

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: P242033

Luminaire Tested: **PRS410D010-S4M12-41SWWMW-4000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242033  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-63)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: PRS410D010-S4M12-41SWWMW-4000K  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM MATTE WHITE  
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 601.2 lumens  
Efficiency: N/A  
Efficacy: 60.1 lumens/watt  
Spacing Criteria (0/90/45): 1 / 0.97 / 1.07  
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')  
CIE Type: Direct

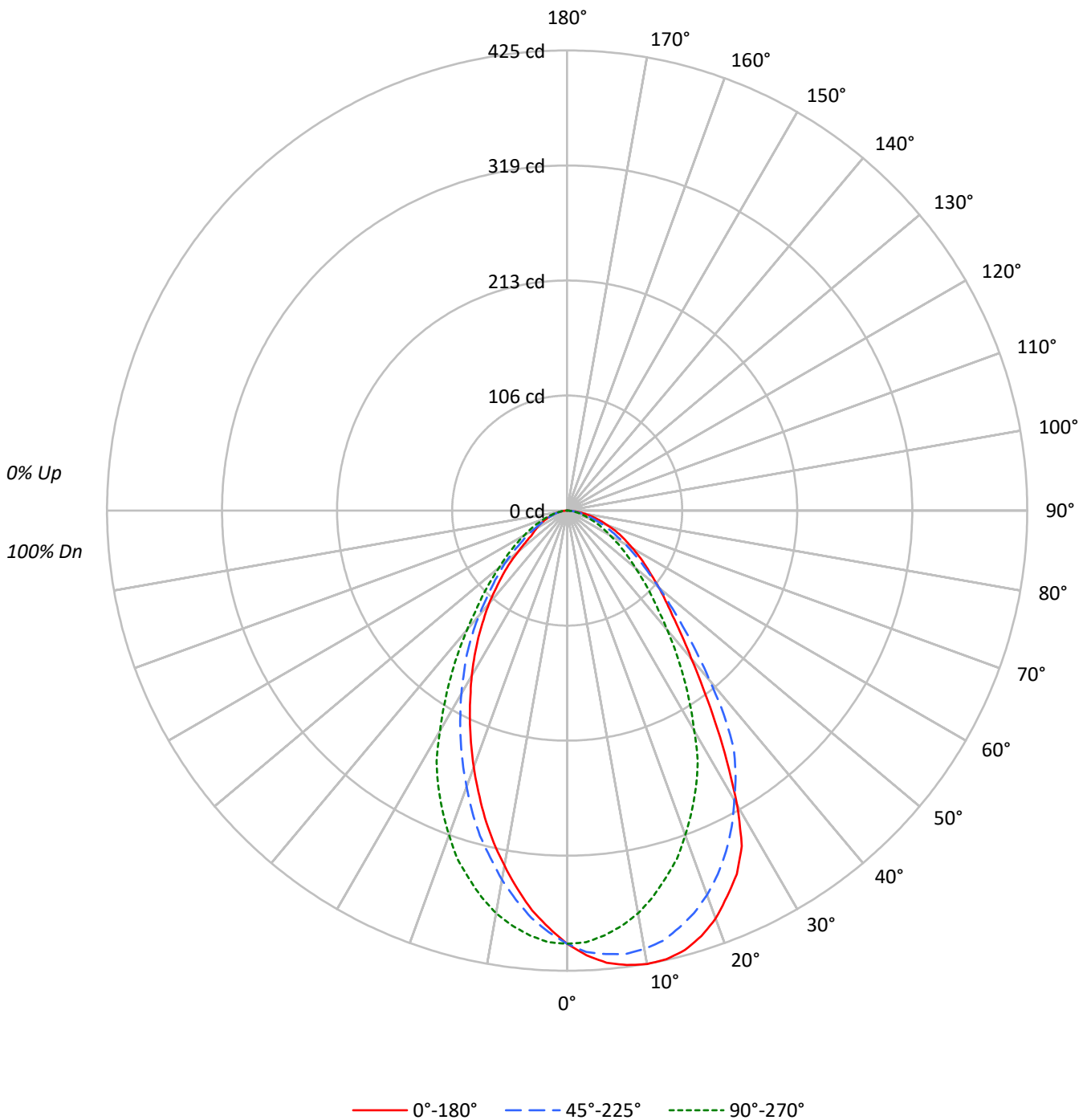
Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	104	101	109	105	102	99	101	98	96	97	95	93	94	92	91	89					89			
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78					78			
3	96	87	81	75	94	86	80	75	83	78	73	80	76	72	78	74	71	69					69			
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	62					62			
5	83	72	65	59	81	71	64	59	69	63	58	67	62	58	66	61	57	55					55			
6	78	66	59	53	76	65	58	53	64	57	53	62	57	52	61	56	52	50					50			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45					45			
8	68	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42					42			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38					38			
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35					35			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	30617	30617	30617
5°	32210	30266	28475
10°	33056	29356	25890
15°	33298	27846	23266
20°	32664	25984	20535
25°	31300	23774	17955
30°	27744	20762	15573
35°	22239	17502	13344
40°	17806	14369	11231
45°	14906	11842	9093
50°	13146	9765	6990
55°	11757	8381	5405
60°	10701	6981	4960
65°	9907	6049	4582
70°	8840	4991	4073
75°	8074	4200	3608
80°	7141	3570	3130
85°	4479	2635	2635



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	37.1	6.2
10°-20°	99.3	16.5
20°-30°	131.9	21.9
30°-40°	124.3	20.7
40°-50°	90.9	15.1
50°-60°	59.7	9.9
60°-70°	36.0	6.0
70°-80°	17.7	2.9
80°-90°	4.2	0.7
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°	268.3	44.6
0°-40°	392.6	65.3
0°-60°	543.3	90.4
0°-90°	601.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	601.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	400	400	400	400	400	
5°	419	411	394	378	371	40
15°	420	399	351	311	294	118
25°	371	347	282	233	213	168
35°	238	268	187	161	143	150
