

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: P345476

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1500Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345476
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 1500lm3500K
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: 940.8 lumens
Efficiency: N/A
Efficacy: 70.7 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

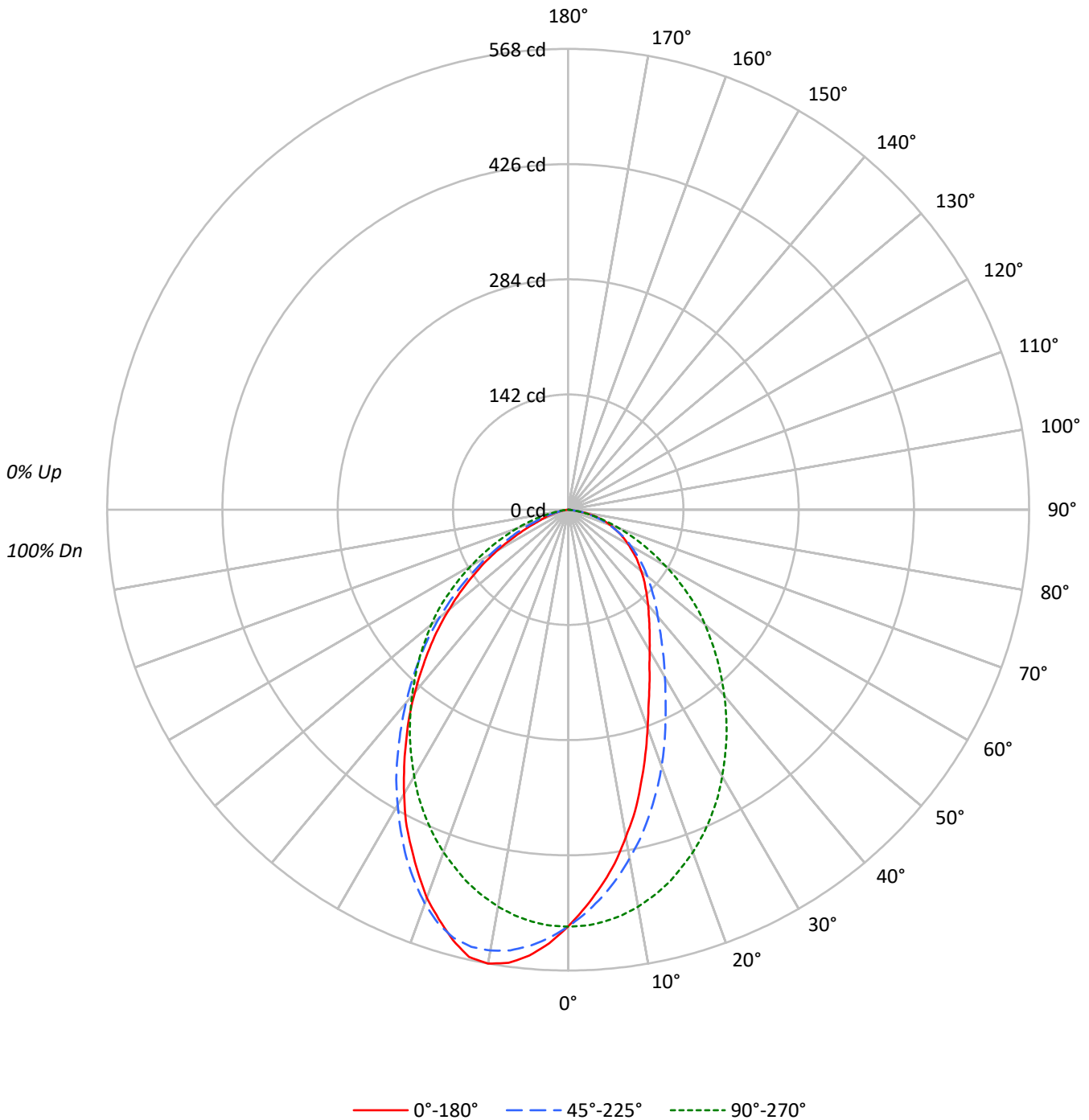
Input Watts (W): 13.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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°	44942	44942	44942
5°	40881	44753	48450
10°	36354	44125	50458
15°	31468	43149	49724
20°	26603	41822	47389
25°	22864	40226	44222
30°	20291	38320	40855
35°	18623	36316	37181
40°	17516	34175	33558
45°	16625	32076	29886
50°	15976	29924	26045
55°	15524	27328	22051
60°	14957	24107	17686
65°	14612	20801	12791
70°	14066	17007	8849
75°	13079	12842	6185
80°	8865	6851	3073
85°	703	2710	0



TEST NUMBER: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.1	5.1
10°-20°	130.2	13.8
20°-30°	175.2	18.6
30°-40°	183.6	19.5
40°-50°	164.6	17.5
50°-60°	126.0	13.4
60°-70°	76.8	8.2
70°-80°	32.6	3.5
80°-90°	3.7	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°	353.5	37.6
0°-40°	537.1	57.1
0°-60°	827.7	88.0
0°-90°	940.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	940.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	514	514	514	514	514	
5°	466	479	510	540	552	43
15°	348	388	476	546	549	97
25°	237	284	417	472	458	109
35°	174	201	340	366	348	110
45°	134	148	259	258	242	104
55°	102	108	179	157	145	91
65°	71	71	100	75	62	70
75°	39	35	38	23	18	40
85°	1	1	3	1	0	4
90°	0	0	0	0	0	



TEST NUMBER: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8
2.5°	490.1	490.7	492.1	491.4	492.8	492.8	492.8	494.1	495.5	496.2	497.5
5°	465.6	466.3	467.0	468.3	469.0	468.3	470.4	472.4	474.4	477.2	479.2
7.5°	439.8	439.8	439.2	441.2	443.9	444.6	445.9	448.0	450.7	454.8	458.8
10°	409.3	410.0	411.3	412.0	416.1	416.8	418.8	421.5	426.3	431.0	436.4
12.5°	380.8	380.1	380.8	382.8	385.5	388.9	391.0	394.4	400.5	406.6	413.4
15°	347.5	348.2	350.2	352.3	356.3	358.4	361.8	367.9	374.0	380.1	388.2
