

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: P345415

Luminaire Tested: **PR4FS24D010 PR4M24WW9FSMW 2000Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345415
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1908-453-7)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PR4FS24D010 PR4M24WW9FSMW 2000Lm3000K
Description: PR4 WALLWASH ASSEMBLY WITH, MATTE WHITE FINISH
Light Source: ARRAY OF HIGH LUMEN LEDs 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1447.0 lumens
Efficiency: N/A
Efficacy: 65.8 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 1.12 / 1.11
Luminous Opening: Circular (Dia: 0.4' x H: 0')
CIE Type: Direct

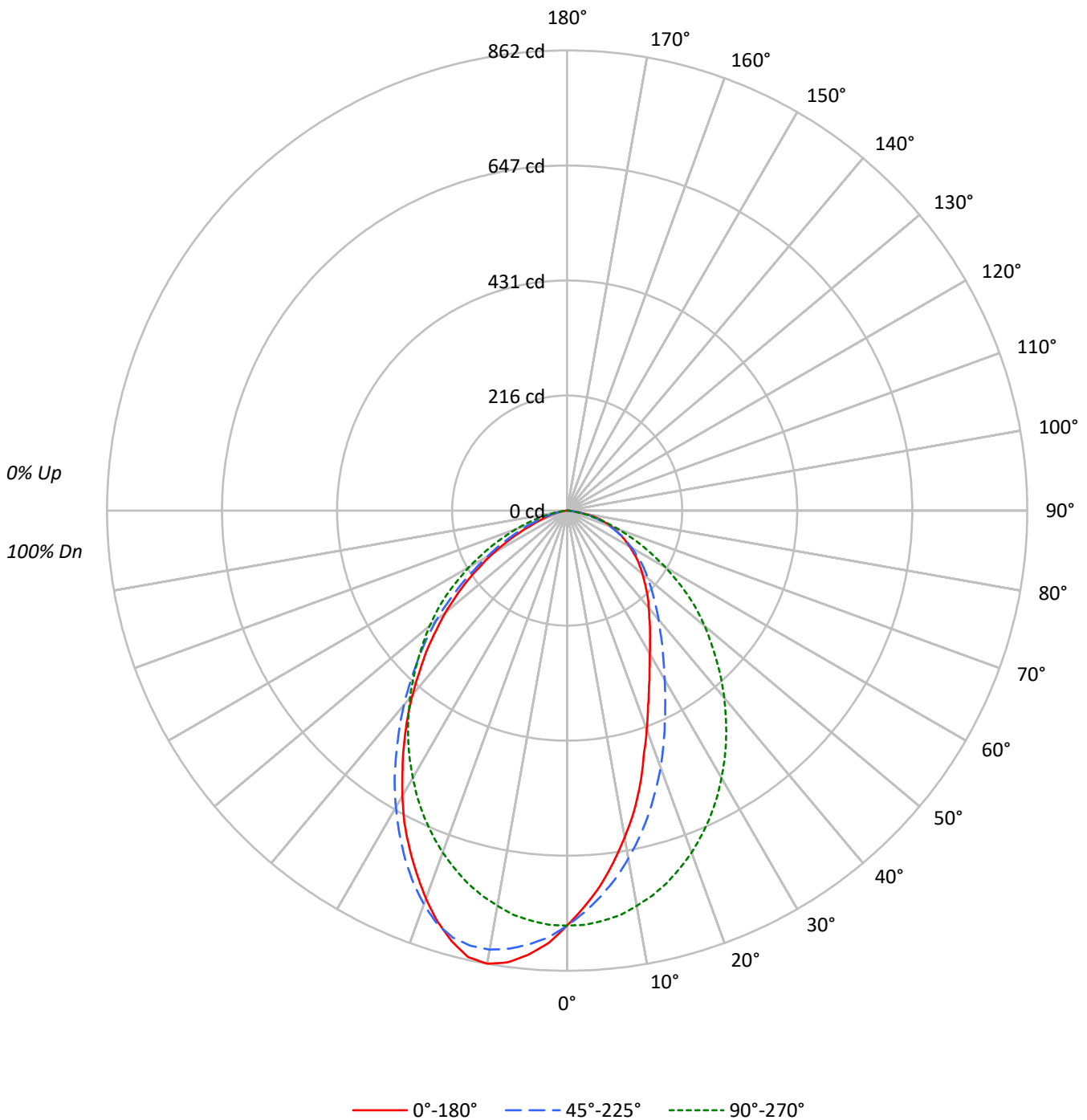
Input Watts (W): 22
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	35	45	39	35					34				
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	36	32					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	68007	68007	68007
5°	62033	67723	73325
10°	55174	66774	76544
15°	47958	65372	75623
20°	40584	63464	71990
25°	35034	61140	67394
30°	31260	58379	62318
35°	28884	55451	56882
40°	27130	52250	51428
45°	25952	48849	46054
50°	25052	45763	40579
55°	24461	42029	34663
60°	23739	37244	28060
65°	23201	31708	20656
70°	22608	26035	14194
75°	21562	19804	10781
80°	15011	11384	6196
85°	6222	4115	2108



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.8	5.0
10°-20°	197.5	13.6
20°-30°	266.8	18.4
30°-40°	280.9	19.4
40°-50°	253.0	17.5
50°-60°	195.3	13.5
60°-70°	120.2	8.3
70°-80°	52.9	3.7
80°-90°	7.6	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°	537.1	37.1
0°-40°	818.0	56.5
0°-60°	1266.3	87.5
0°-90°	1447.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1447.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	778	778	778	778	778	
5°	706	725	771	816	835	65
15°	530	589	722	828	835	147
25°	363	433	634	719	698	168
35°	270	311	519	558	533	170
45°	210	229	395	395	372	162
55°	160	169	276	244	227	143
65°	112	112	153	116	100	111
75°	64	57	59	38	32	65
85°	6	5	4	3	2	11
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°	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5
2.5°	742.5	743.5	743.5	743.5	744.6	745.6	745.6	747.6	748.7	750.7	752.8
5°	706.5	705.5	705.5	707.5	709.6	710.6	710.6	714.7	717.8	720.9	725.0
7.5°	664.3	663.3	666.4	667.4	669.5	672.6	674.6	678.7	681.8	689.0	695.2
