

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: P345475

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1500Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345475
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 1500lm3000K
Description: PR4 WALLWASH ASSEMBLY WITH, BRONZE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 879.5 lumens
Efficiency: N/A
Efficacy: 63.3 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

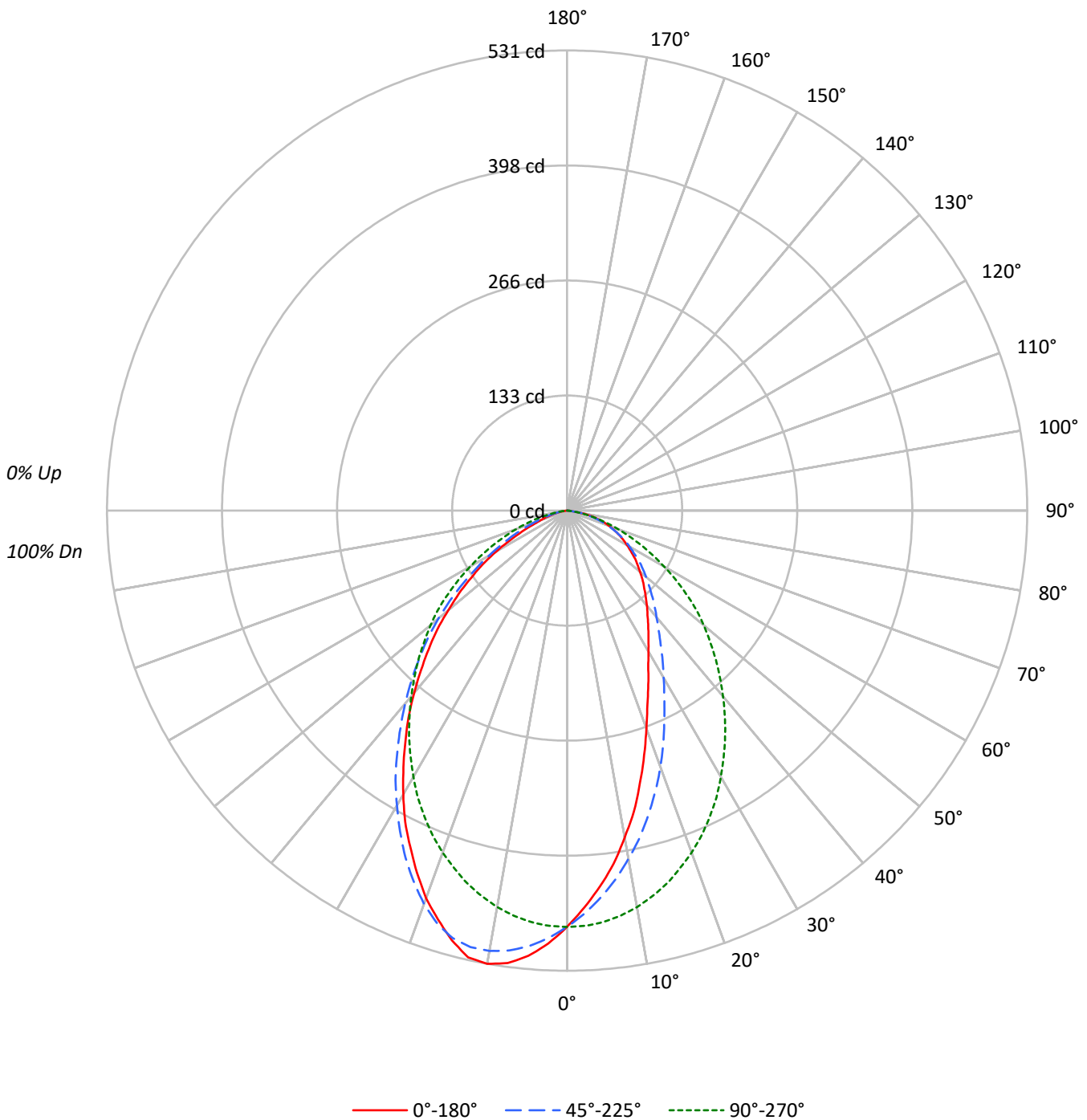
Input Watts (W): 13.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	42020	42020	42020
5°	38221	41847	45298
10°	33991	41256	47172
15°	29421	40342	46491
20°	24872	39104	44298
25°	21377	37601	41336
30°	18968	35825	38199
35°	17416	33946	34757
40°	16374	31960	31378
45°	15537	29985	27944
50°	14941	27978	24358
55°	14518	25543	20618
60°	13995	22532	16549
65°	13660	19435	11942
70°	13145	15907	8286
75°	12234	11997	5779
80°	8311	6397	2871
85°	602	2509	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.0	5.1
10°-20°	121.7	13.8
20°-30°	163.8	18.6
30°-40°	171.6	19.5
40°-50°	153.9	17.5
50°-60°	117.8	13.4
60°-70°	71.8	8.2
70°-80°	30.5	3.5
80°-90°	3.4	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°	330.5	37.6
0°-40°	502.1	57.1
0°-60°	773.9	88.0
0°-90°	879.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	879.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	480	480	480	480	480	
5°	435	448	477	504	516	40
15°	325	363	446	511	513	91
25°	222	265	390	442	428	102
35°	163	188	318	342	326	102
45°	126	138	242	241	226	97
55°	95	101	168	147	135	85
65°	66	67	94	70	58	65
75°	36	32	36	22	17	37
85°	1	1	2	1	0	4
90°	0	0	0	0	0	



TEST NUMBER: P345475

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4
2.5°	458.2	458.8	460.1	459.4	460.7	460.7	460.7	462.0	463.2	463.9	465.2
5°	435.3	436.0	436.6	437.9	438.5	437.9	439.8	441.7	443.6	446.1	448.0
7.5°	411.2	411.2	410.6	412.5	415.0	415.7	416.9	418.8	421.4	425.2	429.0
10°	382.7	383.3	384.6	385.2	389.0	389.6	391.5	394.1	398.5	403.0	408.0
12.5°	356.0	355.4	356.0	357.9	360.4	363.6	365.5	368.7	374.4	380.1	386.5
15°	324.9	325.5	327.4	329.3	333.2	335.1	338.2	343.9	349.7	355.4	363.0
17.5°	295.7	295.1	297.6	300.8	304.0	307.1	309.7	314.8	322.4	330.6	338.9
