

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: P345433

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1000Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345433
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 1000Lm3000K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 672.0 lumens
Efficiency: N/A
Efficacy: 64.6 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

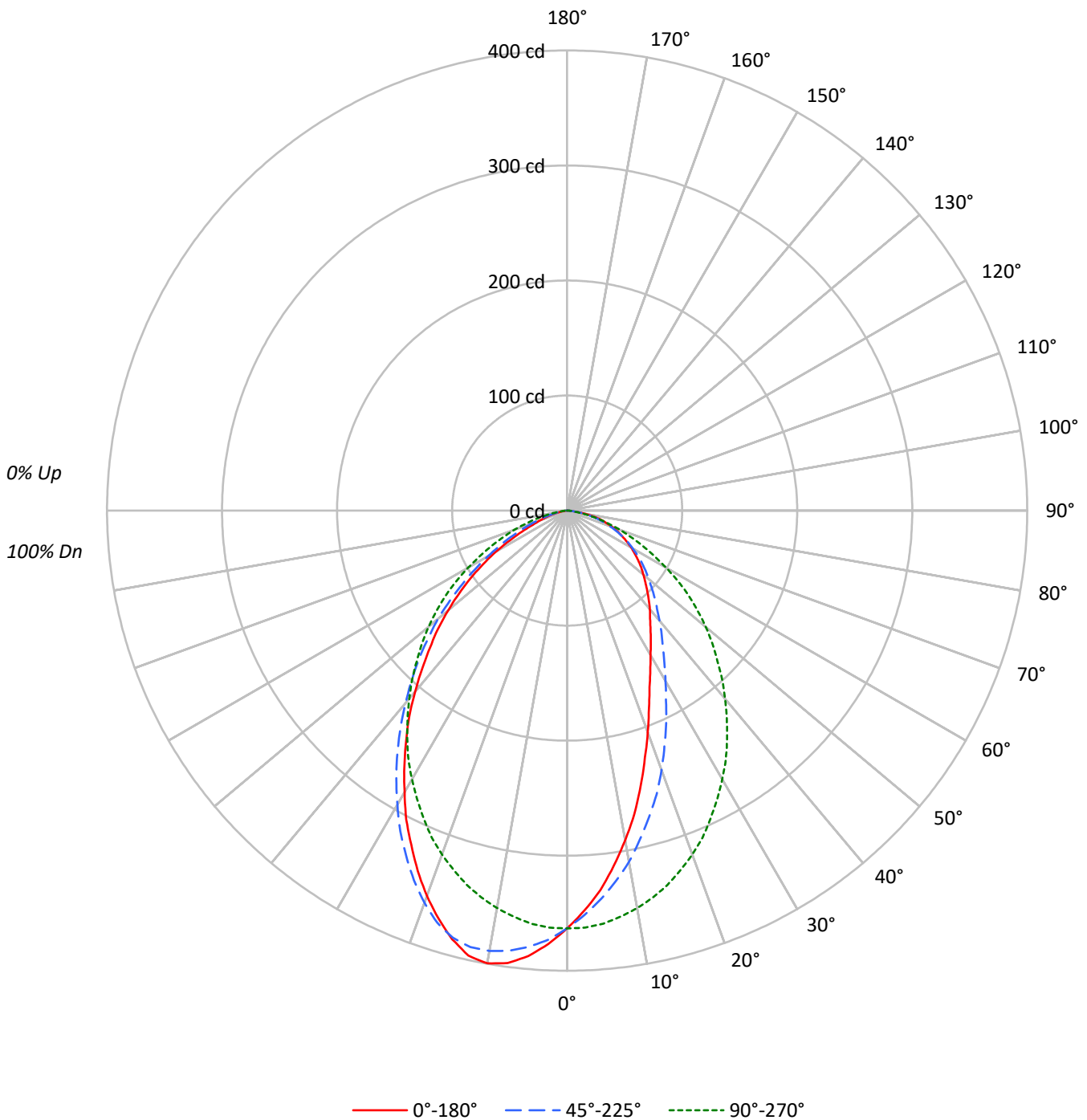
Input Watts (W): 10.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	35397	35397	35397
5°	32392	35258	38027
10°	28778	34716	39555
15°	24931	33982	38926
20°	21251	32991	36974
25°	18216	31733	34464
30°	16306	30351	31802
35°	15015	28827	29006
40°	14223	27162	26131
45°	13562	25457	23210
50°	13100	23865	20438
55°	12794	21936	17450
60°	12533	19355	13937
65°	12176	16604	9962
70°	11882	13820	7124
75°	11372	10656	5046
80°	8082	6174	2975
85°	2125	3243	559



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	34.0	5.1
10°-20°	92.0	13.7
20°-30°	124.0	18.4
30°-40°	130.2	19.4
40°-50°	117.3	17.5
50°-60°	90.6	13.5
60°-70°	55.8	8.3
70°-80°	24.6	3.7
80°-90°	3.6	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°	249.9	37.2
0°-40°	380.1	56.6
0°-60°	588.0	87.5
0°-90°	672.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	672.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	363	363	363	363	363	
5°	331	339	360	380	389	30
15°	247	275	337	384	386	69
25°	169	204	295	331	320	79
35°	126	145	242	257	244	79
45°	98	108	185	182	168	76
55°	75	79	129	111	103	67
65°	53	53	72	53	43	52
75°	30	27	28	17	13	31
85°	2	2	3	1	0	5
90°	0	0	0	0	0	



TEST NUMBER: P345433

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000lm3000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2
2.5°	347.9	347.4	346.9	347.9	347.9	348.4	348.4	349.3	349.3	350.3	351.7
5°	331.1	330.1	330.6	330.6	332.0	332.0	333.0	334.0	335.4	337.3	338.8
7.5°	311.4	311.4	311.9	312.9	314.3	314.3	315.7	317.2	319.6	322.0	324.8
10°	290.8	291.7	292.2	293.2	295.6	296.5	297.0	299.4	302.8	305.2	310.0
12.5°	270.1	270.1	271.1	273.0	274.9	276.4	277.3	280.7	284.1	288.4	292.7
15°	247.1	247.6	249.0	251.0	254.3	255.3	257.2	261.0	265.8	271.1	275.4
