

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: P345477

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1500Lm4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345477
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 1500lm4000K
Description: PR4 WALLWASH ASSEMBLY WITH, BRONZE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 915.4 lumens
Efficiency: N/A
Efficacy: 65.9 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

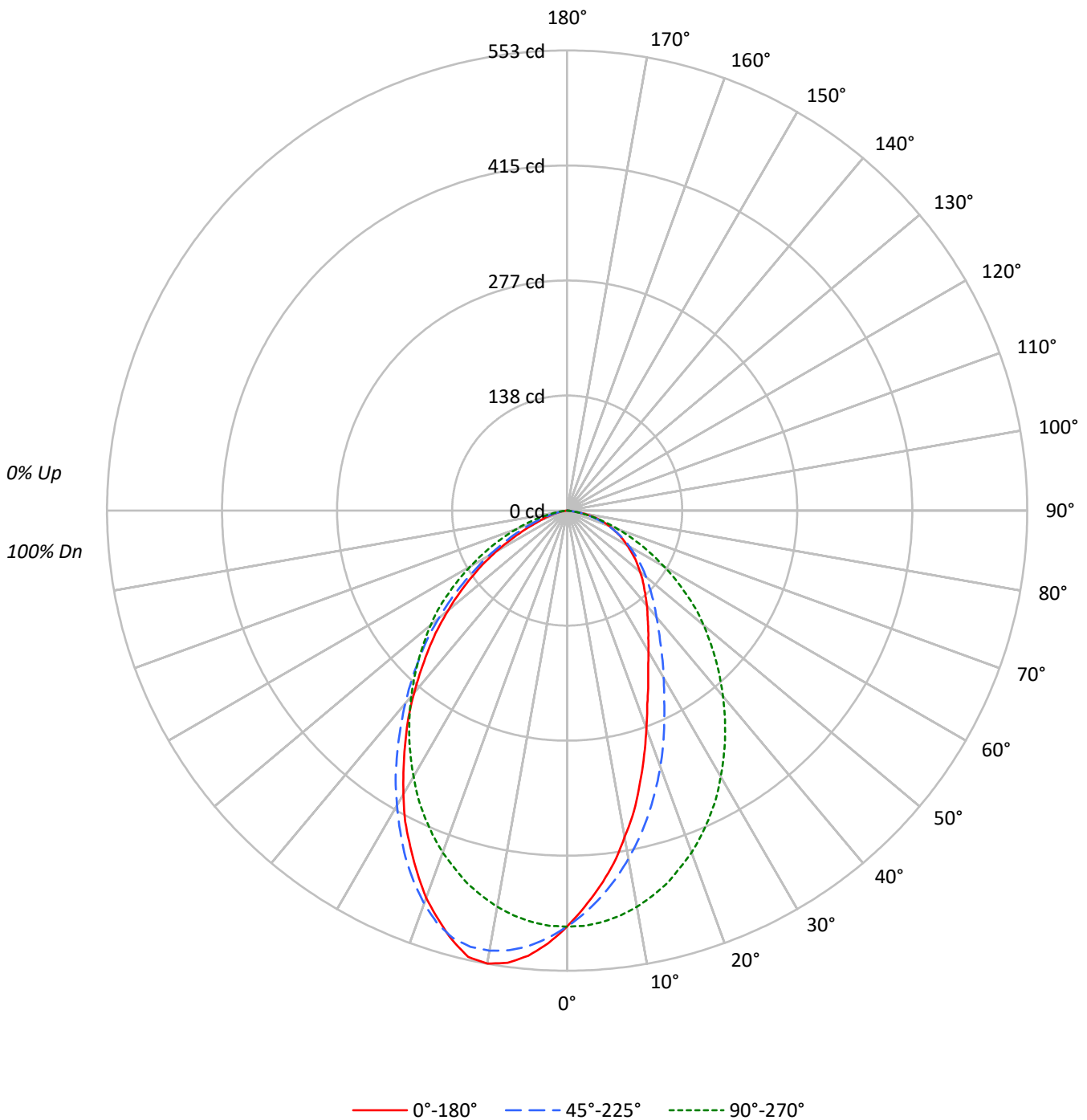
Input Watts (W): 13.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	43735	43735	43735
5°	39784	43551	47151
10°	35377	42944	49099
15°	30626	41990	48384
20°	25886	40696	46113
25°	22246	39136	43025
30°	19746	37290	39754
35°	18121	35334	36177
40°	17048	33262	32656
45°	16180	31210	29082
50°	15554	29121	25351
55°	15113	26596	21457
60°	14555	23459	17214
65°	14219	20242	12439
70°	13682	16547	8619
75°	12707	12504	6016
80°	8664	6649	2972
85°	703	2609	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.8	5.1
10°-20°	126.7	13.8
20°-30°	170.5	18.6
30°-40°	178.6	19.5
40°-50°	160.2	17.5
50°-60°	122.6	13.4
60°-70°	74.7	8.2
70°-80°	31.7	3.5
80°-90°	3.6	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°	344.0	37.6
0°-40°	522.6	57.1
0°-60°	805.5	88.0
0°-90°	915.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	915.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	500	500	500	500	500	
5°	453	466	496	525	537	42
15°	338	378	464	532	534	94
25°	230	276	406	460	446	106
35°	170	196	331	356	339	107
45°	131	144	252	251	235	101
55°	99	105	174	153	141	88
65°	69	69	98	73	60	68
75°	38	34	37	22	18	39
85°	1	1	3	1	0	4
90°	0	0	0	0	0	



TEST NUMBER: P345477

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
2.5°	476.9	477.5	478.8	478.2	479.5	479.5	479.5	480.8	482.1	482.8	484.1
5°	453.1	453.7	454.4	455.7	456.4	455.7	457.7	459.7	461.7	464.3	466.3
7.5°	428.0	428.0	427.3	429.3	432.0	432.6	433.9	435.9	438.6	442.5	446.5
10°	398.3	398.9	400.2	400.9	404.9	405.5	407.5	410.2	414.8	419.4	424.7
12.5°	370.5	369.9	370.5	372.5	375.1	378.5	380.4	383.7	389.7	395.6	402.2
15°	338.2	338.8	340.8	342.8	346.7	348.7	352.0	358.0	363.9	369.9	377.8
