

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: P345470

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1000Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345470
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-9)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PR4FS12D010 PR4M12WW9FSBZ 1000lm3500K
Description: PR4 WALLWASH ASSEMBLY WITH, BRONZE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 711.5 lumens
Efficiency: N/A
Efficacy: 70.4 lumens/watt
Spacing Criteria (0/90/45): 0.94 / 1.12 / 1.1
Luminous Opening: Circular (Dia: 0.4' x H: 0')
CIE Type: Direct

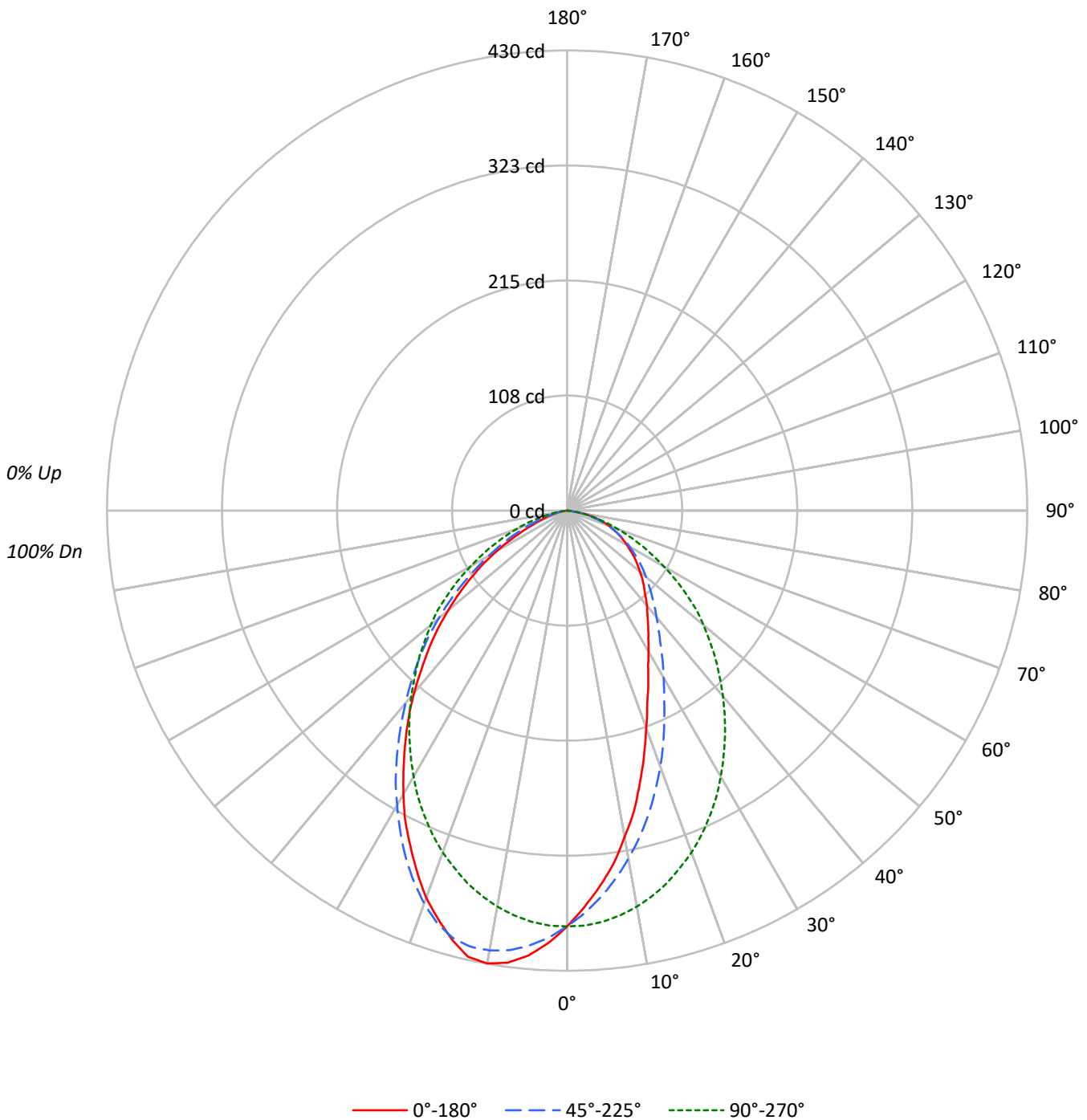
Input Watts (W): 10.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90					88				
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78					76				
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68					66				
4	87	76	69	63	85	75	68	62	73	66	61	70	65	61	68	64	60					58				
5	81	69	61	55	79	68	60	55	66	59	54	64	58	54	62	57	53					51				
6	75	63	55	49	73	62	54	49	60	53	48	59	53	48	57	52	48					46				
7	70	58	50	44	68	57	49	44	55	48	43	54	48	43	53	47	43					41				
8	65	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39					37				
9	61	49	41	36	60	48	41	36	47	41	36	46	40	36	45	40	36					34				
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	33991	33991	33991
5°	30924	33857	36649
10°	27498	33378	38165
15°	23807	32636	37608
20°	20115	31639	35837
25°	17295	30421	33441
30°	15352	28987	30906
35°	14084	27464	28126
40°	13245	25851	25383
45°	12568	24258	22612
50°	12084	22630	19704
55°	11742	20664	16683
60°	11319	18229	13383
65°	11052	15730	9666
70°	10639	12864	6700
75°	9902	9699	4698
80°	6699	5188	2317
85°	502	2108	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.4	5.1
10°-20°	98.5	13.8
20°-30°	132.5	18.6
30°-40°	138.8	19.5
40°-50°	124.5	17.5
50°-60°	95.3	13.4
60°-70°	58.1	8.2
70°-80°	24.7	3.5
80°-90°	2.8	0.4
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°	267.4	37.6
0°-40°	406.2	57.1
0°-60°	626.1	88.0
0°-90°	711.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	711.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	389	389	389	389	389	
5°	352	362	386	408	417	32
15°	263	294	360	413	415	73
25°	179	215	315	357	346	83
35°	132	152	257	277	263	83
45°	102	112	196	195	183	79
55°	77	82	136	119	109	69
65°	53	54	76	56	47	53
75°	29	26	29	18	14	30
