

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: P345398

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMW 1000Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345398
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 1000Lm3500K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 722.3 lumens
Efficiency: N/A
Efficacy: 71.5 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

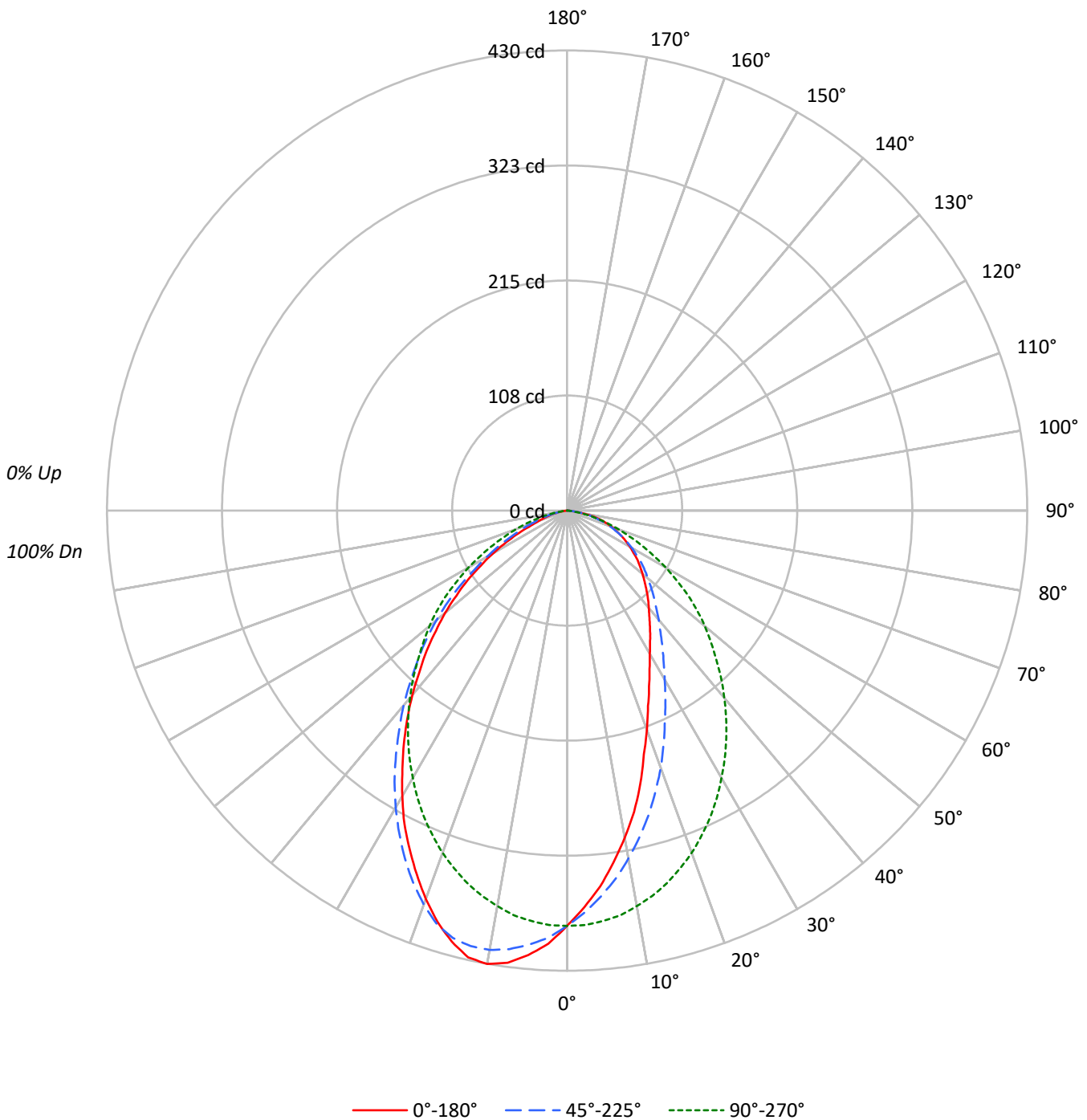
Input Watts (W): 10.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	33947	33947	33947
5°	30968	33804	36605
10°	27543	33334	38210
15°	23943	32636	37752
20°	20264	31685	35939
25°	17488	30517	33644
30°	15605	29139	31108
35°	14415	27688	28393
40°	13542	26091	25680
45°	12951	24381	22984
50°	12506	22848	20262
55°	12215	20984	17309
60°	11861	18596	14013
65°	11590	15833	10307
70°	11304	12992	7084
75°	10747	9902	5374
80°	7505	5692	3123
85°	3111	2108	1004



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.4	5.0
10°-20°	98.6	13.6
20°-30°	133.2	18.4
30°-40°	140.2	19.4
40°-50°	126.3	17.5
50°-60°	97.5	13.5
60°-70°	60.0	8.3
70°-80°	26.4	3.7
80°-90°	3.8	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°	268.1	37.1
0°-40°	408.3	56.5
0°-60°	632.2	87.5
0°-90°	722.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	722.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	388	388	388	388	388	
5°	353	362	385	407	417	32
15°	264	294	360	413	417	73
25°	181	216	316	359	349	84
35°	135	155	259	279	266	85
45°	105	114	197	197	186	81
55°	80	84	138	122	114	71
65°	56	56	76	58	50	55
75°	32	28	29	19	16	33
85°	3	3	2	2	1	5
90°	0	0	0	0	0	



TEST NUMBER: P345398

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1
2.5°	370.7	371.2	371.2	371.2	371.7	372.2	372.2	373.2	373.7	374.8	375.8
5°	352.7	352.2	352.2	353.2	354.2	354.7	354.7	356.8	358.3	359.9	361.9
7.5°	331.6	331.1	332.7	333.2	334.2	335.7	336.8	338.8	340.4	344.0	347.0
10°	310.1	310.1	311.1	312.6	314.2	315.7	316.8	319.3	322.4	326.0	330.1
12.5°	288.5	287.0	288.5	290.6	292.1	293.7	295.2	298.3	302.9	307.5	312.6
15°	264.4	263.9	264.9	267.0	270.5	271.6	273.1	277.7	282.4	288.5	294.2
17.5°	238.7	240.3	240.8	243.9	247.4	249.0	250.5	255.1	261.8	268.0	274.7
