	401.9	401.3
20°	358.8	367.0	374.7	378.3	381.3	385.4	388.0	388.5	388.0	387.0	386.0
22.5°	348.0	357.2	364.9	368.0	370.6	373.6	373.6	373.1	372.1	370.6	370.0
25°	336.7	345.4	353.1	356.2	357.2	359.3	357.7	356.7	354.1	352.6	351.1
27.5°	324.4	333.6	339.2	341.3	342.3	341.3	339.8	337.7	336.2	333.6	331.5
30°	311.0	319.2	323.9	325.4	324.9	323.3	321.8	318.2	315.6	313.1	310.5
32.5°	295.6	303.8	307.4	307.9	306.4	303.8	301.3	298.7	295.6	292.5	291.0
35°	280.7	287.9	290.0	289.0	287.4	284.3	280.7	277.7	275.1	271.5	268.9
37.5°	264.8	271.0	271.0	269.4	268.4	264.8	261.2	258.2	254.6	251.5	247.9
40°	248.9	253.5	252.0	250.5	248.9	244.8	241.7	237.1	233.5	229.9	227.4
42.5°	233.0	235.6	233.5	231.5	229.4	225.3	222.2	217.1	214.0	210.4	208.4
45°	217.1	217.6	214.5	213.0	210.9	205.8	201.7	198.1	194.5	190.4	187.8
47.5°	200.7	199.6	196.1	194.0	191.9	187.3	183.2	179.1	175.0	171.9	168.9
50°	184.3	181.7	178.1	176.0	173.5	169.4	164.7	160.1	156.5	153.5	150.9
52.5°	166.3	164.2	160.1	157.0	155.0	149.4	145.2	141.1	137.0	134.0	131.9
55°	148.3	145.2	140.6	138.6	135.5	130.9	126.8	121.6	118.6	116.0	113.4
57.5°	130.4	126.8	122.7	120.1	117.0	112.4	107.8	104.7	101.6	98.5	97.0
60°	112.9	109.3	104.2	103.2	100.1	95.5	91.4	87.8	84.7	82.6	81.1
62.5°	96.5	92.9	87.8	85.7	83.7	79.0	75.4	72.4	70.3	68.3	66.7
65°	80.1	77.0	72.9	70.3	68.3	64.7	61.6	58.5	57.0	54.4	52.9
67.5°	65.2	61.6	58.5	56.5	54.9	51.3	48.8	46.7	44.7	43.1	41.1
70°	51.3	48.2	45.2	44.1	42.6	40.0	38.0	35.9	34.4	32.8	30.8
72.5°	39.5	37.5	34.4	33.4	32.3	30.3	28.7	27.2	25.1	24.1	23.1
75°	29.3	27.2	25.1	24.1	23.6	21.6	20.5	19.0	18.0	17.4	16.4
77.5°	19.0	17.4	16.4	15.9	15.4	14.4	13.3	12.8	11.8	11.3	11.3
80°	10.8	10.3	9.8	9.2	8.7	8.2	8.2	7.7	7.2	6.7	6.2
82.5°	5.1	5.1	4.6	4.6	4.6	4.1	4.1	3.6	3.6	3.1	3.1
85°	2.6	2.6	2.6	2.6	2.6	2.1	2.1	2.1	1.5	1.5	1.0
87.5°	2.1	2.1	2.1	2.1	2.1	1.5	1.5	1.5	1.0	1.0	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: P345434

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	401.3	401.9	402.4	402.9	402.9	403.4	403.9	403.4
5°	411.6	413.2	413.7	414.2	414.7	415.2	415.7	415.7
7.5°	419.3	421.4	421.9	421.9	423.4	423.9	424.4	424.4
10°	423.4	424.4	425.5	425.5	426.5	426.5	427.5	427.5
12.5°	421.4	422.4	422.9	423.4	423.4	423.9	423.9	423.9
15°	414.2	413.7	413.7	413.2	413.2	412.6	412.6	412.6
17.5°	400.8	400.3	399.8	399.8	398.8	398.8	397.8	397.8
20°	384.9	383.9	383.4	382.9	382.9	382.4	381.3	381.3
22.5°	368.0	367.0	365.9	364.9	363.9	363.4	362.9	362.9
25°	349.0	347.5	346.9	346.4	344.9	344.4	343.4	342.8
27.5°	329.5	326.9	326.4	325.9	324.9	324.4	323.9	323.9
30°	309.0	307.4	306.4	305.9	304.3	303.8	302.3	302.3
32.5°	288.4	285.9	284.8	284.3	283.3	282.3	281.8	281.8
35°	266.9	265.3	264.8	263.3	261.7	261.7	260.7	260.7
37.5°	246.4	244.8	243.3	242.8	241.7	240.2	239.7	241.2
40°	225.8	223.8	222.7	222.2	221.2	219.7	219.7	219.7
42.5°	205.8	204.3	203.8	202.7	201.7	201.2	200.2	199.6
45°	185.3	184.3	183.7	182.7	182.2	181.2	180.1	180.1
47.5°	167.3	165.3	165.3	164.2	163.2	162.7	162.7	163.2
50°	149.4	147.8	146.8	146.3	145.2	145.2	144.7	144.2
52.5°	129.8	128.8	128.3	128.3	127.3	127.3	126.8	126.8
55°	111.9	111.9	111.4	110.9	109.8	109.8	109.8	109.8
57.5°	96.0	94.9	94.4	93.9	93.4	92.9	92.9	92.4
60°	79.6	79.0	78.0	78.5	77.0	77.0	77.0	76.5
62.5°	64.7	63.6	63.1	62.6	61.6	61.6	60.6	60.0
65°	51.8	50.3	49.3	49.3	48.2	47.2	46.7	46.2
67.5°	39.0	38.0	37.5	37.0	35.9	34.9	34.9	34.4
70°	29.8	28.7	28.2	27.7	27.2	26.7	26.7	26.7
72.5°	22.1	21.6	21.0	21.0	20.5	20.0	20.0	20.5
75°	15.9	15.4	15.4	15.4	14.9	14.9	14.9	14.4
77.5°	10.8	10.3	10.3	9.8	9.8	9.8	9.8	9.8
80°	6.2	5.6	5.6	5.6	5.6	5.6	5.6	5.6
82.5°	2.6	2.6	2.6	2.6	2.1	2.1	2.1	2.1
85°	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5
87.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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