

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: P345439

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSMMS 1500Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345439
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 1500lm3000K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE METALLIC SILVER FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 888.4 lumens
Efficiency: N/A
Efficacy: 63.9 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

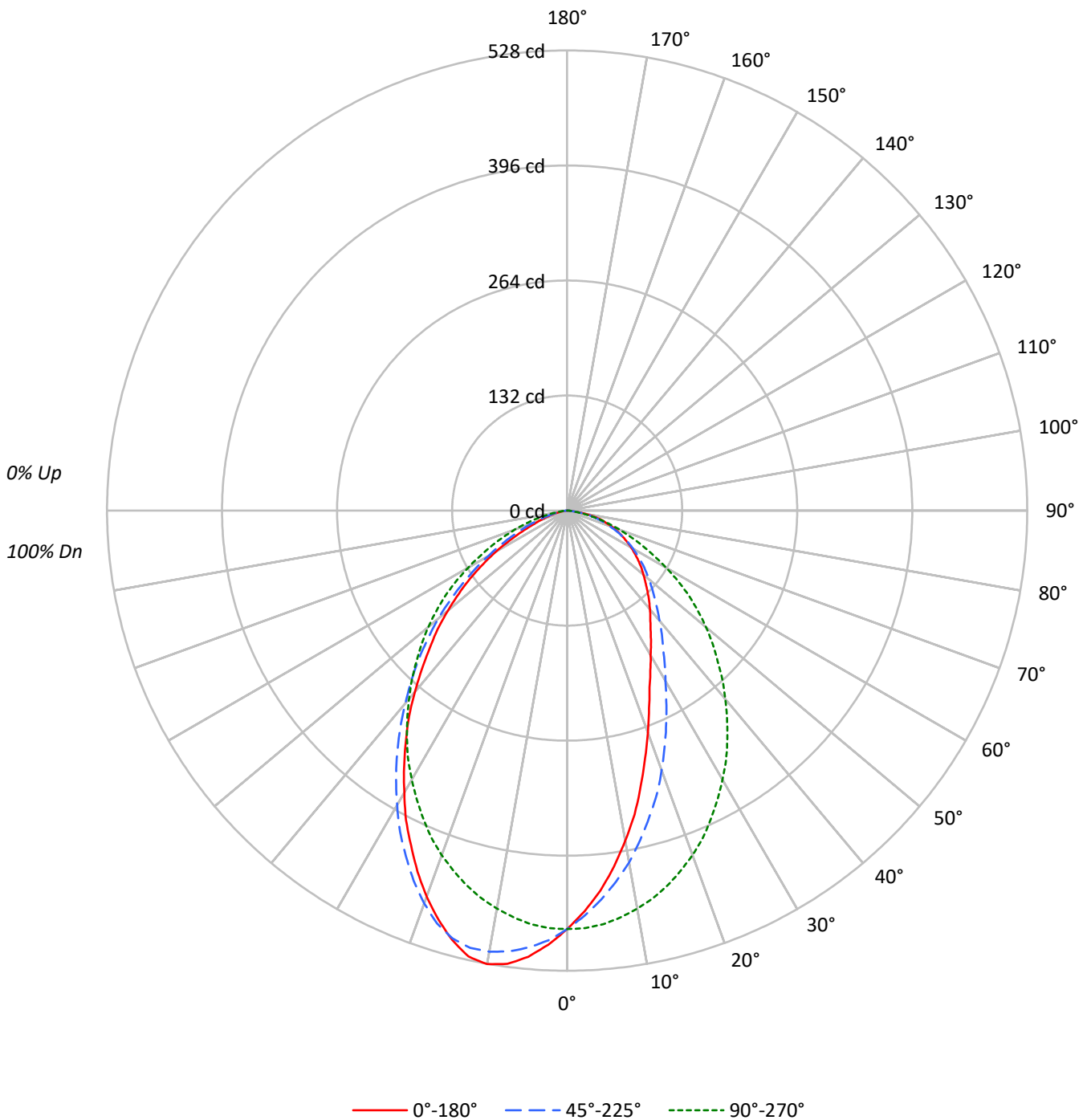
Input Watts (W): 13.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	46799	46799	46799
5°	42820	46606	50275
10°	38041	45888	52301
15°	32963	44929	51467
20°	28096	43622	48890
25°	24077	41959	45573
30°	21562	40119	42054
35°	19845	38119	38345
40°	18803	35915	34541
45°	17931	33657	30694
50°	17315	31552	27033
55°	16923	29004	23074
60°	16568	25592	18420
65°	16096	21954	13168
70°	15729	18265	9403
75°	15062	14083	6703
80°	10664	8194	3929
85°	2796	4249	671



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.9	5.1
10°-20°	121.6	13.7
20°-30°	163.9	18.4
30°-40°	172.1	19.4
40°-50°	155.1	17.5
50°-60°	119.8	13.5
60°-70°	73.7	8.3
70°-80°	32.5	3.7
80°-90°	4.8	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°	330.5	37.2
0°-40°	502.6	56.6
0°-60°	777.5	87.5
0°-90°	888.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	888.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	480	480	480	480	480	
5°	438	448	476	503	514	40
15°	327	364	445	508	510	91
25°	224	269	390	438	424	104
35°	167	192	320	340	322	105
45°	130	142	244	240	223	101
55°	100	105	171	146	136	89
65°	70	70	95	70	57	69
75°	40	36	37	22	18	41
85°	2	3	4	2	1	6
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2
2.5°	459.9	459.3	458.7	459.9	459.9	460.6	460.6	461.8	461.8	463.1	465.0
5°	437.7	436.5	437.1	437.1	439.0	439.0	440.3	441.5	443.4	446.0	447.9
7.5°	411.7	411.7	412.4	413.6	415.5	415.5	417.4	419.3	422.5	425.7	429.5
10°	384.4	385.7	386.3	387.6	390.8	392.1	392.7	395.9	400.3	403.5	409.8
12.5°	357.2	357.2	358.4	361.0	363.5	365.4	366.7	371.1	375.6	381.3	387.0
15°	326.7	327.4	329.3	331.8	336.2	337.5	340.0	345.1	351.5	358.4	364.1
17.5°	297.5	298.8	300.1	303.9	307.0	309.0	312.8	318.5	325.4	333.1	341.9