20°	217.7	216.6	218.7	220.8	223.8	226.4	228.5	233.6	240.8	247.4	255.7
22.5°	197.6	197.1	198.7	201.2	203.8	205.9	207.9	213.1	218.7	226.4	235.6
25°	181.2	180.7	182.2	183.8	186.9	188.4	189.9	195.1	201.2	207.4	216.1
27.5°	166.8	166.8	167.9	168.9	171.5	173.0	175.1	179.2	184.3	190.5	198.7
30°	154.5	154.5	155.6	156.6	159.1	160.2	161.7	164.8	168.9	175.6	182.2
32.5°	144.3	144.3	144.8	146.3	147.3	148.4	149.9	152.5	156.6	161.7	167.9
35°	135.0	135.0	135.5	136.6	138.1	138.6	139.6	142.2	145.3	149.4	155.0
37.5°	126.3	126.8	126.8	127.8	128.9	129.4	130.4	132.5	135.0	138.6	143.2
40°	118.6	119.1	119.1	120.1	121.2	121.7	122.2	123.2	126.3	128.9	133.0
42.5°	111.9	111.9	111.9	112.4	113.5	114.0	114.5	116.0	117.6	120.1	123.2
45°	104.7	104.7	105.2	105.8	106.8	106.8	107.3	108.8	109.9	111.9	114.5
47.5°	98.1	98.1	98.6	98.6	99.6	99.6	100.1	101.1	102.2	104.2	106.3
50°	91.9	91.9	91.9	92.4	92.9	93.4	93.4	94.5	95.5	97.0	98.6
52.5°	85.7	85.7	85.7	85.7	86.2	86.8	86.8	87.8	88.8	89.8	91.4
55°	80.1	79.6	80.1	80.1	80.1	80.6	80.6	81.6	81.6	82.7	84.2
57.5°	73.4	73.9	73.9	73.4	73.9	74.4	74.4	74.4	75.0	76.0	76.5
60°	67.8	67.8	67.8	67.8	68.3	68.3	68.3	68.3	68.8	68.8	69.8
62.5°	61.6	61.6	62.1	62.1	61.6	62.1	62.1	62.1	62.6	62.6	62.6
65°	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0
67.5°	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.3	49.3	49.3	48.8
70°	44.2	44.2	44.2	43.6	43.6	43.6	43.6	43.1	43.1	42.6	42.1
72.5°	38.0	38.0	38.0	37.5	37.5	37.5	37.0	36.4	35.9	35.4	35.4
75°	31.8	31.8	31.3	30.8	30.8	30.3	30.3	29.8	29.8	28.7	28.2
77.5°	24.6	24.1	24.1	24.1	23.6	23.1	23.1	22.6	22.1	22.1	21.6
80°	14.9	14.9	15.4	14.9	15.4	14.9	14.9	15.4	14.9	14.4	14.4
82.5°	7.2	7.2	7.7	7.2	7.7	7.7	7.7	7.2	7.2	7.2	7.2
85°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.6	2.6	2.6
87.5°	2.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	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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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1
2.5°	376.8	378.4	378.9	380.4	380.9	382.0	383.0	384.5	386.1	387.6	388.6
5°	364.0	366.5	368.6	371.2	372.7	373.7	376.8	379.4	382.5	385.0	387.6
7.5°	350.1	353.2	357.8	360.9	362.4	365.0	368.6	372.7	376.8	381.4	385.0
