

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: P345440

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1500Lm3500K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345440
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 1500lm3500K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 950.3 lumens
Efficiency: N/A
Efficacy: 71.4 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

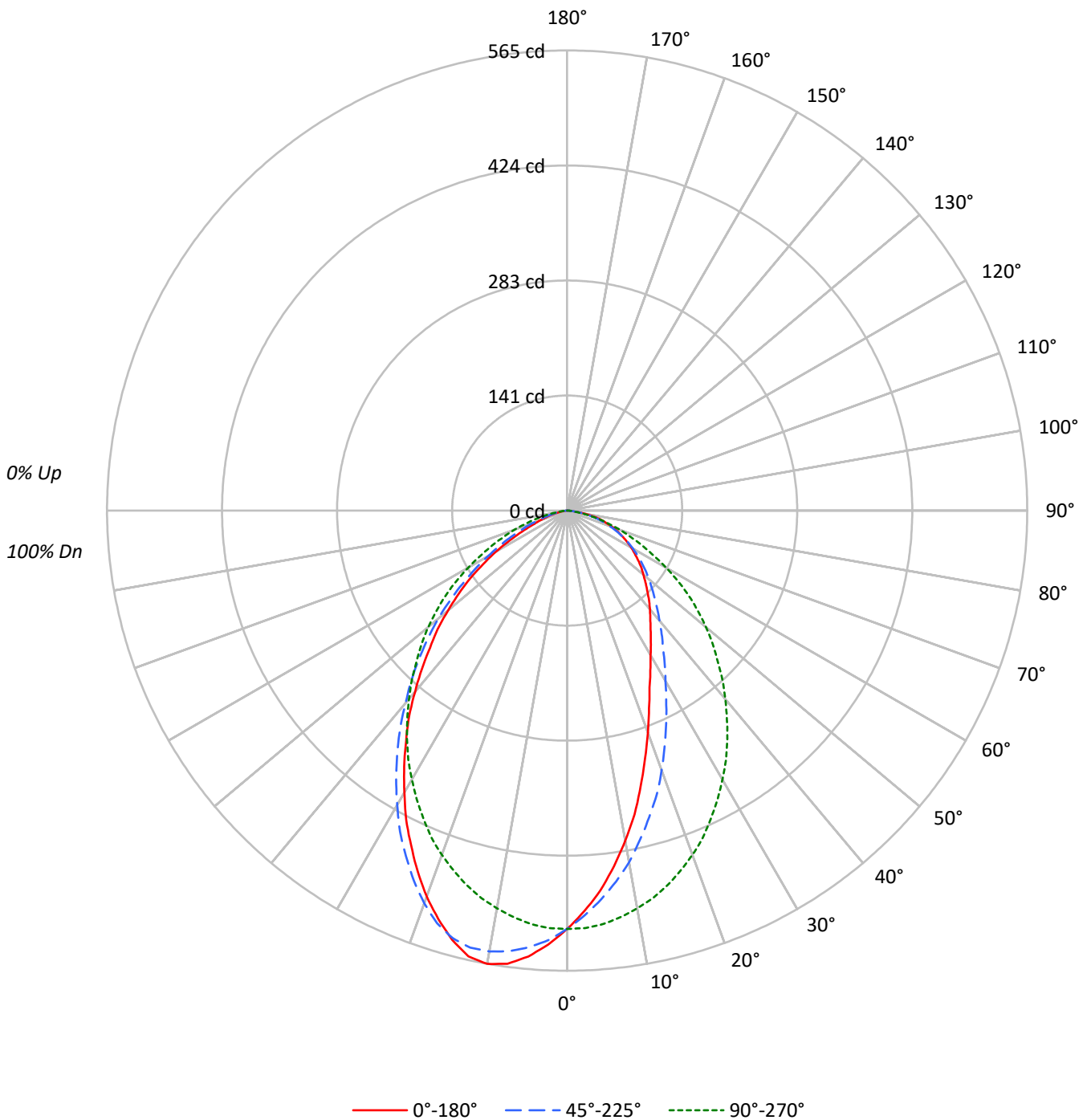
Input Watts (W): 13.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm3500K