45°	138	151	109	97	84	108
55°	88	83	63	53	40	79
65°	55	45	33	24	25	54
75°	27	20	14	12	12	29
85°	5	4	3	3	3	7
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°	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
2.5°	411.1	411.1	411.1	411.1	410.1	410.1	410.1	409.1	409.1	408.1	408.1
5°	419.2	419.2	418.2	418.2	417.2	417.2	416.2	415.2	414.1	413.1	411.1
7.5°	423.3	423.3	422.2	422.2	421.2	421.2	420.2	419.2	417.2	415.2	413.1
10°	425.3	424.3	424.3	423.3	422.2	421.2	420.2	419.2	416.2	414.1	411.1
12.5°	424.3	423.3	423.3	421.2	420.2	419.2	418.2	416.2	413.1	410.1	407.1
15°	420.2	419.2	418.2	417.2	415.2	414.1	413.1	410.1	407.1	403.0	399.0
17.5°	412.1	411.1	411.1	409.1	407.1	406.0	405.0	402.0	397.9	393.9	389.8
20°	401.0	400.0	399.0	397.9	395.9	394.9	393.9	390.9	386.8	382.8	377.7
22.5°	385.8	384.8	384.8	383.8	381.7	380.7	379.7	376.7	373.6	368.6	363.5
25°	370.6	369.6	368.6	367.6	365.5	363.5	362.5	359.5	356.4	353.4	347.3
27.5°	349.3	350.3	350.3	349.3	348.3	347.3	346.3	342.2	338.2	334.1	329.1
30°	313.9	311.9	313.9	316.9	320.0	321.0	324.0	324.0	320.0	314.9	308.8
32.5°	274.4	275.4	276.4	280.5	284.5	285.5	287.6	293.6	298.7	295.7	289.6
35°	238.0	239.0	241.0	244.0	247.1	252.1	254.2	259.2	264.3	270.4	268.3
37.5°	205.6	206.6	208.6	210.6	215.7	217.7	221.8	225.8	233.9	239.0	238.0
40°	178.2	179.2	180.2	182.3	188.3	189.3	191.4	197.5	202.5	206.6	204.5
42.5°	156.9	155.9	158.0	160.0	163.0	164.0	166.1	170.1	174.2	176.2	176.2
45°	137.7	138.7	139.7	141.8	142.8	144.8	145.8	148.8	149.9	150.9	150.9
47.5°	123.5	123.5	124.5	125.6	126.6	127.6	128.6	129.6	129.6	129.6	128.6
50°	110.4	110.4	111.4	112.4	112.4	113.4	113.4	113.4	112.4	111.4	110.4
52.5°	98.2	98.2	99.2	100.2	100.2	100.2	100.2	99.2	98.2	97.2	95.2
55°	88.1	88.1	89.1	89.1	89.1	89.1	89.1	87.1	85.1	84.0	83.0
57.5°	79.0	79.0	79.0	79.0	79.0	79.0	78.0	75.9	74.9	72.9	71.9
60°	69.9	69.9	69.9	69.9	69.9	68.9	67.8	66.8	64.8	62.8	61.8
62.5°	61.8	61.8	61.8	61.8	60.8	59.7	59.7	57.7	56.7	54.7	52.7
65°	54.7	54.7	53.7	53.7	52.7	51.6	51.6	49.6	48.6	46.6	44.6
67.5°	47.6	46.6	46.6	46.6	45.6	44.6	43.5	42.5	41.5	39.5	37.5
70°	39.5	39.5	40.5	39.5	38.5	37.5	37.5	35.4	34.4	33.4	31.4
72.5°	33.4	33.4	33.4	32.4	32.4	31.4	30.4	29.4	28.4	27.3	25.3
75°	27.3	27.3	27.3	26.3	25.3	25.3	25.3	23.3	23.3	21.3	20.3
77.5°	21.3	21.3	21.3	20.3	20.3	20.3	19.2	18.2	17.2	17.2	16.2
80°	16.2	16.2	15.2	15.2	14.2	14.2	14.2	13.2	13.2	12.2	11.1