10°	621.2	621.2	623.2	626.3	629.4	632.5	634.5	639.7	645.8	653.0	661.3
12.5°	578.0	574.9	578.0	582.1	585.2	588.2	591.3	597.5	606.8	616.0	626.3
15°	529.6	528.6	530.7	534.8	542.0	544.0	547.1	556.4	565.6	578.0	589.3
17.5°	478.2	481.3	482.3	488.5	495.7	498.8	501.9	511.1	524.5	536.8	550.2
20°	436.0	434.0	438.1	442.2	448.4	453.5	457.6	467.9	482.3	495.7	512.1
22.5°	395.9	394.9	398.0	403.1	408.3	412.4	416.5	426.8	438.1	453.5	472.0
25°	363.0	362.0	365.1	368.2	374.3	377.4	380.5	390.8	403.1	415.5	433.0
27.5°	334.2	334.2	336.3	338.3	343.5	346.6	350.7	358.9	369.2	381.5	398.0
30°	309.5	309.5	311.6	313.7	318.8	320.9	323.9	330.1	338.3	351.7	365.1
32.5°	289.0	289.0	290.0	293.1	295.1	297.2	300.3	305.4	313.7	323.9	336.3
35°	270.5	270.5	271.5	273.6	276.6	277.7	279.7	284.9	291.0	299.3	310.6
37.5°	253.0	254.0	254.0	256.1	258.1	259.2	261.2	265.3	270.5	277.7	286.9
40°	237.6	238.6	238.6	240.6	242.7	243.7	244.8	246.8	253.0	258.1	266.4
42.5°	224.2	224.2	224.2	225.2	227.3	228.3	229.3	232.4	235.5	240.6	246.8
45°	209.8	209.8	210.8	211.8	213.9	213.9	214.9	218.0	220.1	224.2	229.3
47.5°	196.4	196.4	197.5	197.5	199.5	199.5	200.5	202.6	204.7	208.8	212.9
50°	184.1	184.1	184.1	185.1	186.1	187.2	187.2	189.2	191.3	194.4	197.5
52.5°	171.7	171.7	171.7	171.7	172.8	173.8	173.8	175.9	177.9	180.0	183.1
55°	160.4	159.4	160.4	160.4	160.4	161.5	161.5	163.5	163.5	165.6	168.7
57.5°	147.1	148.1	148.1	147.1	148.1	149.1	149.1	149.1	150.1	152.2	153.2
60°	135.7	135.7	135.7	135.7	136.8	136.8	136.8	136.8	137.8	137.8	139.9
62.5°	123.4	123.4	124.4	124.4	123.4	124.4	124.4	124.4	125.5	125.5	125.5
65°	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1
67.5°	99.8	99.8	99.8	99.8	99.8	99.8	99.8	98.7	98.7	98.7	97.7
70°	88.4	88.4	88.4	87.4	87.4	87.4	87.4	86.4	86.4	85.4	84.3
72.5°	76.1	76.1	76.1	75.1	75.1	75.1	74.0	73.0	72.0	71.0	71.0
75°	63.8	63.8	62.7	61.7	61.7	60.7	60.7	59.6	59.6	57.6	56.6
77.5°	49.4	48.3	48.3	48.3	47.3	46.3	46.3	45.2	44.2	44.2	43.2
80°	29.8	29.8	30.9	29.8	30.9	29.8	29.8	30.9	29.8	28.8	28.8
82.5°	14.4	14.4	15.4	14.4	15.4	15.4	15.4	14.4	14.4	14.4	14.4
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	5.1	5.1	5.1
87.5°	4.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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°	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5