10°	334.2	338.8	343.4	349.1	351.7	354.2	358.8	364.5	370.1	375.3	380.9
12.5°	317.3	323.4	329.6	335.2	338.8	341.9	349.1	355.3	361.9	368.6	374.8
15°	300.8	307.5	314.7	321.9	326.0	329.6	336.8	344.5	352.7	360.4	367.6
17.5°	282.9	290.6	298.8	307.0	311.1	315.7	325.0	333.2	342.4	350.6	359.4
20°	264.4	273.1	281.8	292.1	296.2	301.4	310.6	320.9	330.6	340.4	349.6
22.5°	245.4	255.1	264.9	275.7	281.3	286.5	297.2	307.5	318.3	328.6	338.8
25°	225.9	237.2	248.5	259.3	265.4	270.5	282.4	294.2	305.5	316.2	327.0
27.5°	207.9	218.7	231.0	242.8	249.0	254.6	267.5	278.8	291.1	302.9	313.7
30°	191.5	201.8	214.1	226.9	233.1	239.2	252.1	264.9	276.2	288.5	300.3
32.5°	176.1	185.3	197.6	210.5	217.7	223.3	236.7	249.0	261.8	274.1	285.9
35°	161.7	171.0	181.7	194.6	200.7	207.4	221.3	234.1	246.4	259.3	270.0
37.5°	149.4	156.6	166.3	178.7	185.3	192.0	205.9	218.7	231.0	243.9	255.1
40°	137.6	144.3	153.0	163.8	170.4	177.1	190.5	203.3	215.6	228.5	240.3
42.5°	127.8	133.0	140.2	150.4	156.1	162.7	176.1	188.4	200.7	213.1	224.3
45°	118.1	122.7	128.9	137.1	142.7	148.9	161.7	174.5	185.8	197.1	208.4
47.5°	108.8	112.4	118.1	125.3	129.9	135.5	147.9	160.2	171.5	182.2	192.5
50°	100.6	103.7	108.8	114.0	118.1	123.2	134.0	146.3	157.1	167.9	177.1
52.5°	92.9	95.5	99.1	104.2	107.3	111.4	121.7	132.5	143.2	153.0	161.7
55°	85.7	87.3	90.4	93.9	96.5	100.1	108.8	119.1	128.9	137.6	144.8
57.5°	77.5	79.6	81.6	84.2	86.8	88.8	95.5	104.7	113.5	121.2	128.3
60°	70.3	71.9	72.9	75.5	76.5	78.5	83.7	91.4	99.6	106.3	111.4
62.5°	63.1	63.7	64.7	66.7	67.3	68.8	72.4	78.5	84.7	90.9	96.0
65°	56.0	56.0	57.0	57.5	58.5	59.0	61.6	66.2	71.9	76.5	79.6
67.5°	48.8	48.8	49.3	49.3	50.3	50.3	51.9	55.4	59.0	63.1	65.7
70°	41.6	41.6	41.6	41.6	41.6	42.1	43.1	45.2	47.7	50.8	52.4
72.5°	34.9	34.4	34.4	33.9	33.9	33.9	34.4	35.4	37.5	39.5	41.1
75°	27.7	27.2	26.7	26.7	26.2	26.2	26.2	27.2	28.2	29.3	29.8
77.5°	20.5	20.5	20.0	19.0	19.0	18.5	18.5	18.5	19.0	20.0	19.5
80°	14.4	13.3	12.8	12.8	12.3	12.3	11.8	11.3	11.3	11.3	10.8
82.5°	6.7	6.7	6.7	6.2	6.2	6.2	6.2	5.6	5.6	5.1	5.1
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.1	2.1	2.1	2.1
87.5°	1.5	1.5	1.5	1.5	1.5	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°	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1