85°	0	1	2	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P345470

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6
2.5°	370.7	371.2	372.2	371.7	372.7	372.7	372.7	373.7	374.8	375.3	376.3
5°	352.2	352.7	353.2	354.2	354.7	354.2	355.8	357.3	358.9	360.9	362.4
7.5°	332.7	332.7	332.2	333.7	335.8	336.3	337.3	338.8	340.9	344.0	347.0
10°	309.6	310.1	311.1	311.6	314.7	315.2	316.8	318.8	322.4	326.0	330.1
12.5°	288.0	287.5	288.0	289.5	291.6	294.2	295.7	298.3	302.9	307.5	312.7
15°	262.9	263.4	264.9	266.4	269.5	271.1	273.6	278.3	282.9	287.5	293.7
17.5°	239.2	238.7	240.8	243.3	245.9	248.5	250.5	254.6	260.8	267.5	274.1
20°	216.1	215.6	217.2	219.2	223.3	224.9	227.4	233.6	239.2	246.4	254.6
22.5°	195.6	195.6	197.1	199.7	202.3	203.8	206.4	211.5	218.2	226.4	234.6
25°	179.2	179.2	180.2	181.7	184.8	186.4	188.9	192.5	198.7	206.4	214.6
27.5°	163.8	164.8	165.3	166.8	169.4	171.0	172.5	176.6	181.7	188.4	196.1
30°	152.0	152.5	153.0	154.0	156.1	157.1	159.1	162.7	167.4	173.0	180.2
32.5°	141.2	141.7	141.7	143.2	144.8	146.3	147.3	150.4	153.5	159.1	165.8
35°	131.9	131.9	133.0	133.5	134.5	135.5	136.6	139.1	142.7	146.8	152.0
37.5°	123.2	123.2	123.7	124.8	125.8	126.8	127.3	129.4	132.5	136.0	140.2
40°	116.0	116.0	116.0	117.1	118.1	118.6	119.1	121.2	123.7	126.3	129.9
42.5°	108.3	108.8	109.4	109.9	110.4	111.4	111.9	112.9	115.0	117.1	120.6
45°	101.6	102.2	102.2	102.7	103.7	103.7	104.2	105.8	107.3	109.4	111.9
47.5°	95.5	95.5	95.5	96.0	96.5	97.0	97.5	98.6	100.1	101.1	103.7
50°	88.8	88.8	89.3	89.8	90.4	90.4	90.9	91.4	92.9	93.9	96.0
52.5°	82.7	82.7	83.2	83.2	83.7	83.7	84.2	85.2	85.7	87.3	88.8
55°	77.0	76.5	77.0	77.0	77.0	77.5	77.5	78.5	79.6	80.1	81.6
57.5°	70.3	70.8	70.8	71.4	71.4	71.4	71.9	71.9	72.9	73.4	73.9
60°	64.7	65.2	65.2	65.2	65.2	65.2	65.7	65.7	66.2	66.7	67.3
62.5°	59.0	59.0	59.0	59.0	59.0	59.6	59.6	59.6	59.6	60.1	60.6
65°	53.4	53.4	53.4	53.4	53.4	53.4	53.4	53.4	53.4	53.4	53.9
67.5°	47.2	47.2	47.2	47.7	47.2	47.2	47.2	47.2	47.2	47.2	46.7
70°	41.6	41.6	41.6	41.6	41.6	41.1	41.1	40.6	40.6	40.0	40.0
72.5°	35.4	35.4	35.4	34.9	34.9	34.9	34.4	33.9	33.4	33.4	33.4
75°	29.3	29.3	28.7	28.7	28.2	28.2	27.7	27.2	26.7	26.2	26.2
77.5°	22.1	22.1	22.1	22.1	21.6	21.0	21.0	20.5	20.0	20.0	19.5
80°	13.3	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.3	12.3
82.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
