

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: P345471

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1000Lm4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345471
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 1000lm4000K
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: 692.4 lumens
Efficiency: N/A
Efficacy: 66.6 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

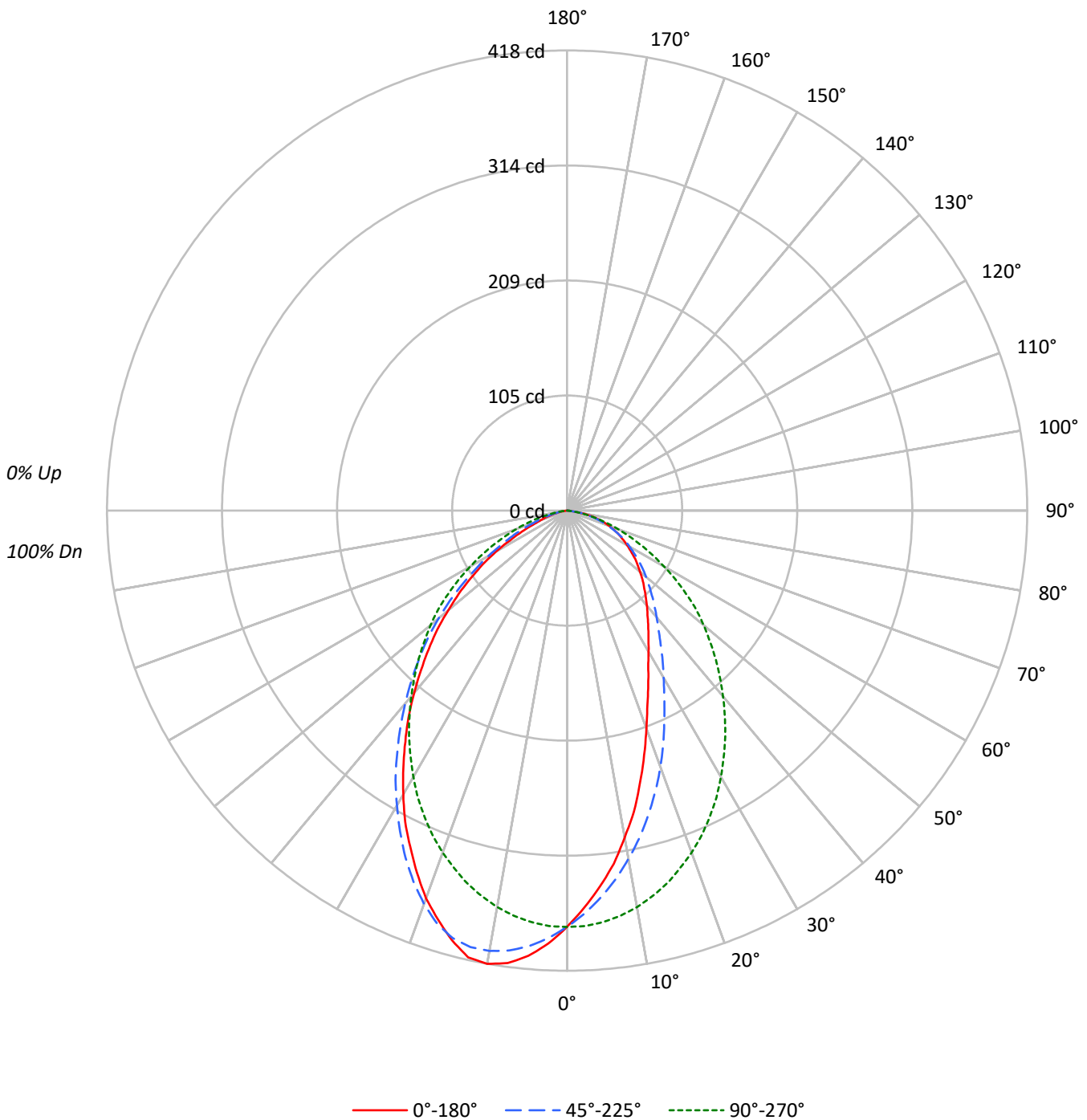
Input Watts (W): 10.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	33081	33081	33081
5°	30090	32944	35657
10°	26752	32481	37135
15°	23164	31758	36593
20°	19575	30783	34878
25°	16822	29600	32544
30°	14938	28210	30068
35°	13711	26727	27368
40°	12891	25155	24698
45°	12234	23602	21994
50°	11757	22031	19173
55°	11422	20115	16226
60°	11004	17739	13015
65°	10762	15295	9417
70°	10358	12531	6521
75°	9632	9463	4562
80°	6548	5037	2267
85°	502	2007	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.4	5.1
10°-20°	95.8	13.8
20°-30°	129.0	18.6
30°-40°	135.1	19.5
40°-50°	121.2	17.5
50°-60°	92.7	13.4
60°-70°	56.5	8.2
70°-80°	24.0	3.5
80°-90°	2.7	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°	260.2	37.6
0°-40°	395.3	57.1
0°-60°	609.2	88.0
0°-90°	692.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	692.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	378	378	378	378	378	
5°	343	353	375	397	406	31
15°	256	286	351	402	404	71
25°	174	209	307	348	337	81
35°	128	148	250	269	256	81
45°	99	109	191	190	178	77
55°	75	79	132	115	106	67
65°	52	52	74	55	46	51
75°	28	26	28	17	14	29
85°	0	1	2	0	0	3
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°	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
2.5°	360.7	361.2	362.2	361.7	362.7	362.7	362.7	363.7	364.7	365.2	366.2
5°	342.7	343.2	343.7	344.7	345.2	344.7	346.2	347.7	349.2	351.2	352.7
7.5°	323.7	323.7	323.2	324.7	326.7	327.2	328.2	329.7	331.7	334.7	337.7
10°	301.2	301.7	302.7	303.2	306.2	306.7	308.2	310.2	313.7	317.2	321.2
12.5°	280.3	279.8	280.3	281.8	283.7	286.2	287.7	290.2	294.7	299.2	304.2
15°	255.8	256.3	257.8	259.3	262.3	263.8	266.3	270.8	275.3	279.8	285.7
