

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: P345469

Luminaire Tested: **PR4FS12D010 PR4M12WW9FSBZ 1000Lm3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P345469
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 1000lm3000K
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: 665.3 lumens
Efficiency: N/A
Efficacy: 64.0 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

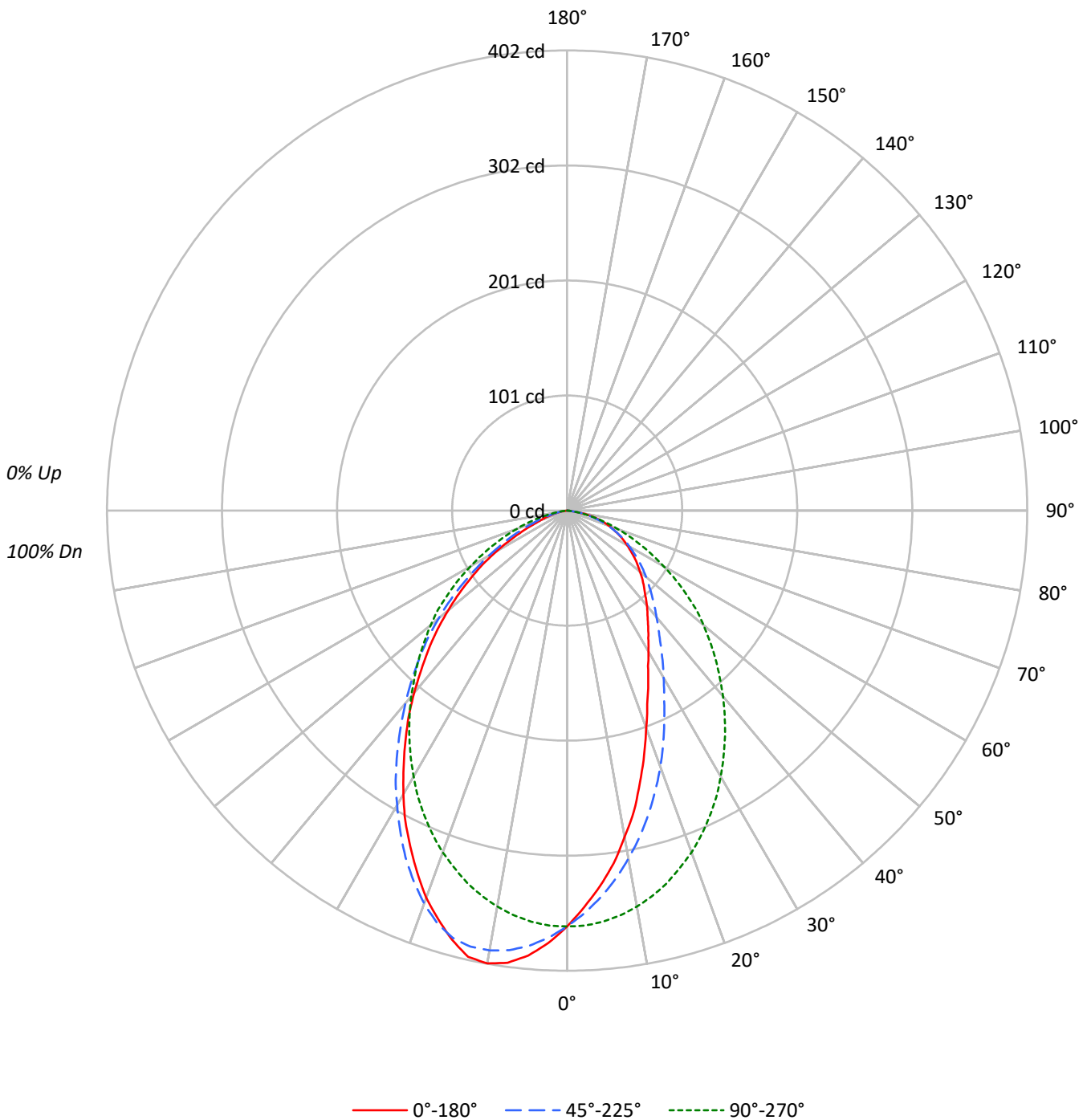
Input Watts (W): 10.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	31778	31778	31778
5°	28914	31653	34261
10°	25704	31202	35679
15°	22249	30508	35163
20°	18812	29572	33510
25°	16166	28442	31270
30°	14352	27099	28896
35°	13177	25681	26289
40°	12389	24173	23727
45°	11752	22687	21140
50°	11294	21160	18425
55°	10980	19322	15585
60°	10584	17039	12508
65°	10328	14695	9045
70°	9948	12020	6266
75°	9260	9091	4393
80°	6296	4836	2166
85°	502	1907	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	34.0	5.1
10°-20°	92.0	13.8
20°-30°	123.9	18.6
30°-40°	129.8	19.5
40°-50°	116.4	17.5
50°-60°	89.1	13.4
60°-70°	54.3	8.2
70°-80°	23.1	3.5
80°-90°	2.6	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°	250.0	37.6
0°-40°	379.8	57.1
0°-60°	585.3	88.0
0°-90°	665.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	665.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	363	363	363	363	363	
5°	329	339	360	382	390	30
15°	246	274	337	386	388	68
25°	168	201	295	334	324	77
35°	123	142	240	259	246	77
45°	95	105	183	182	171	74
55°	72	76	127	111	102	64
65°	50	50	71	53	44	49
75°	27	24	27	16	13	28
85°	0	1	2	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P345469