17.5°	307.8	307.1	309.8	313.1	316.4	319.7	322.3	327.6	335.5	344.1	352.7
20°	278.1	277.4	279.4	282.0	287.3	289.3	292.6	300.5	307.8	317.0	327.6
22.5°	251.6	251.6	253.6	256.9	260.2	262.2	265.5	272.1	280.7	291.3	301.8
25°	230.5	230.5	231.8	233.8	237.8	239.8	243.1	247.7	255.6	265.5	276.1
27.5°	210.7	212.0	212.7	214.7	218.0	219.9	221.9	227.2	233.8	242.4	252.3
30°	195.5	196.2	196.8	198.1	200.8	202.1	204.7	209.4	215.3	222.6	231.8
32.5°	181.6	182.3	182.3	184.3	186.3	188.2	189.6	193.5	197.5	204.7	213.3
35°	169.7	169.7	171.1	171.7	173.0	174.4	175.7	179.0	183.6	188.9	195.5
37.5°	158.5	158.5	159.2	160.5	161.8	163.1	163.8	166.4	170.4	175.0	180.3
40°	149.3	149.3	149.3	150.6	151.9	152.6	153.2	155.9	159.2	162.5	167.1
42.5°	139.4	140.0	140.7	141.3	142.0	143.3	144.0	145.3	147.9	150.6	155.2
45°	130.8	131.4	131.4	132.1	133.4	133.4	134.1	136.1	138.0	140.7	144.0
47.5°	122.8	122.8	122.8	123.5	124.2	124.8	125.5	126.8	128.8	130.1	133.4
50°	114.3	114.3	114.9	115.6	116.2	116.2	116.9	117.6	119.5	120.9	123.5
52.5°	106.3	106.3	107.0	107.0	107.7	107.7	108.3	109.6	110.3	112.3	114.3
55°	99.1	98.4	99.1	99.1	99.1	99.7	99.7	101.1	102.4	103.0	105.0
57.5°	90.5	91.1	91.1	91.8	91.8	91.8	92.5	92.5	93.8	94.4	95.1
60°	83.2	83.9	83.9	83.9	83.9	83.9	84.5	84.5	85.2	85.9	86.5
62.5°	76.0	76.0	76.0	76.0	76.0	76.6	76.6	76.6	76.6	77.3	77.9
65°	68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	69.3
67.5°	60.8	60.8	60.8	61.4	60.8	60.8	60.8	60.8	60.8	60.8	60.1
70°	53.5	53.5	53.5	53.5	53.5	52.8	52.8	52.2	52.2	51.5	51.5
72.5°	45.6	45.6	45.6	44.9	44.9	44.9	44.3	43.6	42.9	42.9	42.9
75°	37.6	37.6	37.0	37.0	36.3	36.3	35.7	35.0	34.3	33.7	33.7
77.5°	28.4	28.4	28.4	28.4	27.7	27.1	27.1	26.4	25.8	25.8	25.1
80°	17.2	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	15.9	15.9
82.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
85°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3
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°	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
2.5°	485.4	486.8	488.8	490.1	490.7	491.4	493.4	495.4	497.3	499.3	500.6
5°	469.6	472.2	474.9	478.2	479.5	481.5	485.4	488.8	492.1	496.0	499.3
7.5°	450.4	455.1	459.7	465.0	467.0	468.9	474.2	480.2	484.8	490.7	496.0