20°	270.9	269.0	271.5	274.1	277.2	281.7	284.2	290.6	298.2	308.3	317.2
22.5°	245.5	245.5	247.4	249.3	252.5	255.7	258.8	263.9	272.2	282.3	292.5
25°	223.9	224.6	226.5	228.4	231.6	233.5	236.6	241.7	250.0	257.6	269.0
27.5°	206.8	207.4	208.1	210.6	213.2	215.1	217.0	222.0	228.4	236.6	246.1
30°	191.6	191.6	192.2	194.8	196.0	198.6	199.8	204.3	210.0	217.0	225.8
32.5°	178.9	178.9	179.5	180.8	183.3	184.6	185.2	189.7	194.1	201.1	208.1
35°	166.8	166.8	167.5	168.8	170.7	171.3	173.2	175.7	180.2	185.2	191.6
37.5°	156.7	156.7	157.3	158.0	159.2	160.5	161.8	164.3	166.8	171.9	178.3
40°	147.8	147.2	147.8	148.4	150.4	150.4	151.0	153.5	156.1	159.9	164.9
42.5°	138.9	138.9	138.9	139.6	140.8	141.5	142.1	143.4	145.9	149.1	152.9
45°	130.1	130.1	130.7	131.3	132.0	132.6	133.9	135.1	136.4	138.3	142.1
47.5°	121.8	122.4	122.4	123.1	123.7	124.3	125.0	126.2	127.5	129.4	132.0
50°	114.2	114.8	114.8	115.5	116.1	116.1	116.7	118.0	119.3	120.5	122.4
52.5°	107.2	107.2	106.6	107.2	107.8	107.8	108.5	109.1	110.4	112.3	113.6
55°	99.6	99.6	99.6	100.2	100.2	100.2	100.9	101.5	102.1	102.8	104.7
57.5°	92.0	92.0	92.6	92.0	92.6	92.6	92.6	93.3	93.9	95.2	95.8
60°	85.0	85.0	85.0	85.0	85.0	85.0	85.6	85.6	85.6	86.3	86.9
62.5°	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	78.0	78.0	78.7
65°	69.8	69.8	70.4	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8
67.5°	62.8	62.2	62.8	62.2	62.2	62.2	62.2	61.5	61.5	61.5	60.9
70°	55.2	54.6	54.6	54.6	54.6	53.9	54.6	53.9	53.3	52.7	52.0
72.5°	46.9	46.9	46.9	46.9	46.9	46.3	45.7	45.7	45.0	44.4	43.8
75°	40.0	40.0	39.3	38.7	38.1	38.1	38.1	37.4	36.8	36.2	35.5
77.5°	31.1	30.5	30.5	29.8	29.2	28.5	29.2	28.5	27.9	27.3	26.6
80°	19.0	19.0	19.0	19.0	19.0	19.0	18.4	19.0	18.4	17.8	17.8
82.5°	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
85°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.2	3.2
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9	1.9	1.9
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°	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2
2.5°	466.3	467.6	469.5	470.7	471.4	472.0	473.9	475.8	477.7	479.6	480.9
5°	451.1	454.2	456.1	459.3	461.2	463.1	466.3	469.5	472.6	476.4	479.6
7.5°	432.7	437.7	441.5	446.0	448.5	451.1	455.5	460.6	465.6	470.7	475.8
10°	414.9	419.3	426.3	432.7	434.6	438.4	445.3	451.1	458.0	463.7	470.7