85°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	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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CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm3500K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6
2.5°	377.3	378.4	379.9	380.9	381.4	382.0	383.5	385.0	386.6	388.1	389.1
5°	365.0	367.1	369.1	371.7	372.7	374.3	377.3	379.9	382.5	385.6	388.1
7.5°	350.1	353.7	357.3	361.4	363.0	364.5	368.6	373.2	376.8	381.4	385.6
10°	334.7	338.8	343.5	349.1	351.7	354.2	359.4	365.0	370.1	375.8	380.9
12.5°	317.3	323.9	330.1	336.3	338.8	341.9	348.6	355.3	361.9	368.6	374.8
15°	299.8	306.5	314.2	321.4	325.0	329.1	336.8	345.0	352.7	360.4	367.6
17.5°	282.4	289.0	297.2	306.5	311.1	315.2	323.4	332.7	341.9	350.1	359.4
20°	262.9	271.6	281.3	291.1	295.7	300.8	310.6	320.4	330.6	339.9	349.6
22.5°	243.9	253.1	264.9	274.7	279.8	284.9	296.2	307.5	317.8	328.1	337.8
25°	224.9	235.6	246.9	258.7	264.4	270.0	281.8	292.6	304.4	315.2	326.5
27.5°	206.4	217.7	229.5	241.8	248.0	254.1	265.9	278.3	290.1	301.9	313.2
30°	188.9	199.7	212.5	225.4	231.5	238.2	250.5	263.4	275.2	287.0	299.3
32.5°	173.5	182.8	195.6	208.4	215.1	221.8	235.1	248.0	259.8	272.1	284.9
35°	159.1	167.9	179.2	192.5	199.2	205.9	219.2	232.6	245.4	257.2	269.5
37.5°	146.8	154.5	164.3	176.1	183.8	190.5	203.8	217.2	229.5	241.8	253.6
40°	135.0	141.7	150.9	162.2	168.4	175.1	188.4	202.3	214.6	226.4	238.2
42.5°	124.8	130.4	138.1	147.9	154.5	160.2	174.0	187.4	199.2	211.0	222.8
45°	115.5	120.1	126.3	134.5	140.2	147.3	160.2	172.5	184.3	196.1	207.4
47.5°	106.3	110.4	115.5	123.2	127.8	133.5	146.3	158.1	169.9	180.7	191.5
50°	98.6	101.6	105.8	111.9	116.5	120.6	132.5	144.8	155.6	166.3	176.1
52.5°	90.9	92.9	96.5	102.2	105.2	109.4	119.6	130.9	141.7	152.0	160.7
55°	83.2	85.2	87.8	91.9	95.0	98.1	106.8	117.6	127.3	135.5	144.3
57.5°	75.5	77.0	79.1	82.7	84.7	87.3	94.5	103.2	111.9	120.1	126.8
60°	68.8	69.8	71.4	73.4	75.0	76.5	81.6	89.8	98.1	104.2	110.4
62.5°	61.1	61.6	62.6	64.7	65.7	66.7	70.3	77.5	84.2	89.8	95.0
65°	53.9	54.4	54.9	56.0	57.0	57.5	60.6	65.7	71.4	76.0	79.6
67.5°	46.7	47.2	47.2	48.3	48.3	49.3	50.8	53.9	59.0	62.6	65.7
70°	39.5	40.0	40.0	40.6	40.0	40.6	42.1	44.2	47.2	50.3	52.4
72.5°	32.9	32.3	32.3	32.3	32.3	32.9	33.4	34.4	37.0	39.5	40.0
75°	25.7	25.7	25.2	25.2	25.2	25.2	25.2	25.7	27.2	28.7	29.3
77.5°	19.0	18.5	18.5	18.0	18.0	18.0	17.5	17.5	18.0	19.0	19.0