17.5°	232.8	232.3	234.3	236.8	239.3	241.8	243.8	247.8	253.8	260.3	266.8
20°	210.3	209.8	211.3	213.3	217.3	218.8	221.3	227.3	232.8	239.8	247.8
22.5°	190.3	190.3	191.8	194.3	196.8	198.3	200.8	205.8	212.3	220.3	228.3
25°	174.3	174.3	175.3	176.8	179.8	181.3	183.8	187.3	193.3	200.8	208.8
27.5°	159.4	160.4	160.9	162.4	164.9	166.4	167.9	171.8	176.8	183.3	190.8
30°	147.9	148.4	148.9	149.9	151.9	152.9	154.9	158.4	162.9	168.4	175.3
32.5°	137.4	137.9	137.9	139.4	140.9	142.4	143.4	146.4	149.4	154.9	161.4
35°	128.4	128.4	129.4	129.9	130.9	131.9	132.9	135.4	138.9	142.9	147.9
37.5°	119.9	119.9	120.4	121.4	122.4	123.4	123.9	125.9	128.9	132.4	136.4
40°	112.9	112.9	112.9	113.9	114.9	115.4	115.9	117.9	120.4	122.9	126.4
42.5°	105.4	105.9	106.4	106.9	107.4	108.4	108.9	109.9	111.9	113.9	117.4
45°	98.9	99.4	99.4	99.9	100.9	100.9	101.4	102.9	104.4	106.4	108.9
47.5°	92.9	92.9	92.9	93.4	93.9	94.4	94.9	95.9	97.4	98.4	100.9
50°	86.4	86.4	86.9	87.4	87.9	87.9	88.4	88.9	90.4	91.4	93.4
52.5°	80.4	80.4	80.9	80.9	81.4	81.4	81.9	82.9	83.4	84.9	86.4
55°	74.9	74.4	74.9	74.9	74.9	75.4	75.4	76.4	77.4	77.9	79.4
57.5°	68.4	68.9	68.9	69.4	69.4	69.4	69.9	69.9	70.9	71.4	71.9
60°	62.9	63.4	63.4	63.4	63.4	63.4	63.9	63.9	64.4	64.9	65.4
62.5°	57.4	57.4	57.4	57.4	57.4	57.9	57.9	57.9	57.9	58.4	58.9
65°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.5
67.5°	46.0	46.0	46.0	46.5	46.0	46.0	46.0	46.0	46.0	46.0	45.5
70°	40.5	40.5	40.5	40.5	40.5	40.0	40.0	39.5	39.5	39.0	39.0
72.5°	34.5	34.5	34.5	34.0	34.0	34.0	33.5	33.0	32.5	32.5	32.5
75°	28.5	28.5	28.0	28.0	27.5	27.5	27.0	26.5	26.0	25.5	25.5
77.5°	21.5	21.5	21.5	21.5	21.0	20.5	20.5	20.0	19.5	19.5	19.0
80°	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.0	12.0
82.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
85°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0
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°	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
2.5°	367.2	368.2	369.7	370.7	371.2	371.7	373.2	374.7	376.2	377.7	378.7
5°	355.2	357.2	359.2	361.7	362.7	364.2	367.2	369.7	372.2	375.2	377.7
7.5°	340.7	344.2	347.7	351.7	353.2	354.7	358.7	363.2	366.7	371.2	375.2