17.5°	225.0	226.0	227.0	229.8	232.2	233.7	236.6	240.9	246.2	251.9	258.6
20°	204.9	203.5	205.4	207.3	209.7	213.0	215.0	219.8	225.5	233.2	239.9
22.5°	185.7	185.7	187.1	188.6	191.0	193.4	195.8	199.6	205.9	213.5	221.2
25°	169.4	169.9	171.3	172.7	175.1	176.6	179.0	182.8	189.1	194.8	203.5
27.5°	156.4	156.9	157.4	159.3	161.2	162.7	164.1	167.9	172.7	179.0	186.2
30°	144.9	144.9	145.4	147.3	148.3	150.2	151.1	154.5	158.8	164.1	170.8
32.5°	135.3	135.3	135.8	136.8	138.7	139.6	140.1	143.5	146.8	152.1	157.4
35°	126.2	126.2	126.7	127.6	129.1	129.6	131.0	132.9	136.3	140.1	144.9
37.5°	118.5	118.5	119.0	119.5	120.4	121.4	122.4	124.3	126.2	130.0	134.8
40°	111.8	111.3	111.8	112.3	113.7	113.7	114.2	116.1	118.0	120.9	124.8
42.5°	105.1	105.1	105.1	105.6	106.5	107.0	107.5	108.4	110.4	112.8	115.6
45°	98.4	98.4	98.8	99.3	99.8	100.3	101.2	102.2	103.2	104.6	107.5
47.5°	92.1	92.6	92.6	93.1	93.6	94.0	94.5	95.5	96.4	97.9	99.8
50°	86.4	86.9	86.9	87.3	87.8	87.8	88.3	89.2	90.2	91.2	92.6
52.5°	81.1	81.1	80.6	81.1	81.6	81.6	82.1	82.5	83.5	84.9	85.9
55°	75.3	75.3	75.3	75.8	75.8	75.8	76.3	76.8	77.3	77.7	79.2
57.5°	69.6	69.6	70.1	69.6	70.1	70.1	70.1	70.5	71.0	72.0	72.5
60°	64.3	64.3	64.3	64.3	64.3	64.3	64.8	64.8	64.8	65.3	65.7
62.5°	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	59.0	59.0	59.5
65°	52.8	52.8	53.3	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8
67.5°	47.5	47.0	47.5	47.0	47.0	47.0	47.0	46.5	46.5	46.5	46.1
70°	41.7	41.3	41.3	41.3	41.3	40.8	41.3	40.8	40.3	39.8	39.3
72.5°	35.5	35.5	35.5	35.5	35.5	35.0	34.5	34.5	34.1	33.6	33.1
75°	30.2	30.2	29.7	29.3	28.8	28.8	28.8	28.3	27.8	27.4	26.9
77.5°	23.5	23.0	23.0	22.6	22.1	21.6	22.1	21.6	21.1	20.6	20.2
80°	14.4	14.4	14.4	14.4	14.4	14.4	13.9	14.4	13.9	13.4	13.4
82.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.4
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4	1.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2
2.5°	352.7	353.6	355.1	356.0	356.5	357.0	358.4	359.9	361.3	362.8	363.7
5°	341.2	343.6	345.0	347.4	348.8	350.3	352.7	355.1	357.5	360.4	362.8
7.5°	327.2	331.1	334.0	337.3	339.2	341.2	344.5	348.4	352.2	356.0	359.9
10°	313.8	317.2	322.5	327.2	328.7	331.6	336.8	341.2	346.4	350.8	356.0