80°	12.3	11.8	11.3	11.8	10.8	11.3	10.8	10.3	10.3	10.3	9.8
82.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.6	4.6	4.6
85°	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	2.1	2.1	1.5
87.5°	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	2.1	2.1	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: P345470

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm3500K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6
2.5°	390.7	392.2	393.8	394.3	394.8	396.3	397.4	398.9	399.4	400.4	401.5
5°	390.7	393.8	396.3	397.9	398.9	401.5	404.0	405.6	408.1	409.7	411.2
7.5°	389.7	393.8	397.4	399.4	401.5	404.5	408.1	411.2	414.3	416.4	418.9
10°	386.6	391.7	396.3	398.9	401.5	406.1	410.2	413.8	417.4	420.5	423.0
12.5°	382.0	388.1	393.8	396.8	399.4	405.1	409.7	413.8	417.4	419.9	422.0
15°	375.3	383.0	389.7	392.7	395.8	402.0	406.6	410.2	413.3	414.8	416.4
17.5°	367.6	375.8	383.5	387.1	390.2	395.8	399.9	402.5	404.0	405.1	404.5
20°	358.9	367.6	375.3	378.9	382.5	387.1	390.2	391.2	390.7	390.2	389.1
22.5°	348.1	357.3	365.5	368.6	371.7	375.3	376.3	375.8	374.8	373.7	372.2
25°	336.8	346.0	353.7	356.3	358.9	360.4	359.9	358.9	357.3	355.8	353.2
27.5°	323.9	333.7	339.9	342.9	343.5	343.5	341.9	340.4	337.8	335.8	333.2
30°	310.6	318.8	325.0	326.0	326.5	325.5	323.9	321.4	317.8	316.2	313.7
32.5°	295.2	303.9	308.5	308.5	307.5	306.0	302.9	300.3	298.3	294.7	292.1
35°	280.8	287.5	290.1	290.1	288.5	286.0	283.4	279.8	276.7	274.7	271.1
37.5°	264.4	271.1	272.1	270.6	269.5	266.4	262.3	259.3	255.7	253.1	250.5
40°	249.0	253.6	252.6	251.0	250.0	246.9	242.3	238.7	235.1	232.0	229.5
42.5°	231.5	234.6	233.1	232.0	230.0	226.4	222.3	218.7	215.1	212.0	209.5
45°	215.6	217.2	214.6	212.5	211.0	206.9	203.8	198.7	195.1	192.0	190.0
47.5°	198.7	198.7	196.1	194.1	191.5	187.4	183.8	178.7	176.6	172.5	170.4
50°	182.3	180.7	177.6	175.1	173.0	168.4	163.8	160.2	156.6	153.5	151.4
52.5°	164.8	162.7	158.6	156.1	155.0	149.4	145.3	140.7	137.6	134.0	131.9
55°	147.3	144.3	139.6	137.6	135.5	130.9	126.3	121.7	118.6	116.0	114.0
57.5°	129.4	125.8	121.7	119.1	116.5	111.9	107.3	103.2	100.6	98.1	96.5
60°	110.9	108.3	104.2	101.6	99.1	95.0	89.8	86.8	84.7	81.6	81.1
62.5°	95.0	91.4	86.8	84.7	82.7	78.5	74.4	71.9	69.3	67.8	65.7
65°	79.1	75.5	71.4	69.3	67.8	64.2	61.1	58.5	56.5	54.4	52.9
67.5°	63.7	61.1	57.5	56.0	53.9	50.8	48.3	46.2	44.2	42.1	40.6
