

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: P345435

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1000Lm4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345435
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 1000Lm4000K
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: 699.4 lumens
Efficiency: N/A
Efficacy: 67.3 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

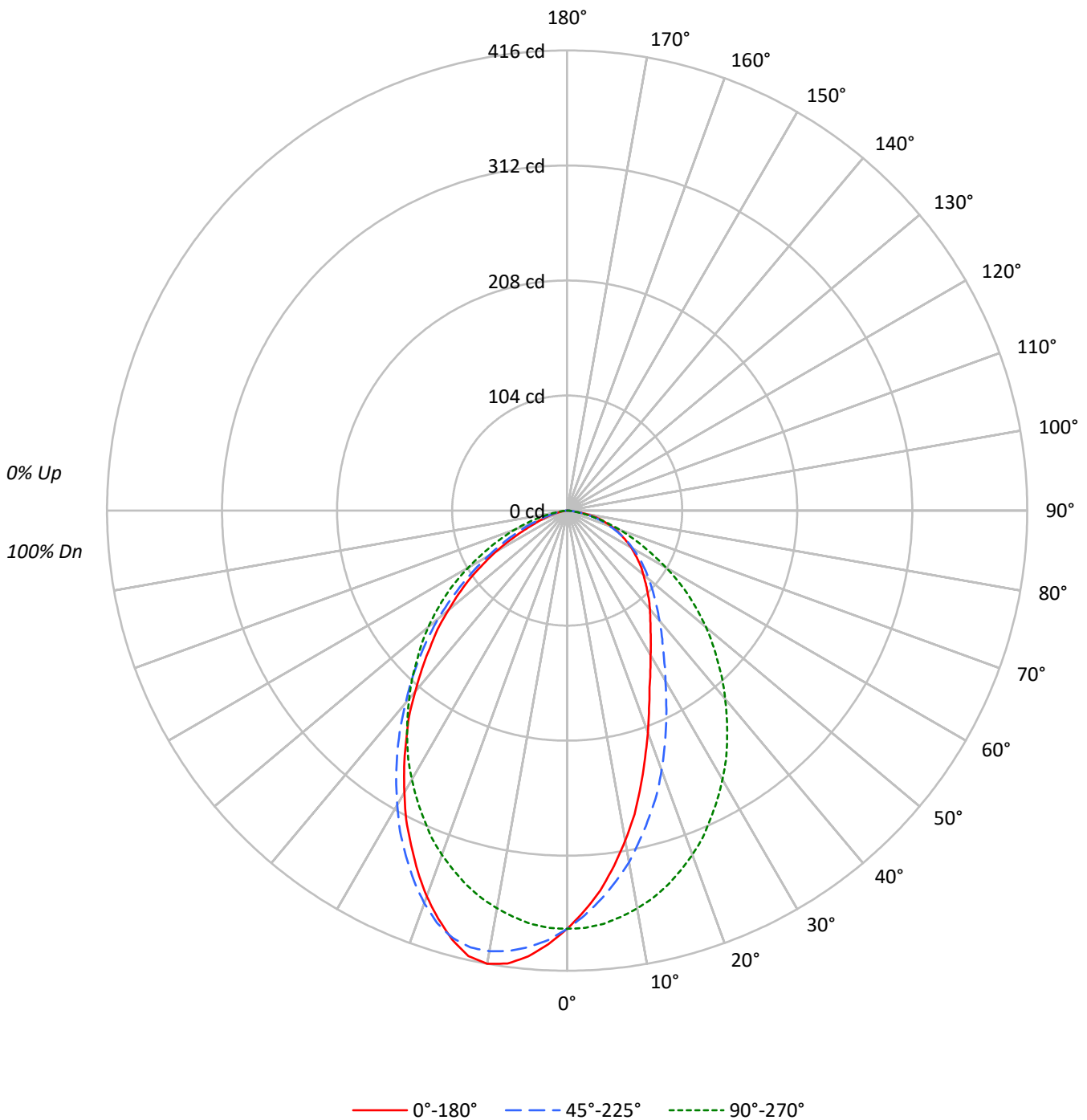
Input Watts (W): 10.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P345435