12.5°	298.5	302.8	308.5	314.3	317.7	320.5	326.8	332.5	338.8	344.5	350.8
15°	281.7	288.4	294.6	301.3	305.7	308.5	315.7	322.9	329.6	336.8	344.0
17.5°	264.9	272.5	280.2	288.4	291.7	296.1	304.2	311.9	320.1	327.7	335.9
20°	248.1	256.2	264.4	273.5	278.3	282.6	291.3	300.4	309.5	318.1	326.8
22.5°	230.3	239.0	248.6	258.6	263.9	267.7	277.8	287.9	297.5	307.6	316.7
25°	212.6	222.6	232.7	243.3	248.6	254.3	264.4	274.9	285.0	295.1	305.7
27.5°	195.3	205.9	216.4	228.4	233.7	239.4	250.5	261.0	272.1	282.6	293.2
30°	179.5	189.5	201.1	213.0	218.8	224.6	236.1	247.6	258.6	269.7	279.7
32.5°	165.1	173.7	185.7	197.7	203.9	209.7	221.7	233.7	245.2	256.7	266.8
35°	151.6	159.8	169.9	182.8	188.6	194.8	207.3	218.8	230.8	242.3	252.9
37.5°	139.6	147.3	156.4	167.5	174.7	180.4	192.9	204.9	216.4	227.9	238.5
40°	129.1	135.8	143.5	153.5	160.3	166.5	179.0	191.0	202.5	213.5	224.1
42.5°	119.5	124.8	132.0	141.1	146.4	152.6	165.5	177.1	188.6	199.6	209.2
45°	110.4	114.7	120.9	129.1	133.4	140.1	152.1	163.6	174.7	184.7	195.3
47.5°	102.2	106.0	110.8	117.6	121.9	127.2	139.2	150.7	161.2	171.3	180.4
50°	95.0	97.9	102.2	108.0	111.3	115.2	127.2	138.2	147.8	157.4	166.0
52.5°	87.8	89.7	93.1	97.9	101.2	104.6	114.7	125.2	134.8	143.0	152.1
55°	80.1	82.5	85.4	88.8	91.2	94.0	102.2	112.3	120.4	129.1	136.3
57.5°	73.4	74.9	76.8	79.7	81.6	84.0	90.2	98.8	107.0	114.2	121.4
60°	66.7	67.7	69.1	71.0	72.5	74.4	78.7	86.4	93.6	99.3	105.6
62.5°	60.0	60.0	60.9	62.4	63.3	64.8	68.6	74.4	80.6	84.9	90.2
65°	52.8	53.3	53.7	54.7	55.2	56.1	58.5	62.9	67.7	72.0	75.8
67.5°	46.1	46.1	46.5	47.0	47.0	47.5	48.9	51.8	56.6	59.5	62.4
70°	39.3	39.3	39.3	39.3	39.8	39.3	40.3	42.2	45.6	48.5	49.9
72.5°	33.1	32.6	32.1	32.1	32.1	32.1	32.6	34.1	36.0	37.4	39.3
75°	26.4	25.9	25.4	25.0	25.4	25.4	25.4	25.9	26.9	28.3	28.8
77.5°	19.7	19.7	18.7	18.2	18.7	18.2	17.8	17.8	18.2	18.7	18.7
80°	13.4	13.0	12.5	12.0	12.0	12.0	11.5	11.0	11.0	11.0	10.6
82.5°	6.7	6.7	6.2	6.2	6.2	6.2	6.2	5.8	5.8	5.3	5.3
85°	2.4	2.4	2.4	2.4	2.9	2.4	2.9	2.9	2.9	2.9	2.9
87.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	2.4	2.4	2.4	1.9
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°	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2