2.5°	754.8	757.9	759.0	762.0	763.1	765.1	767.2	770.3	773.4	776.4	778.5
5°	729.1	734.3	738.4	743.5	746.6	748.7	754.8	760.0	766.2	771.3	776.4
7.5°	701.4	707.5	716.8	723.0	726.0	731.2	738.4	746.6	754.8	764.1	771.3
10°	669.5	678.7	688.0	699.3	704.5	709.6	718.8	730.2	741.5	751.8	763.1
12.5°	635.5	647.9	660.2	671.5	678.7	684.9	699.3	711.6	725.0	738.4	750.7
15°	602.6	616.0	630.4	644.8	653.0	660.2	674.6	690.1	706.5	721.9	736.3
17.5°	566.6	582.1	598.5	615.0	623.2	632.5	651.0	667.4	685.9	702.4	719.9
20°	529.6	547.1	564.6	585.2	593.4	603.7	622.2	642.7	662.3	681.8	700.3
22.5°	491.6	511.1	530.7	552.2	563.6	573.8	595.4	616.0	637.6	658.2	678.7
25°	452.5	475.1	497.7	519.3	531.7	542.0	565.6	589.3	611.9	633.5	655.1
27.5°	416.5	438.1	462.8	486.4	498.8	510.1	535.8	558.4	583.1	606.8	628.3
30°	383.6	404.2	428.8	454.6	466.9	479.2	504.9	530.7	553.3	578.0	601.6
32.5°	352.7	371.3	395.9	421.6	436.0	447.4	474.1	498.8	524.5	549.2	572.8
35°	323.9	342.5	364.1	389.8	402.1	415.5	443.2	468.9	493.6	519.3	540.9
37.5°	299.3	313.7	333.2	357.9	371.3	384.6	412.4	438.1	462.8	488.5	511.1
40°	275.6	289.0	306.5	328.1	341.4	354.8	381.5	407.2	431.9	457.6	481.3
42.5°	256.1	266.4	280.8	301.3	312.6	326.0	352.7	377.4	402.1	426.8	449.4
45°	236.5	245.8	258.1	274.6	285.9	298.2	323.9	349.7	372.3	394.9	417.5
47.5°	218.0	225.2	236.5	250.9	260.2	271.5	296.2	320.9	343.5	365.1	385.6
50°	201.6	207.7	218.0	228.3	236.5	246.8	268.4	293.1	314.7	336.3	354.8
52.5°	186.1	191.3	198.5	208.8	214.9	223.2	243.7	265.3	286.9	306.5	323.9
55°	171.7	174.8	181.0	188.2	193.3	200.5	218.0	238.6	258.1	275.6	290.0
57.5°	155.3	159.4	163.5	168.7	173.8	177.9	191.3	209.8	227.3	242.7	257.1
60°	140.9	144.0	146.0	151.2	153.2	157.3	167.6	183.1	199.5	212.9	223.2
62.5°	126.5	127.5	129.6	133.7	134.7	137.8	145.0	157.3	169.7	182.0	192.3
65°	112.1	112.1	114.2	115.2	117.2	118.3	123.4	132.7	144.0	153.2	159.4
67.5°	97.7	97.7	98.7	98.7	100.8	100.8	103.9	111.1	118.3	126.5	131.6
70°	83.3	83.3	83.3	83.3	83.3	84.3	86.4	90.5	95.6	101.8	104.9
72.5°	69.9	68.9	68.9	67.9	67.9	67.9	68.9	71.0	75.1	79.2	82.3
75°	55.5	54.5	53.5	53.5	52.4	52.4	52.4	54.5	56.6	58.6	59.6
77.5°	41.1	41.1	40.1	38.1	38.1	37.0	37.0	37.0	38.1	40.1	39.1
80°	28.8	26.7	25.7	25.7	24.7	24.7	23.7	22.6	22.6	22.6	21.6
82.5°	13.4	13.4	13.4	12.3	12.3	12.3	12.3	11.3	11.3	10.3	10.3