82.5°	11.1	10.1	10.1	10.1	10.1	10.1	9.1	9.1	8.1	8.1	7.1
85°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.1	4.1	4.1
87.5°	1.0	1.0	1.0	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	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°	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
2.5°	406.0	406.0	405.0	404.0	403.0	403.0	402.0	401.0	400.0	399.0	396.9
5°	410.1	408.1	406.0	404.0	404.0	403.0	400.0	397.9	395.9	393.9	391.9
7.5°	410.1	407.1	405.0	402.0	401.0	399.0	395.9	392.9	389.8	386.8	383.8
10°	408.1	404.0	401.0	396.9	394.9	392.9	388.8	384.8	380.7	377.7	372.6
12.5°	402.0	397.9	393.9	388.8	386.8	384.8	379.7	374.6	370.6	365.5	361.5
15°	393.9	389.8	384.8	379.7	376.7	374.6	368.6	362.5	356.4	351.4	346.3
17.5°	384.8	378.7	373.6	367.6	364.5	360.5	354.4	348.3	342.2	337.2	331.1
20°	371.6	366.5	359.5	352.4	349.3	345.3	339.2	332.1	326.0	319.0	312.9
22.5°	358.4	351.4	344.3	336.2	333.1	329.1	322.0	313.9	307.8	300.7	293.6
25°	341.2	334.1	327.1	320.0	314.9	311.9	304.8	296.7	289.6	281.5	274.4
27.5°	323.0	315.9	308.8	300.7	296.7	292.6	283.5	275.4	267.3	261.2	253.1
30°	302.8	296.7	288.6	277.4	272.4	268.3	258.2	249.1	241.0	234.9	229.9
32.5°	282.5	273.4	262.3	251.1	246.1	241.0	230.9	222.8	216.7	210.6	204.5
35°	256.2	246.1	235.9	225.8	220.7	215.7	207.6	199.5	192.4	187.3	182.3
37.5°	231.9	220.7	209.6	200.5	195.4	191.4	182.3	176.2	170.1	165.0	160.0
40°	202.5	196.4	184.3	176.2	171.1	167.1	159.0	152.9	147.8	143.8	139.7
42.5°	174.2	171.1	161.0	152.9	148.8	145.8	138.7	133.7	128.6	124.5	122.5
45°	148.8	144.8	140.7	132.6	129.6	126.6	120.5	115.4	111.4	109.4	106.3
47.5°	127.6	124.5	120.5	114.4	111.4	109.4	104.3	100.2	97.2	95.2	93.2
50°	108.3	106.3	103.3	99.2	96.2	94.2	90.1	87.1	84.0	82.0	81.0
52.5°	93.2	91.1	88.1	85.1	83.0	81.0	78.0	74.9	73.9	71.9	69.9
55°	80.0	78.0	75.9	72.9	71.9	70.9	67.8	65.8	63.8	62.8	61.8
57.5°	69.9	67.8	64.8	62.8	61.8	60.8	58.7	56.7	54.7	53.7	52.7
60°	59.7	57.7	55.7	53.7	52.7	51.6	50.6	48.6	46.6	45.6	45.6
62.5°	51.6	49.6	47.6	45.6	45.6	44.6	42.5	41.5	40.5	39.5	38.5
65°	43.5	41.5	40.5	38.5	37.5	37.5	36.5	34.4	33.4	33.4	32.4
67.5°	36.5	35.4	33.4	32.4	31.4	31.4	29.4	29.4	28.4	27.3	26.3
70°	30.4	28.4	27.3	26.3	26.3	25.3	24.3	24.3	23.3	22.3	21.3
72.5°	24.3	23.3	22.3	21.3	21.3	20.3	20.3	19.2	18.2	18.2	17.2
75°	19.2	18.2	18.2	16.2	16.2	16.2	15.2	15.2	14.2	14.2	13.2
77.5°	15.2	14.2	13.2	13.2	12.2	12.2	12.2	11.1	11.1	11.1	10.1