10°	325.7	329.7	334.2	339.7	342.2	344.7	349.7	355.2	360.2	365.7	370.7
12.5°	308.7	315.2	321.2	327.2	329.7	332.7	339.2	345.7	352.2	358.7	364.7
15°	291.7	298.2	305.7	312.7	316.2	320.2	327.7	335.7	343.2	350.7	357.7
17.5°	274.8	281.3	289.2	298.2	302.7	306.7	314.7	323.7	332.7	340.7	349.7
20°	255.8	264.3	273.8	283.3	287.7	292.7	302.2	311.7	321.7	330.7	340.2
22.5°	237.3	246.3	257.8	267.3	272.3	277.3	288.2	299.2	309.2	319.2	328.7
25°	218.8	229.3	240.3	251.8	257.3	262.8	274.3	284.7	296.2	306.7	317.7
27.5°	200.8	211.8	223.3	235.3	241.3	247.3	258.8	270.8	282.3	293.7	304.7
30°	183.8	194.3	206.8	219.3	225.3	231.8	243.8	256.3	267.8	279.3	291.2
32.5°	168.9	177.8	190.3	202.8	209.3	215.8	228.8	241.3	252.8	264.8	277.3
35°	154.9	163.4	174.3	187.3	193.8	200.3	213.3	226.3	238.8	250.3	262.3
37.5°	142.9	150.4	159.9	171.3	178.8	185.3	198.3	211.3	223.3	235.3	246.8
40°	131.4	137.9	146.9	157.9	163.9	170.3	183.3	196.8	208.8	220.3	231.8
42.5°	121.4	126.9	134.4	143.9	150.4	155.9	169.4	182.3	193.8	205.3	216.8
45°	112.4	116.9	122.9	130.9	136.4	143.4	155.9	167.9	179.3	190.8	201.8
47.5°	103.4	107.4	112.4	119.9	124.4	129.9	142.4	153.9	165.4	175.8	186.3
50°	95.9	98.9	102.9	108.9	113.4	117.4	128.9	140.9	151.4	161.9	171.3
52.5°	88.4	90.4	93.9	99.4	102.4	106.4	116.4	127.4	137.9	147.9	156.4
55°	80.9	82.9	85.4	89.4	92.4	95.4	103.9	114.4	123.9	131.9	140.4
57.5°	73.4	74.9	76.9	80.4	82.4	84.9	91.9	100.4	108.9	116.9	123.4
60°	66.9	67.9	69.4	71.4	72.9	74.4	79.4	87.4	95.4	101.4	107.4
62.5°	59.4	59.9	60.9	62.9	63.9	64.9	68.4	75.4	81.9	87.4	92.4
65°	52.5	53.0	53.5	54.5	55.5	56.0	58.9	63.9	69.4	73.9	77.4
67.5°	45.5	46.0	46.0	47.0	47.0	48.0	49.5	52.5	57.4	60.9	63.9
70°	38.5	39.0	39.0	39.5	39.0	39.5	41.0	43.0	46.0	49.0	51.0
72.5°	32.0	31.5	31.5	31.5	31.5	32.0	32.5	33.5	36.0	38.5	39.0
75°	25.0	25.0	24.5	24.5	24.5	24.5	24.5	25.0	26.5	28.0	28.5
77.5°	18.5	18.0	18.0	17.5	17.5	17.5	17.0	17.0	17.5	18.5	18.5
80°	12.0	11.5	11.0	11.5	10.5	11.0	10.5	10.0	10.0	10.0	9.5
82.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5
85°	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	1.5
87.5°	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