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000lm4000K

Luminous Intensity Polar Plot





TEST NUMBER: P345435

CATALOG NUMBER: PR4F512D010 PR4M12WW9FSMMS 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	36	32					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	36849	36849	36849
5°	33712	36696	39572
10°	29946	36131	41168
15°	25950	35374	40510
20°	22122	34339	38488
25°	18958	33023	35873
30°	16970	31589	33108
35°	15621	30005	30184
40°	14809	28269	27187
45°	14113	26504	24161
50°	13630	24835	21272
55°	13321	22819	18164
60°	13040	20154	14502
65°	12660	17272	10354
70°	12367	14361	7409
75°	11861	11108	5272
80°	8419	6454	3087
85°	2236	3355	559



TEST NUMBER: P345435

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm4000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.4	5.1
10°-20°	95.8	13.7
20°-30°	129.0	18.4
30°-40°	135.5	19.4
40°-50°	122.1	17.5
50°-60°	94.3	13.5
60°-70°	58.0	8.3
70°-80°	25.6	3.7
80°-90°	3.7	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°	260.1	37.2
0°-40°	395.6	56.6
0°-60°	612.0	87.5
0°-90°	699.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	699.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	378	378	378	378	378	
5°	345	353	375	396	404	32
15°	257	287	351	400	402	72
25°	176	212	307	345	334	82
35°	131	151	252	268	254	83
45°	102	112	192	189	175	79
55°	78	82	134	115	107	70
65°	55	55	75	55	45	55
75°	32	28	30	18	14	32
85°	2	2	3	2	0	5
90°	0	0	0	0	0	



TEST NUMBER: P345435

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1
2.5°	362.1	361.6	361.1	362.1	362.1	362.6	362.6	363.6	363.6	364.6	366.1
5°	344.6	343.6	344.1	344.1	345.6	345.6	346.6	347.6	349.1	351.1	352.6
7.5°	324.1	324.1	324.6	325.6	327.1	327.1	328.6	330.1	332.6	335.1	338.1
10°	302.6	303.6	304.1	305.1	307.6	308.6	309.1	311.6	315.1	317.6	322.6
12.5°	281.2	281.2	282.2	284.2	286.2	287.7	288.7	292.2	295.7	300.1	304.6
15°	257.2	257.7	259.2	261.2	264.7	265.7	267.7	271.7	276.7	282.2	286.7
17.5°	234.2	235.2	236.2	239.2	241.7	243.2	246.2	250.7	256.2	262.2	269.2
20°	213.3	211.8	213.7	215.7	218.2	221.7	223.7	228.7	234.7	242.7	249.7
22.5°	193.3	193.3	194.8	196.3	198.8	201.3	203.8	207.8	214.2	222.2	230.2
25°	176.3	176.8	178.3	179.8	182.3	183.8	186.3	190.3	196.8	202.8	211.8
27.5°	162.8	163.3	163.8	165.8	167.8	169.3	170.8	174.8	179.8	186.3	193.8
30°	150.8	150.8	151.3	153.3	154.3	156.3	157.3	160.8	165.3	170.8	177.8
32.5°	140.8	140.8	141.3	142.3	144.3	145.3	145.8	149.3	152.8	158.3	163.8
35°	131.3	131.3	131.8	132.8	134.3	134.8	136.3	138.3	141.8	145.8	150.8
37.5°	123.4	123.4	123.9	124.4	125.4	126.4	127.4	129.3	131.3	135.3	140.3
40°	116.4	115.9	116.4	116.9	118.4	118.4	118.9	120.9	122.9	125.9	129.8
42.5°	109.4	109.4	109.4	109.9	110.9	111.4	111.9	112.9	114.9	117.4	120.4
45°	102.4	102.4	102.9	103.4	103.9	104.4	105.4	106.4	107.4	108.9	111.9
47.5°	95.9	96.4	96.4	96.9	97.4	97.9	98.4	99.4	100.4	101.9	103.9
50°	89.9	90.4	90.4	90.9	91.4	91.4	91.9	92.9	93.9	94.9	96.4
52.5°	84.4	84.4	83.9	84.4	84.9	84.9	85.4	85.9	86.9	88.4	89.4
55°	78.4	78.4	78.4	78.9	78.9	78.9	79.4	79.9	80.4	80.9	82.4
57.5°	72.4	72.4	72.9	72.4	72.9	72.9	72.9	73.4	73.9	74.9	75.4
60°	66.9	66.9	66.9	66.9	66.9	66.9	67.4	67.4	67.4	67.9	68.4
62.5°	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	61.4	61.4	61.9
65°	54.9	54.9	55.4	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
67.5°	49.4	48.9	49.4	48.9	48.9	48.9	48.9	48.4	48.4	48.4	47.9
70°	43.4	42.9	42.9	42.9	42.9	42.5	42.9	42.5	42.0	41.5	41.0
72.5°	37.0	37.0	37.0	37.0	37.0	36.5	36.0	36.0	35.5	35.0	34.5
75°	31.5	31.5	31.0	30.5	30.0	30.0	30.0	29.5	29.0	28.5	28.0
77.5°	24.5	24.0	24.0	23.5	23.0	22.5	23.0	22.5	22.0	21.5	21.0
80°	15.0	15.0	15.0	15.0	15.0	15.0	14.5	15.0	14.5	14.0	14.0
82.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
85°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5
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