10°	430.6	435.9	441.9	449.1	452.4	455.7	462.3	469.6	476.2	483.5	490.1
12.5°	408.2	416.8	424.7	432.6	435.9	439.9	448.5	457.0	465.6	474.2	482.1
15°	385.7	394.3	404.2	413.5	418.1	423.4	433.3	443.8	453.7	463.7	472.9
17.5°	363.3	371.8	382.4	394.3	400.2	405.5	416.1	428.0	439.9	450.4	462.3
20°	338.2	349.4	361.9	374.5	380.4	387.0	399.6	412.1	425.3	437.2	449.8
22.5°	313.7	325.6	340.8	353.4	360.0	366.6	381.1	395.6	408.8	422.0	434.6
25°	289.3	303.2	317.7	332.9	340.1	347.4	362.6	376.5	391.7	405.5	420.1
27.5°	265.5	280.0	295.2	311.1	319.0	326.9	342.1	358.0	373.2	388.4	402.9
30°	243.1	256.9	273.4	289.9	297.9	306.5	322.3	338.8	354.0	369.2	385.1
32.5°	223.2	235.1	251.6	268.2	276.7	285.3	302.5	319.0	334.2	350.1	366.6
35°	204.7	216.0	230.5	247.7	256.3	264.9	282.0	299.2	315.7	330.9	346.7
37.5°	188.9	198.8	211.4	226.5	236.5	245.0	262.2	279.4	295.2	311.1	326.3
40°	173.7	182.3	194.2	208.7	216.6	225.2	242.4	260.2	276.1	291.3	306.5
42.5°	160.5	167.8	177.7	190.2	198.8	206.1	223.9	241.1	256.3	271.5	286.6
45°	148.6	154.6	162.5	173.0	180.3	189.6	206.1	221.9	237.1	252.3	266.8
47.5°	136.7	142.0	148.6	158.5	164.5	171.7	188.2	203.4	218.6	232.5	246.4
50°	126.8	130.8	136.1	144.0	149.9	155.2	170.4	186.3	200.1	214.0	226.5
52.5°	116.9	119.5	124.2	131.4	135.4	140.7	153.9	168.4	182.3	195.5	206.7
55°	107.0	109.6	112.9	118.2	122.2	126.2	137.4	151.2	163.8	174.4	185.6
57.5°	97.1	99.1	101.7	106.3	109.0	112.3	121.5	132.8	144.0	154.6	163.1
60°	88.5	89.8	91.8	94.4	96.4	98.4	105.0	115.6	126.2	134.1	142.0
62.5°	78.6	79.3	80.6	83.2	84.5	85.9	90.5	99.7	108.3	115.6	122.2
65°	69.3	70.0	70.7	72.0	73.3	74.0	77.9	84.5	91.8	97.8	102.4
67.5°	60.1	60.8	60.8	62.1	62.1	63.4	65.4	69.3	76.0	80.6	84.5
70°	50.9	51.5	51.5	52.2	51.5	52.2	54.2	56.8	60.8	64.7	67.4
72.5°	42.3	41.6	41.6	41.6	41.6	42.3	42.9	44.3	47.6	50.9	51.5
75°	33.0	33.0	32.4	32.4	32.4	32.4	32.4	33.0	35.0	37.0	37.6
77.5°	24.4	23.8	23.8	23.1	23.1	23.1	22.5	22.5	23.1	24.4	24.4
80°	15.9	15.2	14.5	15.2	13.9	14.5	13.9	13.2	13.2	13.2	12.5
82.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	5.9	5.9	5.9
85°	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.0
87.5°	1.3	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6