85°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.1	4.1	4.1	4.1
87.5°	3.1	3.1	3.1	3.1	3.1	2.1	2.1	2.1	2.1	2.1	2.1
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°	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5
2.5°	781.6	784.7	787.8	788.8	789.8	792.9	794.9	798.0	800.1	801.1	803.2
5°	782.6	787.8	792.9	796.0	798.0	803.2	807.3	812.4	815.5	820.7	823.7
7.5°	779.5	787.8	794.9	799.1	803.2	810.4	816.5	822.7	827.9	833.0	838.1
10°	773.4	783.6	793.9	798.0	803.2	811.4	820.7	827.9	835.1	841.2	847.4
12.5°	764.1	776.4	788.8	793.9	799.1	810.4	819.6	827.9	835.1	841.2	845.3
15°	751.8	766.2	779.5	786.7	792.9	804.2	813.5	821.7	827.9	832.0	835.1
17.5°	736.3	752.8	768.2	774.4	781.6	791.9	801.1	807.3	811.4	811.4	812.4
20°	718.8	736.3	751.8	759.0	766.2	774.4	781.6	784.7	784.7	784.7	782.6
22.5°	698.3	716.8	732.2	739.4	745.6	751.8	755.9	755.9	753.8	750.7	747.6
25°	674.6	694.2	708.6	715.8	718.8	724.0	723.0	721.9	718.8	715.8	711.6
27.5°	648.9	668.5	683.9	687.0	689.0	690.1	687.0	684.9	680.8	676.7	673.6
30°	622.2	640.7	653.0	654.1	656.1	655.1	651.0	645.8	641.7	636.6	632.5
32.5°	593.4	610.9	619.1	621.2	620.1	616.0	611.9	606.8	601.6	595.4	590.3
35°	562.5	579.0	584.1	583.1	582.1	576.9	570.8	565.6	558.4	554.3	547.1
37.5°	530.7	546.1	548.1	545.0	542.0	535.8	529.6	524.5	516.3	512.1	507.0
40°	498.8	509.1	509.1	506.0	503.9	497.7	489.5	482.3	476.1	468.9	465.9
42.5°	465.9	474.1	470.0	467.9	464.8	455.6	449.4	442.2	434.0	429.9	424.7
45°	433.0	438.1	433.0	428.8	425.8	417.5	411.4	402.1	394.9	390.8	384.6
47.5°	399.0	401.1	397.0	390.8	388.7	379.5	372.3	365.1	357.9	350.7	345.5
50°	368.2	366.1	359.9	355.8	352.7	342.5	334.2	326.0	319.8	313.7	308.5
52.5°	333.2	331.1	322.9	317.8	312.6	304.4	294.1	288.0	280.8	275.6	270.5
55°	297.2	291.0	284.9	279.7	274.6	266.4	257.1	248.9	243.7	237.6	234.5
57.5°	260.2	256.1	245.8	241.7	237.6	229.3	220.1	212.9	205.7	201.6	199.5
60°	227.3	220.1	211.8	206.7	202.6	194.4	186.1	178.9	173.8	171.7	168.7
62.5°	192.3	186.1	176.9	172.8	169.7	161.5	154.3	148.1	144.0	139.9	137.8
65°	160.4	153.2	146.0	141.9	137.8	130.6	125.5	121.4	116.2	113.1	111.1
67.5°	129.6	123.4	117.2	114.2	111.1	104.9	99.8	96.7	92.6	89.5	85.4
70°	101.8	96.7	92.6	89.5	86.4	81.2	77.1	74.0	71.0	67.9	64.8
72.5°	79.2	74.0	68.9	67.9	65.8	61.7	58.6	55.5	52.4	50.4	48.3
75°	56.6	54.5	50.4	48.3	47.3	44.2	41.1	39.1	38.1	36.0	35.0