TEST NUMBER: P345435

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm4000K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1
2.5°	367.1	368.1	369.6	370.6	371.1	371.6	373.1	374.6	376.1	377.6	378.6
5°	355.1	357.6	359.1	361.6	363.1	364.6	367.1	369.6	372.1	375.1	377.6
7.5°	340.6	344.6	347.6	351.1	353.1	355.1	358.6	362.6	366.6	370.6	374.6
10°	326.6	330.1	335.6	340.6	342.1	345.1	350.6	355.1	360.6	365.1	370.6
12.5°	310.6	315.1	321.1	327.1	330.6	333.6	340.1	346.1	352.6	358.6	365.1
15°	293.2	300.1	306.6	313.6	318.1	321.1	328.6	336.1	343.1	350.6	358.1
17.5°	275.7	283.7	291.7	300.1	303.6	308.1	316.6	324.6	333.1	341.1	349.6
20°	258.2	266.7	275.2	284.7	289.7	294.2	303.1	312.6	322.1	331.1	340.1
22.5°	239.7	248.7	258.7	269.2	274.7	278.7	289.2	299.6	309.6	320.1	329.6
25°	221.2	231.7	242.2	253.2	258.7	264.7	275.2	286.2	296.7	307.1	318.1
27.5°	203.3	214.2	225.2	237.7	243.2	249.2	260.7	271.7	283.2	294.2	305.1
30°	186.8	197.3	209.3	221.7	227.7	233.7	245.7	257.7	269.2	280.7	291.2
32.5°	171.8	180.8	193.3	205.8	212.3	218.2	230.7	243.2	255.2	267.2	277.7
35°	157.8	166.3	176.8	190.3	196.3	202.8	215.7	227.7	240.2	252.2	263.2
37.5°	145.3	153.3	162.8	174.3	181.8	187.8	200.8	213.3	225.2	237.2	248.2
40°	134.3	141.3	149.3	159.8	166.8	173.3	186.3	198.8	210.8	222.2	233.2
42.5°	124.4	129.8	137.3	146.8	152.3	158.8	172.3	184.3	196.3	207.8	217.7
45°	114.9	119.4	125.9	134.3	138.8	145.8	158.3	170.3	181.8	192.3	203.3
47.5°	106.4	110.4	115.4	122.4	126.9	132.3	144.8	156.8	167.8	178.3	187.8
50°	98.9	101.9	106.4	112.4	115.9	119.9	132.3	143.8	153.8	163.8	172.8
52.5°	91.4	93.4	96.9	101.9	105.4	108.9	119.4	130.3	140.3	148.8	158.3
55°	83.4	85.9	88.9	92.4	94.9	97.9	106.4	116.9	125.4	134.3	141.8
57.5°	76.4	77.9	79.9	82.9	84.9	87.4	93.9	102.9	111.4	118.9	126.4
60°	69.4	70.4	71.9	73.9	75.4	77.4	81.9	89.9	97.4	103.4	109.9
62.5°	62.4	62.4	63.4	64.9	65.9	67.4	71.4	77.4	83.9	88.4	93.9
65°	54.9	55.4	55.9	56.9	57.4	58.4	60.9	65.4	70.4	74.9	78.9
67.5°	47.9	47.9	48.4	48.9	48.9	49.4	50.9	53.9	58.9	61.9	64.9
70°	41.0	41.0	41.0	41.0	41.5	41.0	42.0	43.9	47.4	50.4	51.9
72.5°	34.5	34.0	33.5	33.5	33.5	33.5	34.0	35.5	37.5	39.0	41.0
75°	27.5	27.0	26.5	26.0	26.5	26.5	26.5	27.0	28.0	29.5	30.0
77.5°	20.5	20.5	19.5	19.0	19.5	19.0	18.5	18.5	19.0	19.5	19.5
80°	14.0	13.5	13.0	12.5	12.5	12.5	12.0	11.5	11.5	11.5	11.0
82.5°	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.0	6.0	5.5	5.5
85°	2.5	2.5	2.5	2.5	3.0	2.5	3.0	3.0	3.0	3.0	3.0
87.5°	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	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: P345435