20°	267.2	266.5	268.4	271.0	276.0	277.9	281.1	288.7	295.7	304.6	314.8
22.5°	241.8	241.8	243.7	246.9	250.0	251.9	255.1	261.4	269.7	279.9	290.0
25°	221.5	221.5	222.7	224.6	228.5	230.4	233.5	238.0	245.6	255.1	265.3
27.5°	202.4	203.7	204.3	206.2	209.4	211.3	213.2	218.3	224.6	232.9	242.4
30°	187.8	188.5	189.1	190.4	192.9	194.2	196.7	201.2	206.9	213.9	222.7
32.5°	174.5	175.1	175.1	177.0	179.0	180.9	182.1	185.9	189.7	196.7	205.0
35°	163.1	163.1	164.4	165.0	166.3	167.5	168.8	172.0	176.4	181.5	187.8
37.5°	152.3	152.3	152.9	154.2	155.5	156.7	157.4	159.9	163.7	168.2	173.2
40°	143.4	143.4	143.4	144.7	146.0	146.6	147.2	149.8	152.9	156.1	160.5
42.5°	133.9	134.5	135.2	135.8	136.4	137.7	138.3	139.6	142.1	144.7	149.1
45°	125.6	126.3	126.3	126.9	128.2	128.2	128.8	130.7	132.6	135.2	138.3
47.5°	118.0	118.0	118.0	118.7	119.3	119.9	120.6	121.8	123.7	125.0	128.2
50°	109.8	109.8	110.4	111.1	111.7	111.7	112.3	113.0	114.9	116.1	118.7
52.5°	102.2	102.2	102.8	102.8	103.4	103.4	104.1	105.3	106.0	107.9	109.8
55°	95.2	94.6	95.2	95.2	95.2	95.8	95.8	97.1	98.4	99.0	100.9
57.5°	86.9	87.6	87.6	88.2	88.2	88.2	88.8	88.8	90.1	90.7	91.4
60°	80.0	80.6	80.6	80.6	80.6	80.6	81.2	81.2	81.9	82.5	83.1
62.5°	73.0	73.0	73.0	73.0	73.0	73.6	73.6	73.6	73.6	74.2	74.9
65°	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.6
67.5°	58.4	58.4	58.4	59.0	58.4	58.4	58.4	58.4	58.4	58.4	57.7
70°	51.4	51.4	51.4	51.4	51.4	50.8	50.8	50.1	50.1	49.5	49.5
72.5°	43.8	43.8	43.8	43.2	43.2	43.2	42.5	41.9	41.2	41.2	41.2
75°	36.2	36.2	35.5	35.5	34.9	34.9	34.3	33.6	33.0	32.4	32.4
77.5°	27.3	27.3	27.3	27.3	26.7	26.0	26.0	25.4	24.7	24.7	24.1
80°	16.5	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.2	15.2
82.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
85°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	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°	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4
2.5°	466.4	467.7	469.6	470.9	471.5	472.1	474.0	475.9	477.8	479.7	481.0
5°	451.2	453.7	456.3	459.4	460.7	462.6	466.4	469.6	472.8	476.6	479.7
7.5°	432.8	437.2	441.7	446.7	448.7	450.6	455.6	461.3	465.8	471.5	476.6
10°	413.7	418.8	424.5	431.5	434.7	437.9	444.2	451.2	457.5	464.5	470.9