2.5°	390.2	391.7	393.2	393.8	394.3	395.8	396.8	398.4	399.4	399.9	400.9
5°	390.7	393.2	395.8	397.4	398.4	400.9	403.0	405.6	407.1	409.7	411.2
7.5°	389.1	393.2	396.8	398.9	400.9	404.5	407.6	410.7	413.3	415.8	418.4
10°	386.1	391.2	396.3	398.4	400.9	405.1	409.7	413.3	416.9	419.9	423.0
12.5°	381.4	387.6	393.8	396.3	398.9	404.5	409.2	413.3	416.9	419.9	422.0
15°	375.3	382.5	389.1	392.7	395.8	401.5	406.1	410.2	413.3	415.3	416.9
17.5°	367.6	375.8	383.5	386.6	390.2	395.3	399.9	403.0	405.1	405.1	405.6
20°	358.8	367.6	375.3	378.9	382.5	386.6	390.2	391.7	391.7	391.7	390.7
22.5°	348.6	357.8	365.5	369.1	372.2	375.3	377.3	377.3	376.3	374.8	373.2
25°	336.8	346.5	353.7	357.3	358.8	361.4	360.9	360.4	358.8	357.3	355.3
27.5°	323.9	333.7	341.4	342.9	344.0	344.5	342.9	341.9	339.9	337.8	336.3
30°	310.6	319.8	326.0	326.5	327.5	327.0	325.0	322.4	320.3	317.8	315.7
32.5°	296.2	304.9	309.1	310.1	309.6	307.5	305.5	302.9	300.3	297.2	294.7
35°	280.8	289.0	291.6	291.1	290.6	288.0	284.9	282.4	278.8	276.7	273.1
37.5°	264.9	272.6	273.6	272.1	270.5	267.5	264.4	261.8	257.7	255.7	253.1
40°	249.0	254.1	254.1	252.6	251.6	248.5	244.4	240.8	237.7	234.1	232.6
42.5°	232.6	236.7	234.6	233.6	232.0	227.4	224.3	220.8	216.6	214.6	212.0
45°	216.1	218.7	216.1	214.1	212.5	208.4	205.3	200.7	197.1	195.1	192.0
47.5°	199.2	200.2	198.2	195.1	194.1	189.4	185.8	182.2	178.7	175.1	172.5
50°	183.8	182.8	179.7	177.6	176.1	171.0	166.8	162.7	159.7	156.6	154.0
52.5°	166.3	165.3	161.2	158.6	156.1	152.0	146.8	143.7	140.2	137.6	135.0
55°	148.4	145.3	142.2	139.6	137.1	133.0	128.3	124.2	121.7	118.6	117.0
57.5°	129.9	127.8	122.7	120.6	118.6	114.5	109.9	106.3	102.7	100.6	99.6
60°	113.5	109.9	105.8	103.2	101.1	97.0	92.9	89.3	86.8	85.7	84.2
62.5°	96.0	92.9	88.3	86.2	84.7	80.6	77.0	73.9	71.9	69.8	68.8
65°	80.1	76.5	72.9	70.8	68.8	65.2	62.6	60.6	58.0	56.5	55.4
67.5°	64.7	61.6	58.5	57.0	55.4	52.4	49.8	48.3	46.2	44.7	42.6
70°	50.8	48.3	46.2	44.7	43.1	40.6	38.5	37.0	35.4	33.9	32.3
72.5°	39.5	37.0	34.4	33.9	32.9	30.8	29.3	27.7	26.2	25.2	24.1
75°	28.2	27.2	25.2	24.1	23.6	22.1	20.5	19.5	19.0	18.0	17.5
77.5°	18.5	17.5	15.9	15.9	15.4	14.9	13.9	12.8	12.8	12.3	12.3