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm4000K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1
2.5°	380.1	381.6	382.6	383.6	384.0	385.0	386.5	387.5	388.5	389.5	390.5
5°	380.1	383.1	385.0	386.5	388.0	390.0	392.5	394.5	396.0	398.0	399.5
7.5°	378.6	382.6	386.0	388.0	390.0	393.0	396.0	399.0	401.5	404.0	406.0
10°	375.6	380.6	385.5	387.5	390.0	394.0	398.0	401.5	404.5	407.5	410.0
12.5°	371.1	377.1	383.1	385.5	388.0	393.0	397.5	401.5	404.5	407.0	408.5
15°	365.1	372.1	378.6	381.6	384.5	389.5	394.0	397.5	400.0	401.5	402.5
17.5°	357.6	365.1	372.1	375.6	379.1	384.0	387.5	389.5	391.0	391.0	390.5
20°	349.1	357.1	364.6	368.1	371.1	375.1	377.6	378.1	377.6	376.6	375.6
22.5°	338.6	347.6	355.1	358.1	360.6	363.6	363.6	363.1	362.1	360.6	360.1
25°	327.6	336.1	343.6	346.6	347.6	349.6	348.1	347.1	344.6	343.1	341.6
27.5°	315.6	324.6	330.1	332.1	333.1	332.1	330.6	328.6	327.1	324.6	322.6
30°	302.6	310.6	315.1	316.6	316.1	314.6	313.1	309.6	307.1	304.6	302.1
32.5°	287.7	295.7	299.1	299.6	298.2	295.7	293.2	290.7	287.7	284.7	283.2
35°	273.2	280.2	282.2	281.2	279.7	276.7	273.2	270.2	267.7	264.2	261.7
37.5°	257.7	263.7	263.7	262.2	261.2	257.7	254.2	251.2	247.7	244.7	241.2
40°	242.2	246.7	245.2	243.7	242.2	238.2	235.2	230.7	227.2	223.7	221.2
42.5°	226.7	229.2	227.2	225.2	223.2	219.2	216.2	211.3	208.3	204.8	202.8
45°	211.3	211.8	208.8	207.3	205.3	200.3	196.3	192.8	189.3	185.3	182.8
47.5°	195.3	194.3	190.8	188.8	186.8	182.3	178.3	174.3	170.3	167.3	164.3
50°	179.3	176.8	173.3	171.3	168.8	164.8	160.3	155.8	152.3	149.3	146.8
52.5°	161.8	159.8	155.8	152.8	150.8	145.3	141.3	137.3	133.3	130.3	128.3
55°	144.3	141.3	136.8	134.8	131.8	127.4	123.4	118.4	115.4	112.9	110.4
57.5°	126.9	123.4	119.4	116.9	113.9	109.4	104.9	101.9	98.9	95.9	94.4
60°	109.9	106.4	101.4	100.4	97.4	92.9	88.9	85.4	82.4	80.4	78.9
62.5°	93.9	90.4	85.4	83.4	81.4	76.9	73.4	70.4	68.4	66.4	64.9
65°	77.9	74.9	70.9	68.4	66.4	62.9	59.9	56.9	55.4	52.9	51.4
67.5°	63.4	59.9	56.9	54.9	53.4	49.9	47.4	45.4	43.4	42.0	40.0
70°	49.9	46.9	43.9	42.9	41.5	39.0	37.0	35.0	33.5	32.0	30.0
72.5°	38.5	36.5	33.5	32.5	31.5	29.5	28.0	26.5	24.5	23.5	22.5
75°	28.5	26.5	24.5	23.5	23.0	21.0	20.0	18.5	17.5	17.0	16.0
77.5°	18.5	17.0	16.0	15.5	15.0	14.0	13.0	12.5	11.5	11.0	11.0
80°	10.5	10.0	9.5	9.0	8.5	8.0	8.0	7.5	7.0	6.5	6.0
82.5°	5.0	5.0	4.5	4.5	4.5	4.0	4.0	3.5	3.5	3.0	3.0
85°	2.5	2.5	2.5	2.5	2.5	2.0	2.0	2.0	1.5	1.5	1.0
87.5°	2.0	2.0	2.0	2.0	2.0	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: P345435