Luminous Intensity Polar Plot





TEST NUMBER: P345440

CATALOG NUMBER: PR4F512D010 PR4M12WW9FSMMS 1500lm3500K

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°	50064	50064	50064
5°	45804	49854	53768
10°	40693	49085	55933
15°	35263	48057	55049
20°	30046	46660	52292
25°	25754	44874	48745
30°	23058	42910	44980
35°	21237	40773	41010
40°	20114	38421	36945
45°	19172	36000	32830
50°	18513	33750	28914
55°	18096	31009	24671
60°	17718	27386	19706
65°	17203	23476	14090
70°	16812	19519	10059
75°	16079	15062	7154
80°	11449	8755	4209
85°	3019	4585	783



TEST NUMBER: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm3500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.1	5.1
10°-20°	130.1	13.7
20°-30°	175.3	18.4
30°-40°	184.1	19.4
40°-50°	165.9	17.5
50°-60°	128.1	13.5
60°-70°	78.8	8.3
70°-80°	34.8	3.7
80°-90°	5.1	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°	353.5	37.2
0°-40°	537.6	56.6
0°-60°	831.6	87.5
0°-90°	950.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	950.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	514	514	514	514	514	
5°	468	479	510	538	550	43
15°	350	390	476	544	546	97
25°	240	288	417	468	453	111
35°	178	205	343	364	345	112
45°	139	152	261	257	238	108
55°	106	112	182	157	145	95
65°	75	75	102	75	61	74
75°	43	38	40	24	19	44
85°	3	3	4	2	1	6
90°	0	0	0	0	0	