12.5°	394.6	400.3	407.9	415.5	420.0	423.8	432.0	439.6	447.9	455.5	463.7
15°	372.4	381.3	389.5	398.4	404.1	407.9	417.4	427.0	435.8	445.3	454.9
17.5°	350.2	360.3	370.5	381.3	385.7	391.4	402.2	412.4	423.1	433.3	444.1
20°	328.0	338.8	349.6	361.6	368.0	373.7	385.1	397.1	409.2	420.6	432.0
22.5°	304.5	315.9	328.6	341.9	348.9	354.0	367.3	380.6	393.3	406.7	418.7
25°	281.0	294.4	307.7	321.6	328.6	336.2	349.6	363.5	376.8	390.2	404.1
27.5°	258.2	272.2	286.1	302.0	309.0	316.6	331.2	345.1	359.7	373.7	387.6
30°	237.3	250.6	265.8	281.7	289.3	296.9	312.1	327.4	341.9	356.5	369.9
32.5°	218.2	229.7	245.5	261.4	269.6	277.2	293.1	309.0	324.2	339.4	352.7
35°	200.5	211.3	224.6	241.7	249.3	257.6	274.1	289.3	305.1	320.4	334.3
37.5°	184.6	194.8	206.8	221.4	230.9	238.5	255.0	270.9	286.1	301.3	315.3
40°	170.7	179.5	189.7	203.0	211.9	220.1	236.6	252.5	267.7	282.3	296.3
42.5°	158.0	164.9	174.5	186.5	193.5	201.7	218.9	234.1	249.3	263.9	276.6
45°	145.9	151.6	159.9	170.7	176.4	185.2	201.1	216.3	230.9	244.2	258.2
47.5°	135.1	140.2	146.5	155.4	161.1	168.1	184.0	199.2	213.2	226.5	238.5
50°	125.6	129.4	135.1	142.7	147.2	152.3	168.1	182.7	195.4	208.1	219.5
52.5°	116.1	118.6	123.1	129.4	133.9	138.3	151.6	165.6	178.3	189.1	201.1
55°	105.9	109.1	112.9	117.4	120.5	124.3	135.1	148.4	159.2	170.7	180.2
57.5°	97.1	99.0	101.5	105.3	107.8	111.0	119.3	130.7	141.5	151.0	160.5
60°	88.2	89.5	91.4	93.9	95.8	98.3	104.0	114.2	123.7	131.3	139.6
62.5°	79.3	79.3	80.6	82.5	83.7	85.6	90.7	98.3	106.6	112.3	119.3
65°	69.8	70.4	71.1	72.3	73.0	74.2	77.4	83.1	89.5	95.2	100.2
67.5°	60.9	60.9	61.5	62.2	62.2	62.8	64.7	68.5	74.9	78.7	82.5
70°	52.0	52.0	52.0	52.0	52.7	52.0	53.3	55.8	60.3	64.1	66.0
72.5°	43.8	43.1	42.5	42.5	42.5	42.5	43.1	45.0	47.6	49.5	52.0
75°	34.9	34.3	33.6	33.0	33.6	33.6	33.6	34.3	35.5	37.4	38.1
77.5°	26.0	26.0	24.7	24.1	24.7	24.1	23.5	23.5	24.1	24.7	24.7
80°	17.8	17.1	16.5	15.9	15.9	15.9	15.2	14.6	14.6	14.6	14.0
82.5°	8.9	8.9	8.2	8.2	8.2	8.2	8.2	7.6	7.6	7.0	7.0
85°	3.2	3.2	3.2	3.2	3.8	3.2	3.8	3.8	3.8	3.8	3.8
87.5°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	3.2	3.2	3.2	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°	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2