70°	50.8	47.7	44.7	43.6	42.6	39.5	37.5	35.4	33.4	31.8	30.3
72.5°	39.0	36.5	33.9	32.3	31.3	29.8	28.2	26.2	24.6	23.1	22.1
75°	27.7	26.2	24.1	23.1	22.1	21.0	19.0	18.0	17.5	16.4	15.4
77.5°	18.0	16.4	15.4	14.4	14.4	13.3	12.3	11.8	10.8	10.8	10.3
80°	9.2	8.7	8.2	8.2	8.2	7.2	6.7	6.7	6.2	5.6	5.6
82.5°	4.1	4.1	3.6	3.6	3.6	3.1	3.1	2.6	2.6	2.1	2.1
85°	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	0.5	0.5	0.5
87.5°	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	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: P345470

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	388.6	388.6	388.6	388.6	388.6	388.6	388.6	388.6
2.5°	402.0	403.0	403.0	403.5	404.0	404.5	404.0	404.5
5°	412.8	414.3	414.8	414.8	415.8	416.4	417.4	417.4
7.5°	421.0	422.5	423.5	424.1	425.1	426.1	426.1	426.1
10°	425.1	426.6	427.1	428.2	428.7	429.2	429.7	429.7
12.5°	423.5	425.1	425.6	425.6	426.6	426.6	426.6	427.1
15°	416.9	416.4	416.4	416.4	415.8	415.8	415.8	415.3
17.5°	403.5	403.0	403.0	403.0	402.5	402.0	401.5	400.4
20°	388.6	387.6	386.6	387.1	386.1	385.6	385.0	385.0
22.5°	371.2	369.6	369.1	368.6	367.6	367.1	366.0	366.0
25°	352.2	351.2	349.6	349.1	348.6	347.6	346.5	346.5
27.5°	332.2	330.6	330.1	329.1	328.6	327.5	327.0	327.5
30°	311.6	310.1	309.6	308.5	306.5	307.5	306.5	306.0
32.5°	290.1	288.5	287.5	286.5	286.5	284.9	284.9	284.4
35°	269.0	267.5	266.4	265.9	264.9	264.9	263.9	263.4
37.5°	248.5	246.9	245.9	245.4	244.4	243.3	242.8	243.3
40°	227.4	225.9	224.9	224.3	223.3	222.3	222.3	222.3
42.5°	206.9	205.4	205.4	204.3	202.8	202.3	201.8	201.8
45°	187.9	185.8	185.3	184.3	184.3	183.3	182.8	182.8
47.5°	167.9	166.3	165.8	165.3	164.8	164.3	164.3	164.3
50°	149.4	147.3	147.3	146.3	145.8	146.3	145.3	144.8
52.5°	130.9	129.4	128.9	128.9	127.8	127.8	127.8	127.3
55°	112.4	111.4	111.4	110.9	109.9	110.4	110.4	109.4
57.5°	95.5	93.9	93.9	93.4	93.4	93.4	92.4	93.4
60°	79.6	78.5	78.0	77.5	77.0	77.0	77.0	76.5
62.5°	64.7	63.7	63.1	62.6	61.6	61.6	60.6	60.1
65°	51.3	50.3	49.3	48.8	47.7	47.2	47.2	46.7
67.5°	39.0	38.0	37.0	36.5	35.4	34.9	34.4	34.4
70°	29.3	27.7	27.7	27.2	26.7	26.7	26.2	26.2
72.5°	21.0	21.0	20.5	20.5	20.0	20.0	20.0	20.0
75°	14.9	14.9	14.9	14.9	14.4	14.4	13.9	13.9
77.5°	9.8	9.8	9.8	9.2	9.2	9.2	9.2	9.2
80°	5.1	5.1	5.1	5.1	5.1	4.6	5.1	4.6
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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