17.5°	316.3	315.6	318.3	321.7	325.1	328.5	331.2	336.7	344.8	353.6	362.5
20°	285.8	285.1	287.1	289.8	295.3	297.3	300.7	308.8	316.3	325.8	336.7
22.5°	258.6	258.6	260.6	264.0	267.4	269.5	272.9	279.6	288.5	299.3	310.2
25°	236.9	236.9	238.2	240.3	244.4	246.4	249.8	254.5	262.7	272.9	283.7
27.5°	216.5	217.9	218.6	220.6	224.0	226.0	228.1	233.5	240.3	249.1	259.3
30°	200.9	201.6	202.3	203.6	206.3	207.7	210.4	215.2	221.3	228.7	238.2
32.5°	186.7	187.3	187.3	189.4	191.4	193.4	194.8	198.9	202.9	210.4	219.2
35°	174.4	174.4	175.8	176.5	177.8	179.2	180.5	183.9	188.7	194.1	200.9
37.5°	162.9	162.9	163.6	164.9	166.3	167.7	168.3	171.0	175.1	179.9	185.3
40°	153.4	153.4	153.4	154.8	156.1	156.8	157.5	160.2	163.6	167.0	171.7
42.5°	143.2	143.9	144.6	145.3	145.9	147.3	148.0	149.3	152.0	154.8	159.5
45°	134.4	135.1	135.1	135.8	137.1	137.1	137.8	139.8	141.9	144.6	148.0
47.5°	126.2	126.2	126.2	126.9	127.6	128.3	129.0	130.3	132.4	133.7	137.1
50°	117.4	117.4	118.1	118.8	119.5	119.5	120.1	120.8	122.9	124.2	126.9
52.5°	109.3	109.3	110.0	110.0	110.6	110.6	111.3	112.7	113.4	115.4	117.4
55°	101.8	101.1	101.8	101.8	101.8	102.5	102.5	103.8	105.2	105.9	107.9
57.5°	93.0	93.7	93.7	94.3	94.3	94.3	95.0	95.0	96.4	97.1	97.7
60°	85.5	86.2	86.2	86.2	86.2	86.2	86.9	86.9	87.6	88.2	88.9
62.5°	78.1	78.1	78.1	78.1	78.1	78.7	78.7	78.7	78.7	79.4	80.1
65°	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	71.3
67.5°	62.4	62.4	62.4	63.1	62.4	62.4	62.4	62.4	62.4	62.4	61.8
70°	55.0	55.0	55.0	55.0	55.0	54.3	54.3	53.6	53.6	52.9	52.9
72.5°	46.8	46.8	46.8	46.2	46.2	46.2	45.5	44.8	44.1	44.1	44.1
75°	38.7	38.7	38.0	38.0	37.3	37.3	36.7	36.0	35.3	34.6	34.6
77.5°	29.2	29.2	29.2	29.2	28.5	27.8	27.8	27.2	26.5	26.5	25.8
80°	17.6	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.3	16.3
82.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
85°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	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



TEST NUMBER: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8
2.5°	498.9	500.2	502.3	503.6	504.3	505.0	507.0	509.1	511.1	513.1	514.5
5°	482.6	485.3	488.0	491.4	492.8	494.8	498.9	502.3	505.7	509.7	513.1
7.5°	462.9	467.7	472.4	477.8	479.9	481.9	487.3	493.5	498.2	504.3	509.7