12.5°	392.2	400.4	408.0	415.7	418.8	422.6	430.9	439.1	447.4	455.6	463.2
15°	370.6	378.8	388.4	397.2	401.7	406.8	416.3	426.4	436.0	445.5	454.4
17.5°	349.0	357.3	367.4	378.8	384.6	389.6	399.8	411.2	422.6	432.8	444.2
20°	324.9	335.7	347.8	359.8	365.5	371.9	383.9	396.0	408.7	420.1	432.2
22.5°	301.4	312.8	327.4	339.5	345.8	352.2	366.2	380.1	392.8	405.5	417.6
25°	277.9	291.3	305.2	319.8	326.8	333.8	348.4	361.7	376.3	389.6	403.6
27.5°	255.1	269.1	283.7	298.9	306.5	314.1	328.7	343.9	358.5	373.1	387.1
30°	233.5	246.9	262.7	278.6	286.2	294.4	309.7	325.5	340.1	354.7	370.0
32.5°	214.5	225.9	241.8	257.6	265.9	274.1	290.6	306.5	321.1	336.3	352.2
35°	196.7	207.5	221.5	238.0	246.2	254.5	271.0	287.5	303.3	317.9	333.2
37.5°	181.5	191.0	203.1	217.7	227.2	235.4	251.9	268.4	283.7	298.9	313.5
40°	166.9	175.1	186.6	200.5	208.1	216.4	232.9	250.0	265.3	279.9	294.4
42.5°	154.2	161.2	170.7	182.8	191.0	198.0	215.1	231.6	246.2	260.8	275.4
45°	142.8	148.5	156.1	166.3	173.2	182.1	198.0	213.2	227.8	242.4	256.4
47.5°	131.4	136.4	142.8	152.3	158.0	165.0	180.9	195.5	210.0	223.4	236.7
50°	121.8	125.6	130.7	138.3	144.1	149.1	163.7	179.0	192.3	205.6	217.7
52.5°	112.3	114.9	119.3	126.3	130.1	135.2	147.9	161.8	175.1	187.8	198.6
55°	102.8	105.3	108.5	113.6	117.4	121.2	132.0	145.3	157.4	167.5	178.3
57.5°	93.3	95.2	97.7	102.2	104.7	107.9	116.8	127.6	138.3	148.5	156.7
60°	85.0	86.3	88.2	90.7	92.6	94.6	100.9	111.1	121.2	128.8	136.4
62.5°	75.5	76.2	77.4	80.0	81.2	82.5	86.9	95.8	104.1	111.1	117.4
65°	66.6	67.3	67.9	69.2	70.4	71.1	74.9	81.2	88.2	93.9	98.4
67.5°	57.7	58.4	58.4	59.7	59.7	60.9	62.8	66.6	73.0	77.4	81.2
70°	48.9	49.5	49.5	50.1	49.5	50.1	52.0	54.6	58.4	62.2	64.7
72.5°	40.6	40.0	40.0	40.0	40.0	40.6	41.2	42.5	45.7	48.9	49.5
75°	31.7	31.7	31.1	31.1	31.1	31.1	31.1	31.7	33.6	35.5	36.2
77.5°	23.5	22.8	22.8	22.2	22.2	22.2	21.6	21.6	22.2	23.5	23.5
80°	15.2	14.6	14.0	14.6	13.3	14.0	13.3	12.7	12.7	12.7	12.1
82.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	5.7	5.7	5.7
85°	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	1.9
87.5°	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
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°	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4