TEST NUMBER: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7
2.5°	492.0	491.3	490.6	492.0	492.0	492.6	492.6	494.0	494.0	495.3	497.4
5°	468.2	466.8	467.5	467.5	469.6	469.6	470.9	472.3	474.3	477.0	479.1
7.5°	440.4	440.4	441.1	442.4	444.5	444.5	446.5	448.5	451.9	455.3	459.4
10°	411.2	412.6	413.2	414.6	418.0	419.3	420.0	423.4	428.2	431.6	438.3
12.5°	382.0	382.0	383.4	386.1	388.8	390.8	392.2	397.0	401.7	407.8	413.9
15°	349.5	350.1	352.2	354.9	359.6	361.0	363.7	369.1	375.9	383.4	389.5
17.5°	318.2	319.6	321.0	325.0	328.4	330.5	334.5	340.6	348.1	356.2	365.7
20°	289.7	287.7	290.4	293.1	296.5	301.3	304.0	310.8	318.9	329.8	339.3
22.5°	262.6	262.6	264.6	266.7	270.1	273.5	276.9	282.3	291.1	302.0	312.8
25°	239.5	240.2	242.2	244.3	247.7	249.7	253.1	258.5	267.4	275.5	287.7
27.5°	221.2	221.9	222.6	225.3	228.0	230.0	232.1	237.5	244.3	253.1	263.3
30°	204.9	204.9	205.6	208.3	209.7	212.4	213.7	218.5	224.6	232.1	241.6
32.5°	191.4	191.4	192.0	193.4	196.1	197.5	198.1	202.9	207.6	215.1	222.6
35°	178.5	178.5	179.1	180.5	182.5	183.2	185.2	188.0	192.7	198.1	204.9
37.5°	167.6	167.6	168.3	169.0	170.3	171.7	173.0	175.7	178.5	183.9	190.7
40°	158.1	157.4	158.1	158.8	160.8	160.8	161.5	164.2	166.9	171.0	176.4
42.5°	148.6	148.6	148.6	149.3	150.6	151.3	152.0	153.4	156.1	159.5	163.5
45°	139.1	139.1	139.8	140.5	141.1	141.8	143.2	144.5	145.9	147.9	152.0
47.5°	130.3	131.0	131.0	131.6	132.3	133.0	133.7	135.0	136.4	138.4	141.1
50°	122.1	122.8	122.8	123.5	124.2	124.2	124.9	126.2	127.6	128.9	131.0
52.5°	114.7	114.7	114.0	114.7	115.4	115.4	116.0	116.7	118.1	120.1	121.5
55°	106.5	106.5	106.5	107.2	107.2	107.2	107.9	108.6	109.2	109.9	112.0
57.5°	98.4	98.4	99.1	98.4	99.1	99.1	99.1	99.7	100.4	101.8	102.5
60°	90.9	90.9	90.9	90.9	90.9	90.9	91.6	91.6	91.6	92.3	93.0
62.5°	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	83.5	83.5	84.1
65°	74.6	74.6	75.3	74.6	74.6	74.6	74.6	74.6	74.6	74.6	74.6
67.5°	67.2	66.5	67.2	66.5	66.5	66.5	66.5	65.8	65.8	65.8	65.1
70°	59.0	58.4	58.4	58.4	58.4	57.7	58.4	57.7	57.0	56.3	55.6
72.5°	50.2	50.2	50.2	50.2	50.2	49.5	48.9	48.9	48.2	47.5	46.8
75°	42.7	42.7	42.1	41.4	40.7	40.7	40.7	40.0	39.4	38.7	38.0
77.5°	33.2	32.6	32.6	31.9	31.2	30.5	31.2	30.5	29.9	29.2	28.5
80°	20.4	20.4	20.4	20.4	20.4	20.4	19.7	20.4	19.7	19.0	19.0
82.5°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
85°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.4	3.4
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.0	2.0	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: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm3500K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7
2.5°	498.7	500.1	502.1	503.5	504.2	504.8	506.9	508.9	511.0	513.0	514.3
5°	482.5	485.8	487.9	491.3	493.3	495.3	498.7	502.1	505.5	509.6	513.0
7.5°	462.8	468.2	472.3	477.0	479.7	482.5	487.2	492.6	498.1	503.5	508.9
10°	443.8	448.5	456.0	462.8	464.8	468.9	476.3	482.5	489.9	496.0	503.5
12.5°	422.1	428.2	436.3	444.5	449.2	453.3	462.1	470.2	479.1	487.2	496.0
15°	398.3	407.8	416.6	426.1	432.2	436.3	446.5	456.7	466.2	476.3	486.5
17.5°	374.6	385.4	396.3	407.8	412.6	418.7	430.2	441.1	452.6	463.5	475.0
20°	350.8	362.3	373.9	386.8	393.6	399.7	411.9	424.8	437.7	449.9	462.1
22.5°	325.7	337.9	351.5	365.7	373.2	378.6	392.9	407.1	420.7	435.0	447.8
25°	300.6	314.8	329.1	344.0	351.5	359.6	373.9	388.8	403.1	417.3	432.2
27.5°	276.2	291.1	306.0	323.0	330.5	338.6	354.2	369.1	384.7	399.7	414.6
30°	253.8	268.0	284.3	301.3	309.4	317.6	333.8	350.1	365.7	381.3	395.6
32.5°	233.4	245.6	262.6	279.6	288.4	296.5	313.5	330.5	346.7	363.0	377.3
35°	214.4	226.0	240.2	258.5	266.7	275.5	293.1	309.4	326.4	342.7	357.6
37.5°	197.5	208.3	221.2	236.8	247.0	255.1	272.8	289.7	306.0	322.3	337.2
40°	182.5	192.0	202.9	217.1	226.6	235.5	253.1	270.1	286.4	302.0	316.9