2.5°	365.2	366.6	367.6	368.5	369.0	370.0	371.4	372.4	373.3	374.3	375.2
5°	365.2	368.0	370.0	371.4	372.8	374.8	377.2	379.1	380.5	382.4	383.9
7.5°	363.7	367.6	370.9	372.8	374.8	377.6	380.5	383.4	385.8	388.2	390.1
10°	360.8	365.6	370.4	372.4	374.8	378.6	382.4	385.8	388.7	391.5	393.9
12.5°	356.5	362.3	368.0	370.4	372.8	377.6	382.0	385.8	388.7	391.1	392.5
15°	350.8	357.5	363.7	366.6	369.5	374.3	378.6	382.0	384.3	385.8	386.7
17.5°	343.6	350.8	357.5	360.8	364.2	369.0	372.4	374.3	375.7	375.7	375.2
20°	335.4	343.1	350.3	353.6	356.5	360.4	362.8	363.2	362.8	361.8	360.8
22.5°	325.3	334.0	341.2	344.0	346.4	349.3	349.3	348.8	347.9	346.4	346.0
25°	314.8	322.9	330.1	333.0	334.0	335.9	334.4	333.5	331.1	329.6	328.2
27.5°	303.3	311.9	317.2	319.1	320.1	319.1	317.7	315.7	314.3	311.9	310.0
30°	290.8	298.5	302.8	304.2	303.7	302.3	300.9	297.5	295.1	292.7	290.3
32.5°	276.4	284.1	287.4	287.9	286.5	284.1	281.7	279.3	276.4	273.5	272.1
35°	262.5	269.2	271.1	270.1	268.7	265.8	262.5	259.6	257.2	253.8	251.4
37.5°	247.6	253.4	253.4	251.9	251.0	247.6	244.2	241.4	238.0	235.1	231.8
40°	232.7	237.0	235.6	234.2	232.7	228.9	226.0	221.7	218.3	215.0	212.6
42.5°	217.8	220.2	218.3	216.4	214.5	210.6	207.8	203.0	200.1	196.7	194.8
45°	203.0	203.5	200.6	199.1	197.2	192.4	188.6	185.2	181.9	178.0	175.6
47.5°	187.6	186.7	183.3	181.4	179.5	175.1	171.3	167.5	163.6	160.7	157.9
50°	172.3	169.9	166.5	164.6	162.2	158.3	154.0	149.7	146.4	143.5	141.1
52.5°	155.5	153.5	149.7	146.8	144.9	139.6	135.8	132.0	128.1	125.2	123.3
55°	138.7	135.8	131.5	129.6	126.7	122.4	118.5	113.7	110.8	108.4	106.0
57.5°	121.9	118.5	114.7	112.3	109.4	105.1	100.8	97.9	95.0	92.1	90.7
60°	105.6	102.2	97.4	96.4	93.6	89.2	85.4	82.1	79.2	77.3	75.8
62.5°	90.2	86.9	82.1	80.1	78.2	73.9	70.5	67.7	65.7	63.8	62.4
65°	74.9	72.0	68.1	65.7	63.8	60.5	57.6	54.7	53.3	50.9	49.4
67.5°	60.9	57.6	54.7	52.8	51.3	48.0	45.6	43.7	41.7	40.3	38.4
70°	48.0	45.1	42.2	41.3	39.8	37.4	35.5	33.6	32.1	30.7	28.8
72.5°	36.9	35.0	32.1	31.2	30.2	28.3	26.9	25.4	23.5	22.6	21.6
75°	27.4	25.4	23.5	22.6	22.1	20.2	19.2	17.8	16.8	16.3	15.4
77.5°	17.8	16.3	15.4	14.9	14.4	13.4	12.5	12.0	11.0	10.6	10.6
80°	10.1	9.6	9.1	8.6	8.2	7.7	7.7	7.2	6.7	6.2	5.8