10°	442.5	448.0	454.1	461.6	464.9	468.3	475.1	482.6	489.4	496.8	503.6
12.5°	419.5	428.3	436.4	444.6	448.0	452.0	460.9	469.7	478.5	487.3	495.5
15°	396.4	405.2	415.4	424.9	429.6	435.1	445.3	456.1	466.3	476.5	486.0
17.5°	373.3	382.1	393.0	405.2	411.3	416.8	427.6	439.8	452.0	462.9	475.1
20°	347.5	359.1	372.0	384.9	391.0	397.7	410.6	423.5	437.1	449.3	462.2
22.5°	322.4	334.6	350.2	363.1	369.9	376.7	391.6	406.6	420.1	433.7	446.6
25°	297.3	311.5	326.5	342.1	349.6	357.0	372.6	386.9	402.5	416.8	431.7
27.5°	272.9	287.8	303.4	319.7	327.8	336.0	351.6	367.9	383.5	399.1	414.0
30°	249.8	264.0	281.0	298.0	306.1	314.9	331.2	348.2	363.8	379.4	395.7
32.5°	229.4	241.6	258.6	275.6	284.4	293.2	310.9	327.8	343.4	359.7	376.7
35°	210.4	222.0	236.9	254.5	263.4	272.2	289.8	307.5	324.4	340.1	356.3
37.5°	194.1	204.3	217.2	232.8	243.0	251.8	269.5	287.1	303.4	319.7	335.3
40°	178.5	187.3	199.6	214.5	222.6	231.5	249.1	267.4	283.7	299.3	314.9
42.5°	164.9	172.4	182.6	195.5	204.3	211.8	230.1	247.7	263.4	279.0	294.6
45°	152.7	158.8	167.0	177.8	185.3	194.8	211.8	228.1	243.7	259.3	274.2
47.5°	140.5	145.9	152.7	162.9	169.0	176.5	193.4	209.1	224.7	238.9	253.2
50°	130.3	134.4	139.8	148.0	154.1	159.5	175.1	191.4	205.7	219.9	232.8
52.5°	120.1	122.9	127.6	135.1	139.1	144.6	158.1	173.1	187.3	200.9	212.4
55°	110.0	112.7	116.1	121.5	125.6	129.6	141.2	155.4	168.3	179.2	190.7
57.5°	99.8	101.8	104.5	109.3	112.0	115.4	124.9	136.4	148.0	158.8	167.7
60°	91.0	92.3	94.3	97.1	99.1	101.1	107.9	118.8	129.6	137.8	145.9
62.5°	80.8	81.5	82.8	85.5	86.9	88.2	93.0	102.5	111.3	118.8	125.6
65°	71.3	71.9	72.6	74.0	75.3	76.0	80.1	86.9	94.3	100.5	105.2
67.5°	61.8	62.4	62.4	63.8	63.8	65.2	67.2	71.3	78.1	82.8	86.9
70°	52.3	52.9	52.9	53.6	52.9	53.6	55.7	58.4	62.4	66.5	69.2
72.5°	43.4	42.8	42.8	42.8	42.8	43.4	44.1	45.5	48.9	52.3	52.9
75°	33.9	33.9	33.3	33.3	33.3	33.3	33.3	33.9	36.0	38.0	38.7
77.5°	25.1	24.4	24.4	23.8	23.8	23.8	23.1	23.1	23.8	25.1	25.1
80°	16.3	15.6	14.9	15.6	14.3	14.9	14.3	13.6	13.6	13.6	12.9
82.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.1	6.1	6.1
85°	1.4	1.4	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.7	2.0
87.5°	1.4	1.4	1.4	2.0	2.0	2.0	2.0	2.0	2.7	2.7	2.7