80°	10.1	10.1	9.1	9.1	9.1	9.1	8.1	8.1	8.1	8.1	7.1
82.5°	7.1	6.1	6.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1	5.1
85°	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
87.5°	1.0	1.0	1.0	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	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°	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
2.5°	395.9	394.9	393.9	393.9	392.9	391.9	391.9	390.9	389.8	388.8	387.8
5°	389.8	387.8	385.8	384.8	383.8	382.8	380.7	378.7	377.7	375.7	374.6
7.5°	380.7	377.7	375.7	373.6	372.6	369.6	367.6	365.5	362.5	361.5	359.5
10°	369.6	365.5	361.5	360.5	358.4	355.4	352.4	348.3	346.3	344.3	342.2
12.5°	356.4	352.4	347.3	345.3	343.3	339.2	335.2	332.1	328.1	326.0	323.0
15°	341.2	336.2	331.1	329.1	327.1	322.0	317.9	313.9	310.9	306.8	303.8
17.5°	325.0	319.0	312.9	310.9	308.8	303.8	299.7	294.7	291.6	287.6	284.5
20°	306.8	300.7	294.7	293.6	289.6	284.5	279.5	275.4	271.4	268.3	264.3
22.5°	287.6	281.5	276.4	273.4	270.4	265.3	260.2	256.2	252.1	247.1	244.0
25°	269.3	262.3	256.2	255.2	251.1	247.1	242.0	236.9	232.9	228.8	225.8
27.5°	248.1	243.0	236.9	233.9	231.9	226.8	222.8	217.7	213.7	209.6	206.6
30°	223.8	218.7	214.7	212.6	210.6	207.6	202.5	199.5	195.4	191.4	188.3
32.5°	200.5	197.5	193.4	191.4	190.4	186.3	184.3	181.2	177.2	174.2	171.1
35°	177.2	175.2	171.1	171.1	169.1	167.1	165.0	163.0	161.0	158.0	154.9
37.5°	156.9	154.9	151.9	149.9	149.9	147.8	146.8	144.8	143.8	141.8	139.7
40°	137.7	134.7	132.6	131.6	130.6	129.6	127.6	126.6	126.6	125.6	123.5
42.5°	118.5	117.5	115.4	114.4	115.4	113.4	113.4	112.4	110.4	109.4	108.3
45°	104.3	102.3	102.3	101.3	101.3	100.2	99.2	98.2	97.2	95.2	95.2
47.5°	91.1	90.1	89.1	89.1	88.1	88.1	87.1	86.1	85.1	84.0	82.0
50°	80.0	79.0	78.0	78.0	77.0	77.0	75.9	74.9	73.9	71.9	69.9
52.5°	69.9	68.9	67.8	67.8	66.8	66.8	65.8	63.8	62.8	61.8	59.7
55°	60.8	59.7	58.7	58.7	57.7	57.7	56.7	54.7	52.7	51.6	49.6
57.5°	51.6	51.6	50.6	50.6	49.6	48.6	47.6	45.6	44.6	43.5	41.5
60°	44.6	43.5	43.5	42.5	42.5	41.5	39.5	38.5	36.5	35.4	33.4
62.5°	37.5	37.5	36.5	35.4	35.4	33.4	32.4	31.4	30.4	28.4	29.4
65°	31.4	30.4	30.4	29.4	29.4	27.3	26.3	25.3	24.3	24.3	25.3
67.5°	26.3	25.3	24.3	24.3	23.3	22.3	21.3	21.3	21.3	21.3	21.3
70°	21.3	20.3	19.2	19.2	19.2	18.2	17.2	17.2	17.2	18.2	18.2
72.5°	17.2	16.2	15.2	15.2	14.2	14.2	14.2	14.2	14.2	15.2	15.2
75°	13.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