42.5°	169.0	176.4	186.6	199.5	207.0	215.8	234.1	250.4	266.7	282.3	295.8
45°	156.1	162.2	171.0	182.5	188.6	198.1	215.1	231.4	247.0	261.2	276.2
47.5°	144.5	150.0	156.7	166.2	172.4	179.8	196.8	213.1	228.0	242.2	255.1
50°	134.4	138.4	144.5	152.7	157.4	162.9	179.8	195.4	209.0	222.6	234.8
52.5°	124.2	126.9	131.6	138.4	143.2	147.9	162.2	177.1	190.7	202.2	215.1
55°	113.3	116.7	120.8	125.5	128.9	133.0	144.5	158.8	170.3	182.5	192.7
57.5°	103.8	105.9	108.6	112.6	115.4	118.7	127.6	139.8	151.3	161.5	171.7
60°	94.3	95.7	97.7	100.4	102.5	105.2	111.3	122.1	132.3	140.5	149.3
62.5°	84.8	84.8	86.2	88.2	89.6	91.6	97.0	105.2	114.0	120.1	127.6
65°	74.6	75.3	76.0	77.4	78.0	79.4	82.8	88.9	95.7	101.8	107.2
67.5°	65.1	65.1	65.8	66.5	66.5	67.2	69.2	73.3	80.1	84.1	88.2
70°	55.6	55.6	55.6	55.6	56.3	55.6	57.0	59.7	64.5	68.5	70.6
72.5°	46.8	46.1	45.5	45.5	45.5	45.5	46.1	48.2	50.9	52.9	55.6
75°	37.3	36.6	36.0	35.3	36.0	36.0	36.0	36.6	38.0	40.0	40.7
77.5°	27.8	27.8	26.5	25.8	26.5	25.8	25.1	25.1	25.8	26.5	26.5
80°	19.0	18.3	17.6	17.0	17.0	17.0	16.3	15.6	15.6	15.6	14.9
82.5°	9.5	9.5	8.8	8.8	8.8	8.8	8.8	8.1	8.1	7.5	7.5
85°	3.4	3.4	3.4	3.4	4.1	3.4	4.1	4.1	4.1	4.1	4.1
87.5°	2.0	2.0	2.7	2.7	2.7	2.7	2.7	3.4	3.4	3.4	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: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500Lm3500K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7
2.5°	516.4	518.4	519.8	521.1	521.8	523.2	525.2	526.6	527.9	529.3	530.6
5°	516.4	520.5	523.2	525.2	527.2	530.0	533.3	536.1	538.1	540.8	542.8
7.5°	514.3	519.8	524.5	527.2	530.0	534.0	538.1	542.2	545.6	549.0	551.7
10°	510.3	517.1	523.8	526.6	530.0	535.4	540.8	545.6	549.6	553.7	557.1
12.5°	504.2	512.3	520.5	523.8	527.2	534.0	540.1	545.6	549.6	553.0	555.1
15°	496.0	505.5	514.3	518.4	522.5	529.3	535.4	540.1	543.5	545.6	546.9
17.5°	485.8	496.0	505.5	510.3	515.0	521.8	526.6	529.3	531.3	531.3	530.6
20°	474.3	485.2	495.3	500.1	504.2	509.6	513.0	513.7	513.0	511.6	510.3
22.5°	460.1	472.3	482.5	486.5	489.9	494.0	494.0	493.3	492.0	489.9	489.2
25°	445.1	456.7	466.8	470.9	472.3	475.0	473.0	471.6	468.2	466.2	464.1
27.5°	428.8	441.1	448.5	451.2	452.6	451.2	449.2	446.5	444.5	441.1	438.3
30°	411.2	422.1	428.2	430.2	429.5	427.5	425.5	420.7	417.3	413.9	410.5
32.5°	390.8	401.7	406.5	407.1	405.1	401.7	398.3	394.9	390.8	386.8	384.7
35°	371.2	380.7	383.4	382.0	380.0	375.9	371.2	367.1	363.7	359.0	355.6
37.5°	350.1	358.3	358.3	356.2	354.9	350.1	345.4	341.3	336.6	332.5	327.7
40°	329.1	335.2	333.2	331.1	329.1	323.7	319.6	313.5	308.7	304.0	300.6
42.5°	308.1	311.5	308.7	306.0	303.3	297.9	293.8	287.0	283.0	278.2	275.5
45°	287.0	287.7	283.6	281.6	278.9	272.1	266.7	261.9	257.2	251.7	248.4
47.5°	265.3	264.0	259.2	256.5	253.8	247.7	242.2	236.8	231.4	227.3	223.2
50°	243.6	240.2	235.5	232.7	229.4	223.9	217.8	211.7	207.0	202.9	199.5
52.5°	219.9	217.1	211.7	207.6	204.9	197.5	192.0	186.6	181.2	177.1	174.4
55°	196.1	192.0	185.9	183.2	179.1	173.0	167.6	160.8	156.7	153.4	150.0
57.5°	172.4	167.6	162.2	158.8	154.7	148.6	142.5	138.4	134.4	130.3	128.2
60°	149.3	144.5	137.7	136.4	132.3	126.2	120.8	116.0	112.0	109.2	107.2
62.5°	127.6	122.8	116.0	113.3	110.6	104.5	99.7	95.7	93.0	90.2	88.2
65°	105.9	101.8	96.4	93.0	90.2	85.5	81.4	77.4	75.3	71.9	69.9
67.5°	86.2	81.4	77.4	74.6	72.6	67.9	64.5	61.7	59.0	57.0	54.3
70°	67.9	63.8	59.7	58.4	56.3	52.9	50.2	47.5	45.5	43.4	40.7
72.5°	52.2	49.5	45.5	44.1	42.7	40.0	38.0	36.0	33.2	31.9	30.5
75°	38.7	36.0	33.2	31.9	31.2	28.5	27.1	25.1	23.7	23.1	21.7
77.5°	25.1	23.1	21.7	21.0	20.4	19.0	17.6	17.0	15.6	14.9	14.9
80°	14.2	13.6	12.9	12.2	11.5	10.9	10.9	10.2	9.5	8.8	8.1
82.5°	6.8	6.8	6.1	6.1	6.1	5.4	5.4	4.7	4.7	4.1	4.1
85°	3.4	3.4	3.4	3.4	3.4	2.7	2.7	2.7	2.0	2.0	1.4
87.5°	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	1.4	1.4	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: P345440