2.5°	482.9	484.8	486.7	487.4	488.0	489.9	491.2	493.1	493.7	495.0	496.2
5°	482.9	486.7	489.9	491.8	493.1	496.2	499.4	501.3	504.5	506.4	508.3
7.5°	481.6	486.7	491.2	493.7	496.2	500.1	504.5	508.3	512.1	514.6	517.8
10°	477.8	484.2	489.9	493.1	496.2	502.0	507.0	511.5	515.9	519.7	522.9
12.5°	472.1	479.7	486.7	490.5	493.7	500.7	506.4	511.5	515.9	519.1	521.6
15°	463.9	473.4	481.6	485.5	489.3	496.9	502.6	507.0	510.8	512.7	514.6
17.5°	454.4	464.5	474.0	478.5	482.3	489.3	494.3	497.5	499.4	500.7	500.1
20°	443.6	454.4	463.9	468.3	472.8	478.5	482.3	483.6	482.9	482.3	481.0
22.5°	430.2	441.7	451.8	455.6	459.4	463.9	465.2	464.5	463.2	462.0	460.1
25°	416.3	427.7	437.2	440.4	443.6	445.5	444.8	443.6	441.7	439.8	436.6
27.5°	400.4	412.5	420.1	423.9	424.5	424.5	422.6	420.7	417.6	415.0	411.8
30°	383.9	394.1	401.7	403.0	403.6	402.3	400.4	397.2	392.8	390.9	387.7
32.5°	364.9	375.7	381.4	381.4	380.1	378.2	374.4	371.2	368.7	364.3	361.1
35°	347.1	355.4	358.5	358.5	356.6	353.5	350.3	345.8	342.0	339.5	335.1
37.5°	326.8	335.1	336.3	334.4	333.2	329.3	324.3	320.5	316.0	312.8	309.7
40°	307.8	313.5	312.2	310.3	309.0	305.2	299.5	295.1	290.6	286.8	283.7
42.5°	286.2	290.0	288.1	286.8	284.3	279.9	274.8	270.3	265.9	262.1	258.9
45°	266.5	268.4	265.3	262.7	260.8	255.7	251.9	245.6	241.1	237.3	234.8
47.5°	245.6	245.6	242.4	239.9	236.7	231.6	227.2	220.8	218.3	213.2	210.7
50°	225.3	223.4	219.6	216.4	213.9	208.1	202.4	198.0	193.5	189.7	187.2
52.5°	203.7	201.2	196.1	192.9	191.6	184.7	179.6	173.9	170.1	165.6	163.1
55°	182.1	178.3	172.6	170.1	167.5	161.8	156.1	150.4	146.6	143.4	140.9
57.5°	159.9	155.5	150.4	147.2	144.1	138.3	132.6	127.6	124.4	121.2	119.3
60°	137.1	133.9	128.8	125.6	122.5	117.4	111.1	107.2	104.7	100.9	100.3
62.5°	117.4	113.0	107.2	104.7	102.2	97.1	92.0	88.8	85.7	83.8	81.2
65°	97.7	93.3	88.2	85.7	83.8	79.3	75.5	72.3	69.8	67.3	65.4
67.5°	78.7	75.5	71.1	69.2	66.6	62.8	59.7	57.1	54.6	52.0	50.1
70°	62.8	59.0	55.2	53.9	52.7	48.9	46.3	43.8	41.2	39.3	37.4
72.5°	48.2	45.1	41.9	40.0	38.7	36.8	34.9	32.4	30.5	28.6	27.3
75°	34.3	32.4	29.8	28.6	27.3	26.0	23.5	22.2	21.6	20.3	19.0
77.5°	22.2	20.3	19.0	17.8	17.8	16.5	15.2	14.6	13.3	13.3	12.7
80°	11.4	10.8	10.2	10.2	10.2	8.9	8.2	8.2	7.6	7.0	7.0