2.5°	482.8	484.7	486.0	487.2	487.9	489.1	491.0	492.3	493.6	494.8	496.1
5°	482.8	486.6	489.1	491.0	492.9	495.5	498.6	501.2	503.1	505.6	507.5
7.5°	480.9	486.0	490.4	492.9	495.5	499.3	503.1	506.9	510.1	513.2	515.8
10°	477.1	483.4	489.8	492.3	495.5	500.5	505.6	510.1	513.9	517.7	520.8
12.5°	471.4	479.0	486.6	489.8	492.9	499.3	505.0	510.1	513.9	517.0	518.9
15°	463.7	472.6	480.9	484.7	488.5	494.8	500.5	505.0	508.2	510.1	511.3
17.5°	454.2	463.7	472.6	477.1	481.5	487.9	492.3	494.8	496.7	496.7	496.1
20°	443.4	453.6	463.1	467.6	471.4	476.4	479.6	480.2	479.6	478.3	477.1
22.5°	430.1	441.5	451.1	454.9	458.0	461.8	461.8	461.2	459.9	458.0	457.4
25°	416.2	427.0	436.5	440.3	441.5	444.1	442.2	440.9	437.7	435.8	433.9
27.5°	400.9	412.4	419.3	421.9	423.1	421.9	420.0	417.4	415.5	412.4	409.8
30°	384.4	394.6	400.3	402.2	401.6	399.7	397.8	393.3	390.2	387.0	383.8
32.5°	365.4	375.6	380.0	380.6	378.7	375.6	372.4	369.2	365.4	361.6	359.7
35°	347.0	355.9	358.4	357.2	355.3	351.5	347.0	343.2	340.0	335.6	332.4
37.5°	327.4	335.0	335.0	333.1	331.8	327.4	322.9	319.1	314.7	310.9	306.4
40°	307.7	313.4	311.5	309.6	307.7	302.6	298.8	293.1	288.7	284.2	281.0
42.5°	288.0	291.2	288.7	286.1	283.6	278.5	274.7	268.4	264.5	260.1	257.6
45°	268.4	269.0	265.2	263.3	260.7	254.4	249.3	244.9	240.4	235.4	232.2
47.5°	248.1	246.8	242.3	239.8	237.3	231.6	226.5	221.4	216.3	212.5	208.7
50°	227.7	224.6	220.1	217.6	214.4	209.4	203.6	197.9	193.5	189.7	186.5
52.5°	205.5	203.0	197.9	194.1	191.6	184.6	179.5	174.5	169.4	165.6	163.0
55°	183.3	179.5	173.8	171.3	167.5	161.8	156.7	150.4	146.5	143.4	140.2
57.5°	161.1	156.7	151.6	148.4	144.6	138.9	133.2	129.4	125.6	121.8	119.9
60°	139.6	135.1	128.8	127.5	123.7	118.0	112.9	108.5	104.7	102.1	100.2
62.5°	119.3	114.8	108.5	105.9	103.4	97.7	93.3	89.5	86.9	84.4	82.5
65°	99.0	95.2	90.1	86.9	84.4	79.9	76.1	72.3	70.4	67.2	65.3
67.5°	80.6	76.1	72.3	69.8	67.9	63.4	60.3	57.7	55.2	53.3	50.8
70°	63.4	59.6	55.8	54.6	52.7	49.5	46.9	44.4	42.5	40.6	38.1
72.5°	48.8	46.3	42.5	41.2	40.0	37.4	35.5	33.6	31.1	29.8	28.5
75°	36.2	33.6	31.1	29.8	29.2	26.6	25.4	23.5	22.2	21.6	20.3
77.5°	23.5	21.6	20.3	19.7	19.0	17.8	16.5	15.9	14.6	14.0	14.0
80°	13.3	12.7	12.1	11.4	10.8	10.2	10.2	9.5	8.9	8.2	7.6
82.5°	6.3	6.3	5.7	5.7	5.7	5.1	5.1	4.4	4.4	3.8	3.8