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°	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
2.5°	502.6	504.6	506.6	507.2	507.9	509.9	511.2	513.2	513.8	515.2	516.5
5°	502.6	506.6	509.9	511.9	513.2	516.5	519.8	521.8	525.1	527.1	529.0
7.5°	501.3	506.6	511.2	513.8	516.5	520.5	525.1	529.0	533.0	535.6	538.9
10°	497.3	503.9	509.9	513.2	516.5	522.4	527.7	532.3	537.0	540.9	544.2
12.5°	491.4	499.3	506.6	510.5	513.8	521.1	527.1	532.3	537.0	540.3	542.9
15°	482.8	492.7	501.3	505.3	509.2	517.2	523.1	527.7	531.7	533.7	535.6
17.5°	472.9	483.5	493.4	498.0	502.0	509.2	514.5	517.8	519.8	521.1	520.5
20°	461.7	472.9	482.8	487.4	492.1	498.0	502.0	503.3	502.6	502.0	500.6
22.5°	447.8	459.7	470.3	474.2	478.2	482.8	484.1	483.5	482.1	480.8	478.8
25°	433.3	445.2	455.1	458.4	461.7	463.7	463.0	461.7	459.7	457.7	454.4
27.5°	416.8	429.3	437.2	441.2	441.9	441.9	439.9	437.9	434.6	432.0	428.6
30°	399.6	410.2	418.1	419.4	420.1	418.7	416.8	413.5	408.8	406.9	403.6
32.5°	379.8	391.0	396.9	396.9	395.6	393.6	389.7	386.4	383.7	379.1	375.8
35°	361.3	369.9	373.2	373.2	371.2	367.9	364.6	360.0	356.0	353.4	348.7
37.5°	340.1	348.7	350.1	348.1	346.7	342.8	337.5	333.5	328.9	325.6	322.3
40°	320.3	326.3	325.0	323.0	321.7	317.7	311.7	307.1	302.5	298.5	295.2
42.5°	297.9	301.8	299.9	298.5	295.9	291.3	286.0	281.4	276.7	272.8	269.5
45°	277.4	279.4	276.1	273.4	271.5	266.2	262.2	255.6	251.0	247.0	244.4
47.5°	255.6	255.6	252.3	249.7	246.4	241.1	236.5	229.8	227.2	221.9	219.3
50°	234.5	232.5	228.5	225.2	222.6	216.6	210.7	206.1	201.4	197.5	194.8
52.5°	212.0	209.4	204.1	200.8	199.5	192.2	186.9	181.0	177.0	172.4	169.7
55°	189.6	185.6	179.6	177.0	174.4	168.4	162.5	156.5	152.6	149.3	146.6
57.5°	166.4	161.8	156.5	153.2	149.9	144.0	138.0	132.8	129.5	126.2	124.2
60°	142.7	139.4	134.1	130.8	127.5	122.2	115.6	111.6	109.0	105.0	104.4
62.5°	122.2	117.6	111.6	109.0	106.3	101.1	95.8	92.5	89.2	87.2	84.5
65°	101.7	97.1	91.8	89.2	87.2	82.6	78.6	75.3	72.7	70.0	68.0
67.5°	81.9	78.6	74.0	72.0	69.3	65.4	62.1	59.4	56.8	54.2	52.2
70°	65.4	61.4	57.5	56.1	54.8	50.9	48.2	45.6	42.9	40.9	39.0
72.5°	50.2	46.9	43.6	41.6	40.3	38.3	36.3	33.7	31.7	29.7	28.4