82.5°	5.1	5.1	4.4	4.4	4.4	3.8	3.8	3.2	3.2	2.5	2.5
85°	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.3	0.6	0.6	0.6
87.5°	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.3	0.6	0.6	0.6
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: P345475

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1500lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	480.4	480.4	480.4	480.4	480.4	480.4	480.4	480.4
2.5°	496.9	498.1	498.1	498.8	499.4	500.1	499.4	500.1
5°	510.2	512.1	512.7	512.7	514.0	514.6	515.9	515.9
7.5°	520.4	522.3	523.5	524.2	525.4	526.7	526.7	526.7
10°	525.4	527.3	528.0	529.2	529.9	530.5	531.1	531.1
12.5°	523.5	525.4	526.1	526.1	527.3	527.3	527.3	528.0
15°	515.3	514.6	514.6	514.6	514.0	514.0	514.0	513.4
17.5°	498.8	498.1	498.1	498.1	497.5	496.9	496.2	495.0
20°	480.4	479.1	477.8	478.5	477.2	476.6	475.9	475.9
22.5°	458.8	456.9	456.3	455.6	454.4	453.7	452.5	452.5
25°	435.3	434.1	432.2	431.5	430.9	429.6	428.3	428.3
27.5°	410.6	408.7	408.0	406.8	406.1	404.9	404.2	404.9
30°	385.2	383.3	382.7	381.4	378.8	380.1	378.8	378.2
32.5°	358.5	356.6	355.4	354.1	354.1	352.2	352.2	351.6
35°	332.5	330.6	329.3	328.7	327.4	327.4	326.2	325.5
37.5°	307.1	305.2	304.0	303.3	302.1	300.8	300.2	300.8
40°	281.1	279.2	277.9	277.3	276.0	274.8	274.8	274.8
42.5°	255.7	253.8	253.8	252.6	250.7	250.0	249.4	249.4
45°	232.3	229.7	229.1	227.8	227.8	226.5	225.9	225.9
47.5°	207.5	205.6	205.0	204.3	203.7	203.1	203.1	203.1
50°	184.7	182.1	182.1	180.9	180.2	180.9	179.6	179.0
52.5°	161.8	159.9	159.3	159.3	158.0	158.0	158.0	157.4
55°	139.0	137.7	137.7	137.1	135.8	136.4	136.4	135.2
57.5°	118.0	116.1	116.1	115.5	115.5	115.5	114.2	115.5
60°	98.4	97.1	96.5	95.8	95.2	95.2	95.2	94.6
62.5°	80.0	78.7	78.1	77.4	76.2	76.2	74.9	74.2
65°	63.5	62.2	60.9	60.3	59.0	58.4	58.4	57.7
67.5°	48.2	47.0	45.7	45.1	43.8	43.2	42.5	42.5
70°	36.2	34.3	34.3	33.6	33.0	33.0	32.4	32.4
72.5°	26.0	26.0	25.4	25.4	24.7	24.7	24.7	24.7
75°	18.4	18.4	18.4	18.4	17.8	17.8	17.1	17.1
77.5°	12.1	12.1	12.1	11.4	11.4	11.4	11.4	11.4
80°	6.3	6.3	6.3	6.3	6.3	5.7	6.3	5.7
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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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