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000Lm4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1
2.5°	390.5	391.0	391.5	392.0	392.0	392.5	393.0	392.5
5°	400.5	402.0	402.5	403.0	403.5	404.0	404.5	404.5
7.5°	408.0	410.0	410.5	410.5	412.0	412.5	413.0	413.0
10°	412.0	413.0	414.0	414.0	415.0	415.0	416.0	416.0
12.5°	410.0	411.0	411.5	412.0	412.0	412.5	412.5	412.5
15°	403.0	402.5	402.5	402.0	402.0	401.5	401.5	401.5
17.5°	390.0	389.5	389.0	389.0	388.0	388.0	387.0	387.0
20°	374.6	373.6	373.1	372.6	372.6	372.1	371.1	371.1
22.5°	358.1	357.1	356.1	355.1	354.1	353.6	353.1	353.1
25°	339.6	338.1	337.6	337.1	335.6	335.1	334.1	333.6
27.5°	320.6	318.1	317.6	317.1	316.1	315.6	315.1	315.1
30°	300.6	299.1	298.2	297.7	296.2	295.7	294.2	294.2
32.5°	280.7	278.2	277.2	276.7	275.7	274.7	274.2	274.2
35°	259.7	258.2	257.7	256.2	254.7	254.7	253.7	253.7
37.5°	239.7	238.2	236.7	236.2	235.2	233.7	233.2	234.7
40°	219.7	217.7	216.7	216.2	215.2	213.7	213.7	213.7
42.5°	200.3	198.8	198.3	197.3	196.3	195.8	194.8	194.3
45°	180.3	179.3	178.8	177.8	177.3	176.3	175.3	175.3
47.5°	162.8	160.8	160.8	159.8	158.8	158.3	158.3	158.8
50°	145.3	143.8	142.8	142.3	141.3	141.3	140.8	140.3
52.5°	126.4	125.4	124.9	124.9	123.9	123.9	123.4	123.4
55°	108.9	108.9	108.4	107.9	106.9	106.9	106.9	106.9
57.5°	93.4	92.4	91.9	91.4	90.9	90.4	90.4	89.9
60°	77.4	76.9	75.9	76.4	74.9	74.9	74.9	74.4
62.5°	62.9	61.9	61.4	60.9	59.9	59.9	58.9	58.4
65°	50.4	48.9	47.9	47.9	46.9	45.9	45.4	44.9
67.5°	38.0	37.0	36.5	36.0	35.0	34.0	34.0	33.5
70°	29.0	28.0	27.5	27.0	26.5	26.0	26.0	26.0
72.5°	21.5	21.0	20.5	20.5	20.0	19.5	19.5	20.0
75°	15.5	15.0	15.0	15.0	14.5	14.5	14.5	14.0
77.5°	10.5	10.0	10.0	9.5	9.5	9.5	9.5	9.5
80°	6.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5
82.5°	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0
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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