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	513.7	513.7	513.7	513.7	513.7	513.7	513.7	513.7
2.5°	530.6	531.3	532.0	532.7	532.7	533.3	534.0	533.3
5°	544.2	546.2	546.9	547.6	548.3	549.0	549.6	549.6
7.5°	554.4	557.1	557.8	557.8	559.8	560.5	561.2	561.2
10°	559.8	561.2	562.5	562.5	563.9	563.9	565.2	565.2
12.5°	557.1	558.5	559.1	559.8	559.8	560.5	560.5	560.5
15°	547.6	546.9	546.9	546.2	546.2	545.6	545.6	545.6
17.5°	530.0	529.3	528.6	528.6	527.2	527.2	525.9	525.9
20°	508.9	507.6	506.9	506.2	506.2	505.5	504.2	504.2
22.5°	486.5	485.2	483.8	482.5	481.1	480.4	479.7	479.7
25°	461.4	459.4	458.7	458.0	456.0	455.3	454.0	453.3
27.5°	435.6	432.2	431.6	430.9	429.5	428.8	428.2	428.2
30°	408.5	406.5	405.1	404.4	402.4	401.7	399.7	399.7
32.5°	381.3	378.0	376.6	375.9	374.6	373.2	372.5	372.5
35°	352.8	350.8	350.1	348.1	346.1	346.1	344.7	344.7
37.5°	325.7	323.7	321.6	321.0	319.6	317.6	316.9	318.9
40°	298.6	295.8	294.5	293.8	292.5	290.4	290.4	290.4
42.5°	272.1	270.1	269.4	268.0	266.7	266.0	264.6	264.0
45°	245.0	243.6	242.9	241.6	240.9	239.5	238.2	238.2
47.5°	221.2	218.5	218.5	217.1	215.8	215.1	215.1	215.8
50°	197.5	195.4	194.1	193.4	192.0	192.0	191.4	190.7
52.5°	171.7	170.3	169.6	169.6	168.3	168.3	167.6	167.6
55°	147.9	147.9	147.2	146.6	145.2	145.2	145.2	145.2
57.5°	126.9	125.5	124.9	124.2	123.5	122.8	122.8	122.1
60°	105.2	104.5	103.1	103.8	101.8	101.8	101.8	101.1
62.5°	85.5	84.1	83.5	82.8	81.4	81.4	80.1	79.4
65°	68.5	66.5	65.1	65.1	63.8	62.4	61.7	61.1
67.5°	51.6	50.2	49.5	48.9	47.5	46.1	46.1	45.5
70°	39.4	38.0	37.3	36.6	36.0	35.3	35.3	35.3
72.5°	29.2	28.5	27.8	27.8	27.1	26.5	26.5	27.1
75°	21.0	20.4	20.4	20.4	19.7	19.7	19.7	19.0
77.5°	14.2	13.6	13.6	12.9	12.9	12.9	12.9	12.9
80°	8.1	7.5	7.5	7.5	7.5	7.5	7.5	7.5
82.5°	3.4	3.4	3.4	3.4	2.7	2.7	2.7	2.7
85°	1.4	1.4	1.4	1.4	1.4	0.7	0.7	0.7
87.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)