85°	3.2	3.2	3.2	3.2	3.2	2.5	2.5	2.5	1.9	1.9	1.3
87.5°	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.3	1.3	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



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CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSMMS 1500lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	480.2	480.2	480.2	480.2	480.2	480.2	480.2	480.2
2.5°	496.1	496.7	497.4	498.0	498.0	498.6	499.3	498.6
5°	508.8	510.7	511.3	512.0	512.6	513.2	513.9	513.9
7.5°	518.3	520.8	521.5	521.5	523.4	524.0	524.6	524.6
10°	523.4	524.6	525.9	525.9	527.2	527.2	528.5	528.5
12.5°	520.8	522.1	522.7	523.4	523.4	524.0	524.0	524.0
15°	512.0	511.3	511.3	510.7	510.7	510.1	510.1	510.1
17.5°	495.5	494.8	494.2	494.2	492.9	492.9	491.7	491.7
20°	475.8	474.5	473.9	473.3	473.3	472.6	471.4	471.4
22.5°	454.9	453.6	452.3	451.1	449.8	449.2	448.5	448.5
25°	431.4	429.5	428.9	428.2	426.3	425.7	424.4	423.8
27.5°	407.3	404.1	403.5	402.8	401.6	400.9	400.3	400.3
30°	381.9	380.0	378.7	378.1	376.2	375.6	373.7	373.7
32.5°	356.5	353.4	352.1	351.5	350.2	348.9	348.3	348.3
35°	329.9	328.0	327.4	325.4	323.5	323.5	322.3	322.3
37.5°	304.5	302.6	300.7	300.1	298.8	296.9	296.3	298.2
40°	279.1	276.6	275.3	274.7	273.4	271.5	271.5	271.5
42.5°	254.4	252.5	251.9	250.6	249.3	248.7	247.4	246.8
45°	229.0	227.7	227.1	225.8	225.2	223.9	222.7	222.7
47.5°	206.8	204.3	204.3	203.0	201.7	201.1	201.1	201.7
50°	184.6	182.7	181.4	180.8	179.5	179.5	178.9	178.3
52.5°	160.5	159.2	158.6	158.6	157.3	157.3	156.7	156.7
55°	138.3	138.3	137.7	137.0	135.8	135.8	135.8	135.8
57.5°	118.6	117.4	116.7	116.1	115.5	114.8	114.8	114.2
60°	98.3	97.7	96.4	97.1	95.2	95.2	95.2	94.5
62.5°	79.9	78.7	78.0	77.4	76.1	76.1	74.9	74.2
65°	64.1	62.2	60.9	60.9	59.6	58.4	57.7	57.1
67.5°	48.2	46.9	46.3	45.7	44.4	43.1	43.1	42.5
70°	36.8	35.5	34.9	34.3	33.6	33.0	33.0	33.0
72.5°	27.3	26.6	26.0	26.0	25.4	24.7	24.7	25.4
75°	19.7	19.0	19.0	19.0	18.4	18.4	18.4	17.8
77.5°	13.3	12.7	12.7	12.1	12.1	12.1	12.1	12.1
80°	7.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0
82.5°	3.2	3.2	3.2	3.2	2.5	2.5	2.5	2.5
85°	1.3	1.3	1.3	1.3	1.3	0.6	0.6	0.6
87.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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