77.5°	10.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
80°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
82.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
85°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
87.5°	1.0	1.0	1.0	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	0.0	0.0	0.0





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CATALOG NUMBER: PRS410D010-S4M12-41SWWMW-4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
2.5°	387.8	387.8	387.8	386.8	386.8	386.8	386.8	385.8
5°	373.6	373.6	372.6	372.6	371.6	371.6	371.6	370.6
7.5°	357.4	356.4	356.4	355.4	354.4	353.4	353.4	352.4
10°	340.2	338.2	336.2	337.2	335.2	335.2	333.1	333.1
12.5°	321.0	319.0	319.0	316.9	314.9	314.9	313.9	313.9
15°	300.7	298.7	297.7	296.7	295.7	294.7	294.7	293.6
17.5°	280.5	279.5	278.5	277.4	275.4	274.4	273.4	272.4
20°	261.2	258.2	257.2	257.2	254.2	254.2	252.1	252.1
22.5°	241.0	238.0	238.0	236.9	234.9	232.9	232.9	231.9
25°	221.8	219.7	217.7	216.7	215.7	213.7	213.7	212.6
27.5°	202.5	200.5	199.5	198.5	196.4	195.4	194.4	193.4
30°	185.3	182.3	181.2	180.2	178.2	177.2	176.2	176.2
32.5°	168.1	165.0	165.0	163.0	162.0	160.0	159.0	159.0
35°	151.9	149.9	147.8	146.8	144.8	144.8	142.8	142.8
37.5°	135.7	133.7	133.7	131.6	129.6	128.6	127.6	126.6
40°	121.5	118.5	118.5	116.4	114.4	113.4	112.4	112.4
42.5°	107.3	104.3	103.3	102.3	100.2	98.2	98.2	97.2
45°	93.2	91.1	90.1	89.1	87.1	85.1	85.1	84.0
47.5°	80.0	79.0	77.0	75.9	74.9	72.9	71.9	71.9
50°	68.9	67.8	65.8	64.8	62.8	60.8	59.7	58.7
52.5°	57.7	56.7	55.7	54.7	52.7	50.6	49.6	48.6
55°	48.6	47.6	45.6	45.6	43.5	42.5	41.5	40.5
57.5°	39.5	38.5	37.5	37.5	36.5	36.5	36.5	36.5
60°	32.4	33.4	33.4	33.4	33.4	33.4	33.4	32.4
62.5°	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
65°	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
67.5°	21.3	21.3	22.3	21.3	21.3	21.3	21.3	21.3
70°	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
72.5°	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
75°	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
77.5°	10.1	10.1	9.1	9.1	10.1	10.1	9.1	10.1
80°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
82.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
85°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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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