80°	10.3	9.8	9.2	8.7	9.2	8.7	8.2	7.7	7.7	7.7	7.2
82.5°	4.6	4.6	4.1	4.1	4.1	4.1	4.1	3.6	3.6	3.6	3.6
85°	2.1	2.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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: P345398

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMW 1000lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	388.1	388.1	388.1	388.1	388.1	388.1	388.1	388.1
2.5°	402.0	402.5	403.0	403.5	404.0	404.0	404.5	405.1
5°	412.2	413.8	414.3	414.8	415.8	416.3	416.3	416.9
7.5°	420.5	422.5	423.0	424.0	425.1	425.6	426.1	426.1
10°	425.1	426.6	427.1	428.2	429.2	429.7	430.2	430.2
12.5°	423.5	425.1	425.6	426.1	427.1	427.6	427.6	427.6
15°	417.9	417.9	417.9	417.9	417.4	417.9	417.9	416.9
17.5°	405.1	404.5	405.1	404.0	403.5	403.5	403.0	403.0
20°	389.7	389.1	388.6	388.6	388.1	387.1	386.6	386.1
22.5°	372.2	371.2	370.7	370.7	369.6	369.1	368.6	367.6
25°	354.2	351.7	351.7	351.7	350.6	350.6	349.6	348.6
27.5°	333.7	332.2	332.2	331.1	330.1	329.6	329.1	329.6
30°	314.2	312.1	311.1	310.6	310.1	310.1	308.5	308.0
32.5°	292.6	291.1	290.1	289.5	288.5	288.0	287.5	286.5
35°	271.6	270.0	269.0	269.0	267.0	266.4	265.9	265.9
37.5°	250.0	249.0	248.5	246.9	246.4	245.9	245.9	245.4
40°	230.0	228.5	227.9	226.4	225.9	225.9	224.3	224.9
42.5°	209.5	207.4	206.9	206.4	205.9	204.8	205.3	204.3
45°	189.9	188.4	187.4	187.4	186.9	185.8	185.3	185.8
47.5°	171.0	168.9	168.9	168.4	167.9	167.4	167.4	166.3
50°	153.0	151.4	150.4	149.4	149.9	149.4	148.4	148.9
52.5°	133.5	131.9	131.4	131.4	130.9	130.9	130.4	130.4
55°	116.0	114.5	114.5	114.0	114.0	114.0	113.5	113.5
57.5°	98.6	97.5	97.0	97.0	96.0	96.5	96.0	95.5
60°	83.2	81.6	80.6	81.1	80.6	80.6	79.6	80.1
62.5°	67.3	66.2	65.7	65.7	64.7	64.7	63.7	64.2
65°	53.9	52.4	51.9	51.3	50.3	49.8	49.8	49.8
67.5°	41.6	40.6	40.0	39.0	38.0	37.5	37.0	36.4
70°	31.3	30.3	29.8	29.3	28.7	28.2	28.2	27.7
72.5°	23.6	22.6	22.6	22.1	22.1	21.6	21.6	21.6
75°	16.9	16.9	16.4	16.4	15.9	16.4	15.9	15.9
77.5°	11.8	11.3	11.8	11.3	10.8	10.8	10.8	10.8
80°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.2
82.5°	3.6	3.6	3.6	3.1	3.1	3.1	3.1	3.1
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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