2.5°	380.2	381.7	383.2	383.7	384.2	385.7	386.7	388.2	388.7	389.7	390.7
5°	380.2	383.2	385.7	387.2	388.2	390.7	393.2	394.7	397.1	398.6	400.1
7.5°	379.2	383.2	386.7	388.7	390.7	393.7	397.1	400.1	403.1	405.1	407.6
10°	376.2	381.2	385.7	388.2	390.7	395.2	399.1	402.6	406.1	409.1	411.6
12.5°	371.7	377.7	383.2	386.2	388.7	394.2	398.6	402.6	406.1	408.6	410.6
15°	365.2	372.7	379.2	382.2	385.2	391.2	395.7	399.1	402.1	403.6	405.1
17.5°	357.7	365.7	373.2	376.7	379.7	385.2	389.2	391.7	393.2	394.2	393.7
20°	349.2	357.7	365.2	368.7	372.2	376.7	379.7	380.7	380.2	379.7	378.7
22.5°	338.7	347.7	355.7	358.7	361.7	365.2	366.2	365.7	364.7	363.7	362.2
25°	327.7	336.7	344.2	346.7	349.2	350.7	350.2	349.2	347.7	346.2	343.7
27.5°	315.2	324.7	330.7	333.7	334.2	334.2	332.7	331.2	328.7	326.7	324.2
30°	302.2	310.2	316.2	317.2	317.7	316.7	315.2	312.7	309.2	307.7	305.2
32.5°	287.2	295.7	300.2	300.2	299.2	297.7	294.7	292.2	290.2	286.7	284.2
35°	273.3	279.8	282.3	282.3	280.8	278.3	275.8	272.3	269.3	267.3	263.8
37.5°	257.3	263.8	264.8	263.3	262.3	259.3	255.3	252.3	248.8	246.3	243.8
40°	242.3	246.8	245.8	244.3	243.3	240.3	235.8	232.3	228.8	225.8	223.3
42.5°	225.3	228.3	226.8	225.8	223.8	220.3	216.3	212.8	209.3	206.3	203.8
45°	209.8	211.3	208.8	206.8	205.3	201.3	198.3	193.3	189.8	186.8	184.8
47.5°	193.3	193.3	190.8	188.8	186.3	182.3	178.8	173.8	171.8	167.9	165.9
50°	177.3	175.8	172.8	170.3	168.4	163.9	159.4	155.9	152.4	149.4	147.4
52.5°	160.4	158.4	154.4	151.9	150.9	145.4	141.4	136.9	133.9	130.4	128.4
55°	143.4	140.4	135.9	133.9	131.9	127.4	122.9	118.4	115.4	112.9	110.9
57.5°	125.9	122.4	118.4	115.9	113.4	108.9	104.4	100.4	97.9	95.4	93.9
60°	107.9	105.4	101.4	98.9	96.4	92.4	87.4	84.4	82.4	79.4	78.9
62.5°	92.4	88.9	84.4	82.4	80.4	76.4	72.4	69.9	67.4	65.9	63.9
65°	76.9	73.4	69.4	67.4	65.9	62.4	59.4	56.9	55.0	53.0	51.5
67.5°	61.9	59.4	56.0	54.5	52.5	49.5	47.0	45.0	43.0	41.0	39.5
70°	49.5	46.5	43.5	42.5	41.5	38.5	36.5	34.5	32.5	31.0	29.5
72.5°	38.0	35.5	33.0	31.5	30.5	29.0	27.5	25.5	24.0	22.5	21.5
75°	27.0	25.5	23.5	22.5	21.5	20.5	18.5	17.5	17.0	16.0	15.0
77.5°	17.5	16.0	15.0	14.0	14.0	13.0	12.0	11.5	10.5	10.5	10.0
80°	9.0	8.5	8.0	8.0	8.0	7.0	6.5	6.5	6.0	5.5	5.5