77.5°	37.0	35.0	31.9	31.9	30.9	29.8	27.8	25.7	25.7	24.7	24.7
80°	20.6	19.5	18.5	17.5	18.5	17.5	16.5	15.4	15.4	15.4	14.4
82.5°	9.3	9.3	8.2	8.2	8.2	8.2	8.2	7.2	7.2	7.2	7.2
85°	4.1	4.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0	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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CATALOG NUMBER: PR4FS24D010 PR4M24WW9FSMW 2000lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	777.5	777.5	777.5	777.5	777.5	777.5	777.5	777.5
2.5°	805.2	806.3	807.3	808.3	809.3	809.3	810.4	811.4
5°	825.8	828.9	829.9	830.9	833.0	834.0	834.0	835.1
7.5°	842.3	846.4	847.4	849.5	851.5	852.5	853.6	853.6
10°	851.5	854.6	855.6	857.7	859.7	860.8	861.8	861.8
12.5°	848.4	851.5	852.5	853.6	855.6	856.7	856.7	856.7
15°	837.1	837.1	837.1	837.1	836.1	837.1	837.1	835.1
17.5°	811.4	810.4	811.4	809.3	808.3	808.3	807.3	807.3
20°	780.6	779.5	778.5	778.5	777.5	775.4	774.4	773.4
22.5°	745.6	743.5	742.5	742.5	740.4	739.4	738.4	736.3
25°	709.6	704.5	704.5	704.5	702.4	702.4	700.3	698.3
27.5°	668.5	665.4	665.4	663.3	661.3	660.2	659.2	660.2
30°	629.4	625.3	623.2	622.2	621.2	621.2	618.1	617.0
32.5°	586.2	583.1	581.0	580.0	578.0	576.9	575.9	573.8
35°	544.0	540.9	538.9	538.9	534.8	533.7	532.7	532.7
37.5°	500.8	498.8	497.7	494.7	493.6	492.6	492.6	491.6
40°	460.7	457.6	456.6	453.5	452.5	452.5	449.4	450.4
42.5°	419.6	415.5	414.4	413.4	412.4	410.3	411.4	409.3
45°	380.5	377.4	375.4	375.4	374.3	372.3	371.3	372.3
47.5°	342.5	338.3	338.3	337.3	336.3	335.3	335.3	333.2
50°	306.5	303.4	301.3	299.3	300.3	299.3	297.2	298.2
52.5°	267.4	264.3	263.3	263.3	262.2	262.2	261.2	261.2
55°	232.4	229.3	229.3	228.3	228.3	228.3	227.3	227.3
57.5°	197.5	195.4	194.4	194.4	192.3	193.3	192.3	191.3
60°	166.6	163.5	161.5	162.5	161.5	161.5	159.4	160.4
62.5°	134.7	132.7	131.6	131.6	129.6	129.6	127.5	128.5
65°	108.0	104.9	103.9	102.8	100.8	99.8	99.8	99.8
67.5°	83.3	81.2	80.2	78.2	76.1	75.1	74.0	73.0
70°	62.7	60.7	59.6	58.6	57.6	56.6	56.6	55.5
72.5°	47.3	45.2	45.2	44.2	44.2	43.2	43.2	43.2
75°	33.9	33.9	32.9	32.9	31.9	32.9	31.9	31.9
77.5°	23.7	22.6	23.7	22.6	21.6	21.6	21.6	21.6
80°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	12.3
82.5°	7.2	7.2	7.2	6.2	6.2	6.2	6.2	6.2
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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