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: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8
2.5°	516.5	518.6	520.6	521.3	522.0	524.0	525.4	527.4	528.1	529.4	530.8
5°	516.5	520.6	524.0	526.0	527.4	530.8	534.2	536.2	539.6	541.6	543.7
7.5°	515.2	520.6	525.4	528.1	530.8	534.9	539.6	543.7	547.8	550.5	553.9
10°	511.1	517.9	524.0	527.4	530.8	536.9	542.3	547.1	551.8	555.9	559.3
12.5°	505.0	513.1	520.6	524.7	528.1	535.5	541.6	547.1	551.8	555.2	557.9
15°	496.2	506.3	515.2	519.2	523.3	531.5	537.6	542.3	546.4	548.4	550.5
17.5°	486.0	496.8	507.0	511.8	515.9	523.3	528.7	532.1	534.2	535.5	534.9
20°	474.4	486.0	496.2	500.9	505.7	511.8	515.9	517.2	516.5	515.9	514.5
22.5°	460.2	472.4	483.3	487.3	491.4	496.2	497.5	496.8	495.5	494.1	492.1
25°	445.3	457.5	467.7	471.1	474.4	476.5	475.8	474.4	472.4	470.4	467.0
27.5°	428.3	441.2	449.3	453.4	454.1	454.1	452.0	450.0	446.6	443.9	440.5
30°	410.6	421.5	429.6	431.0	431.7	430.3	428.3	424.9	420.1	418.1	414.7
32.5°	390.3	401.8	407.9	407.9	406.6	404.5	400.5	397.1	394.4	389.6	386.2
35°	371.3	380.1	383.5	383.5	381.5	378.1	374.7	369.9	365.8	363.1	358.4
37.5°	349.6	358.4	359.7	357.7	356.3	352.3	346.8	342.8	338.0	334.6	331.2
40°	329.2	335.3	333.9	331.9	330.6	326.5	320.4	315.6	310.9	306.8	303.4
42.5°	306.1	310.2	308.2	306.8	304.1	299.3	293.9	289.1	284.4	280.3	276.9
45°	285.1	287.1	283.7	281.0	279.0	273.5	269.5	262.7	257.9	253.9	251.1
47.5°	262.7	262.7	259.3	256.6	253.2	247.7	243.0	236.2	233.5	228.1	225.3
50°	241.0	238.9	234.8	231.5	228.7	222.6	216.5	211.8	207.0	202.9	200.2
52.5°	217.9	215.2	209.7	206.3	205.0	197.5	192.1	186.0	181.9	177.2	174.4
55°	194.8	190.7	184.6	181.9	179.2	173.1	167.0	160.9	156.8	153.4	150.7
57.5°	171.0	166.3	160.9	157.5	154.1	148.0	141.9	136.4	133.0	129.6	127.6
60°	146.6	143.2	137.8	134.4	131.0	125.6	118.8	114.7	112.0	107.9	107.2
62.5°	125.6	120.8	114.7	112.0	109.3	103.8	98.4	95.0	91.6	89.6	86.9
65°	104.5	99.8	94.3	91.6	89.6	84.8	80.8	77.4	74.7	71.9	69.9
67.5°	84.2	80.8	76.0	74.0	71.3	67.2	63.8	61.1	58.4	55.7	53.6
70°	67.2	63.1	59.1	57.7	56.3	52.3	49.5	46.8	44.1	42.1	40.0
72.5°	51.6	48.2	44.8	42.8	41.4	39.4	37.3	34.6	32.6	30.5	29.2
75°	36.7	34.6	31.9	30.5	29.2	27.8	25.1	23.8	23.1	21.7	20.4
77.5°	23.8	21.7	20.4	19.0	19.0	17.6	16.3	15.6	14.3	14.3	13.6