82.5°	4.0	4.0	3.5	3.5	3.5	3.0	3.0	2.5	2.5	2.0	2.0
85°	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	0.5	0.5	0.5
87.5°	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	0.5	0.5	0.5
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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CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
2.5°	391.2	392.2	392.2	392.7	393.2	393.7	393.2	393.7
5°	401.6	403.1	403.6	403.6	404.6	405.1	406.1	406.1
7.5°	409.6	411.1	412.1	412.6	413.6	414.6	414.6	414.6
10°	413.6	415.1	415.6	416.6	417.1	417.6	418.1	418.1
12.5°	412.1	413.6	414.1	414.1	415.1	415.1	415.1	415.6
15°	405.6	405.1	405.1	405.1	404.6	404.6	404.6	404.1
17.5°	392.7	392.2	392.2	392.2	391.7	391.2	390.7	389.7
20°	378.2	377.2	376.2	376.7	375.7	375.2	374.7	374.7
22.5°	361.2	359.7	359.2	358.7	357.7	357.2	356.2	356.2
25°	342.7	341.7	340.2	339.7	339.2	338.2	337.2	337.2
27.5°	323.2	321.7	321.2	320.2	319.7	318.7	318.2	318.7
30°	303.2	301.7	301.2	300.2	298.2	299.2	298.2	297.7
32.5°	282.3	280.8	279.8	278.8	278.8	277.3	277.3	276.8
35°	261.8	260.3	259.3	258.8	257.8	257.8	256.8	256.3
37.5°	241.8	240.3	239.3	238.8	237.8	236.8	236.3	236.8
40°	221.3	219.8	218.8	218.3	217.3	216.3	216.3	216.3
42.5°	201.3	199.8	199.8	198.8	197.3	196.8	196.3	196.3
45°	182.8	180.8	180.3	179.3	179.3	178.3	177.8	177.8
47.5°	163.4	161.9	161.4	160.9	160.4	159.9	159.9	159.9
50°	145.4	143.4	143.4	142.4	141.9	142.4	141.4	140.9
52.5°	127.4	125.9	125.4	125.4	124.4	124.4	124.4	123.9
55°	109.4	108.4	108.4	107.9	106.9	107.4	107.4	106.4
57.5°	92.9	91.4	91.4	90.9	90.9	90.9	89.9	90.9
60°	77.4	76.4	75.9	75.4	74.9	74.9	74.9	74.4
62.5°	62.9	61.9	61.4	60.9	59.9	59.9	58.9	58.4
65°	50.0	49.0	48.0	47.5	46.5	46.0	46.0	45.5
67.5°	38.0	37.0	36.0	35.5	34.5	34.0	33.5	33.5
70°	28.5	27.0	27.0	26.5	26.0	26.0	25.5	25.5
72.5°	20.5	20.5	20.0	20.0	19.5	19.5	19.5	19.5
75°	14.5	14.5	14.5	14.5	14.0	14.0	13.5	13.5
77.5°	9.5	9.5	9.5	9.0	9.0	9.0	9.0	9.0
80°	5.0	5.0	5.0	5.0	5.0	4.5	5.0	4.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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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