75°	35.7	33.7	31.0	29.7	28.4	27.1	24.4	23.1	22.5	21.1	19.8
77.5°	23.1	21.1	19.8	18.5	18.5	17.2	15.9	15.2	13.9	13.9	13.2
80°	11.9	11.2	10.6	10.6	10.6	9.2	8.6	8.6	7.9	7.3	7.3
82.5°	5.3	5.3	4.6	4.6	4.6	4.0	4.0	3.3	3.3	2.6	2.6
85°	2.0	2.0	2.0	2.0	2.0	1.3	1.3	1.3	0.7	0.7	0.7
87.5°	2.0	2.0	2.0	2.0	2.0	1.3	1.3	1.3	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: P345477

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
2.5°	517.2	518.5	518.5	519.1	519.8	520.5	519.8	520.5
5°	531.0	533.0	533.7	533.7	535.0	535.6	537.0	537.0
7.5°	541.6	543.6	544.9	545.6	546.9	548.2	548.2	548.2
10°	546.9	548.9	549.5	550.8	551.5	552.2	552.8	552.8
12.5°	544.9	546.9	547.5	547.5	548.9	548.9	548.9	549.5
15°	536.3	535.6	535.6	535.6	535.0	535.0	535.0	534.3
17.5°	519.1	518.5	518.5	518.5	517.8	517.2	516.5	515.2
20°	500.0	498.7	497.3	498.0	496.7	496.0	495.4	495.4
22.5°	477.5	475.5	474.9	474.2	472.9	472.2	470.9	470.9
25°	453.1	451.8	449.8	449.1	448.5	447.1	445.8	445.8
27.5°	427.3	425.3	424.7	423.4	422.7	421.4	420.7	421.4
30°	400.9	398.9	398.3	396.9	394.3	395.6	394.3	393.6
32.5°	373.2	371.2	369.9	368.5	368.5	366.6	366.6	365.9
35°	346.1	344.1	342.8	342.1	340.8	340.8	339.5	338.8
37.5°	319.7	317.7	316.4	315.7	314.4	313.1	312.4	313.1
40°	292.6	290.6	289.3	288.6	287.3	286.0	286.0	286.0
42.5°	266.2	264.2	264.2	262.9	260.9	260.2	259.6	259.6
45°	241.7	239.1	238.4	237.1	237.1	235.8	235.1	235.1
47.5°	216.0	214.0	213.3	212.7	212.0	211.4	211.4	211.4
50°	192.2	189.6	189.6	188.2	187.6	188.2	186.9	186.3
52.5°	168.4	166.4	165.8	165.8	164.5	164.5	164.5	163.8
55°	144.6	143.3	143.3	142.7	141.3	142.0	142.0	140.7
57.5°	122.8	120.9	120.9	120.2	120.2	120.2	118.9	120.2
60°	102.4	101.1	100.4	99.7	99.1	99.1	99.1	98.4
62.5°	83.2	81.9	81.2	80.6	79.3	79.3	77.9	77.3
65°	66.0	64.7	63.4	62.7	61.4	60.8	60.8	60.1
67.5°	50.2	48.9	47.6	46.9	45.6	44.9	44.3	44.3
70°	37.6	35.7	35.7	35.0	34.3	34.3	33.7	33.7
72.5°	27.1	27.1	26.4	26.4	25.8	25.8	25.8	25.8
75°	19.2	19.2	19.2	19.2	18.5	18.5	17.8	17.8
77.5°	12.5	12.5	12.5	11.9	11.9	11.9	11.9	11.9
80°	6.6	6.6	6.6	6.6	6.6	5.9	6.6	5.9
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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