80°	12.2	11.5	10.9	10.9	10.9	9.5	8.8	8.8	8.1	7.5	7.5
82.5°	5.4	5.4	4.8	4.8	4.8	4.1	4.1	3.4	3.4	2.7	2.7
85°	2.0	2.0	2.0	2.0	2.0	1.4	1.4	1.4	0.7	0.7	0.7
87.5°	2.0	2.0	2.0	2.0	2.0	1.4	1.4	1.4	0.7	0.7	0.7
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: P345476

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	513.8	513.8	513.8	513.8	513.8	513.8	513.8	513.8
2.5°	531.5	532.8	532.8	533.5	534.2	534.9	534.2	534.9
5°	545.7	547.8	548.4	548.4	549.8	550.5	551.8	551.8
7.5°	556.6	558.6	560.0	560.6	562.0	563.4	563.4	563.4
10°	562.0	564.0	564.7	566.1	566.8	567.4	568.1	568.1
12.5°	560.0	562.0	562.7	562.7	564.0	564.0	564.0	564.7
15°	551.1	550.5	550.5	550.5	549.8	549.8	549.8	549.1
17.5°	533.5	532.8	532.8	532.8	532.1	531.5	530.8	529.4
20°	513.8	512.5	511.1	511.8	510.4	509.7	509.1	509.1
22.5°	490.7	488.7	488.0	487.3	486.0	485.3	483.9	483.9
25°	465.6	464.3	462.2	461.6	460.9	459.5	458.2	458.2
27.5°	439.2	437.1	436.4	435.1	434.4	433.0	432.4	433.0
30°	412.0	410.0	409.3	407.9	405.2	406.6	405.2	404.5
32.5°	383.5	381.5	380.1	378.7	378.7	376.7	376.7	376.0
35°	355.7	353.6	352.3	351.6	350.2	350.2	348.9	348.2
37.5°	328.5	326.5	325.1	324.4	323.1	321.7	321.0	321.7
40°	300.7	298.7	297.3	296.6	295.3	293.9	293.9	293.9
42.5°	273.5	271.5	271.5	270.1	268.1	267.4	266.7	266.7
45°	248.4	245.7	245.0	243.7	243.7	242.3	241.6	241.6
47.5°	222.0	219.9	219.2	218.6	217.9	217.2	217.2	217.2
50°	197.5	194.8	194.8	193.4	192.8	193.4	192.1	191.4
52.5°	173.1	171.0	170.4	170.4	169.0	169.0	169.0	168.3
55°	148.6	147.3	147.3	146.6	145.3	145.9	145.9	144.6
57.5°	126.2	124.2	124.2	123.5	123.5	123.5	122.2	123.5
60°	105.2	103.8	103.2	102.5	101.8	101.8	101.8	101.1
62.5°	85.5	84.2	83.5	82.8	81.5	81.5	80.1	79.4
65°	67.9	66.5	65.2	64.5	63.1	62.4	62.4	61.8
67.5°	51.6	50.2	48.9	48.2	46.8	46.2	45.5	45.5
70°	38.7	36.7	36.7	36.0	35.3	35.3	34.6	34.6
72.5°	27.8	27.8	27.2	27.2	26.5	26.5	26.5	26.5
75°	19.7	19.7	19.7	19.7	19.0	19.0	18.3	18.3
77.5°	12.9	12.9	12.9	12.2	12.2	12.2	12.2	12.2
80°	6.8	6.8	6.8	6.8	6.8	6.1	6.8	6.1
82.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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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