82.5°	4.8	4.8	4.3	4.3	4.3	3.8	3.8	3.4	3.4	2.9	2.9
85°	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.4	1.4	1.0
87.5°	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	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: P345433

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1000lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	363.2	363.2	363.2	363.2	363.2	363.2	363.2	363.2
2.5°	375.2	375.7	376.2	376.7	376.7	377.2	377.6	377.2
5°	384.8	386.3	386.7	387.2	387.7	388.2	388.7	388.7
7.5°	392.0	393.9	394.4	394.4	395.9	396.3	396.8	396.8
10°	395.9	396.8	397.8	397.8	398.7	398.7	399.7	399.7
12.5°	393.9	394.9	395.4	395.9	395.9	396.3	396.3	396.3
15°	387.2	386.7	386.7	386.3	386.3	385.8	385.8	385.8
17.5°	374.8	374.3	373.8	373.8	372.8	372.8	371.9	371.9
20°	359.9	358.9	358.4	358.0	358.0	357.5	356.5	356.5
22.5°	344.0	343.1	342.1	341.2	340.2	339.7	339.2	339.2
25°	326.3	324.8	324.4	323.9	322.5	322.0	321.0	320.5
27.5°	308.1	305.7	305.2	304.7	303.7	303.3	302.8	302.8
30°	288.9	287.4	286.5	286.0	284.5	284.1	282.6	282.6
32.5°	269.7	267.3	266.3	265.8	264.9	263.9	263.4	263.4
35°	249.5	248.1	247.6	246.2	244.7	244.7	243.8	243.8
37.5°	230.3	228.9	227.4	227.0	226.0	224.6	224.1	225.5
40°	211.1	209.2	208.2	207.8	206.8	205.4	205.4	205.4
42.5°	192.4	191.0	190.5	189.5	188.6	188.1	187.1	186.7
45°	173.2	172.3	171.8	170.8	170.3	169.4	168.4	168.4
47.5°	156.4	154.5	154.5	153.5	152.6	152.1	152.1	152.6
50°	139.6	138.2	137.2	136.8	135.8	135.8	135.3	134.8
52.5°	121.4	120.4	120.0	120.0	119.0	119.0	118.5	118.5
55°	104.6	104.6	104.1	103.6	102.7	102.7	102.7	102.7
57.5°	89.7	88.8	88.3	87.8	87.3	86.9	86.9	86.4
60°	74.4	73.9	72.9	73.4	72.0	72.0	72.0	71.5
62.5°	60.5	59.5	59.0	58.5	57.6	57.6	56.6	56.1
65°	48.5	47.0	46.1	46.1	45.1	44.1	43.7	43.2
67.5°	36.5	35.5	35.0	34.5	33.6	32.6	32.6	32.1
70°	27.8	26.9	26.4	25.9	25.4	25.0	25.0	25.0
72.5°	20.6	20.2	19.7	19.7	19.2	18.7	18.7	19.2
75°	14.9	14.4	14.4	14.4	13.9	13.9	13.9	13.4
77.5°	10.1	9.6	9.6	9.1	9.1	9.1	9.1	9.1
80°	5.8	5.3	5.3	5.3	5.3	5.3	5.3	5.3
82.5°	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
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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