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3
2.5°	346.5	347.0	348.0	347.5	348.5	348.5	348.5	349.4	350.4	350.9	351.8
5°	329.3	329.7	330.2	331.2	331.7	331.2	332.6	334.1	335.5	337.4	338.9
7.5°	311.0	311.0	310.5	312.0	313.9	314.4	315.3	316.8	318.7	321.6	324.5
10°	289.4	289.9	290.9	291.3	294.2	294.7	296.1	298.1	301.4	304.8	308.6
12.5°	269.3	268.8	269.3	270.7	272.6	275.0	276.5	278.9	283.2	287.5	292.3
15°	245.7	246.2	247.7	249.1	252.0	253.4	255.8	260.1	264.5	268.8	274.5
17.5°	223.7	223.2	225.1	227.5	229.9	232.3	234.2	238.1	243.8	250.1	256.3
20°	202.1	201.6	203.0	204.9	208.8	210.2	212.6	218.4	223.7	230.4	238.1
22.5°	182.9	182.9	184.3	186.7	189.1	190.6	193.0	197.8	204.0	211.7	219.3
25°	167.5	167.5	168.5	169.9	172.8	174.2	176.6	180.0	185.8	193.0	200.6
27.5°	153.1	154.1	154.6	156.0	158.4	159.8	161.3	165.1	169.9	176.2	183.4
30°	142.1	142.6	143.0	144.0	145.9	146.9	148.8	152.2	156.5	161.8	168.5
32.5°	132.0	132.5	132.5	133.9	135.4	136.8	137.8	140.6	143.5	148.8	155.0
35°	123.4	123.4	124.3	124.8	125.8	126.7	127.7	130.1	133.4	137.3	142.1
37.5°	115.2	115.2	115.7	116.6	117.6	118.6	119.0	121.0	123.8	127.2	131.0
40°	108.5	108.5	108.5	109.4	110.4	110.9	111.4	113.3	115.7	118.1	121.4
42.5°	101.3	101.8	102.2	102.7	103.2	104.2	104.6	105.6	107.5	109.4	112.8
45°	95.0	95.5	95.5	96.0	97.0	97.0	97.4	98.9	100.3	102.2	104.6
47.5°	89.3	89.3	89.3	89.8	90.2	90.7	91.2	92.2	93.6	94.6	97.0
50°	83.0	83.0	83.5	84.0	84.5	84.5	85.0	85.4	86.9	87.8	89.8
52.5°	77.3	77.3	77.8	77.8	78.2	78.2	78.7	79.7	80.2	81.6	83.0
55°	72.0	71.5	72.0	72.0	72.0	72.5	72.5	73.4	74.4	74.9	76.3
57.5°	65.8	66.2	66.2	66.7	66.7	66.7	67.2	67.2	68.2	68.6	69.1
60°	60.5	61.0	61.0	61.0	61.0	61.0	61.4	61.4	61.9	62.4	62.9
62.5°	55.2	55.2	55.2	55.2	55.2	55.7	55.7	55.7	55.7	56.2	56.6
65°	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	50.4
67.5°	44.2	44.2	44.2	44.6	44.2	44.2	44.2	44.2	44.2	44.2	43.7
70°	38.9	38.9	38.9	38.9	38.9	38.4	38.4	37.9	37.9	37.4	37.4
72.5°	33.1	33.1	33.1	32.6	32.6	32.6	32.2	31.7	31.2	31.2	31.2
75°	27.4	27.4	26.9	26.9	26.4	26.4	25.9	25.4	25.0	24.5	24.5
77.5°	20.6	20.6	20.6	20.6	20.2	19.7	19.7	19.2	18.7	18.7	18.2
80°	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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°	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3
2.5°	352.8	353.7	355.2	356.1	356.6	357.1	358.5	360.0	361.4	362.9	363.8
5°	341.3	343.2	345.1	347.5	348.5	349.9	352.8	355.2	357.6	360.5	362.9
7.5°	327.3	330.7	334.1	337.9	339.3	340.8	344.6	348.9	352.3	356.6	360.5
10°	312.9	316.8	321.1	326.4	328.8	331.2	336.0	341.3	346.1	351.3	356.1
12.5°	296.6	302.9	308.6	314.4	316.8	319.7	325.9	332.1	338.4	344.6	350.4
15°	280.3	286.5	293.7	300.5	303.8	307.7	314.9	322.5	329.7	336.9	343.7
17.5°	264.0	270.2	277.9	286.5	290.9	294.7	302.4	311.0	319.7	327.3	336.0
20°	245.7	253.9	263.0	272.1	276.5	281.3	290.4	299.5	309.1	317.7	326.9
22.5°	228.0	236.6	247.7	256.8	261.6	266.4	276.9	287.5	297.1	306.7	315.8
25°	210.2	220.3	230.9	241.9	247.2	252.5	263.5	273.6	284.6	294.7	305.3
27.5°	193.0	203.5	214.5	226.1	231.8	237.6	248.6	260.1	271.2	282.2	292.8
30°	176.6	186.7	198.7	210.7	216.5	222.7	234.2	246.2	257.3	268.3	279.8
32.5°	162.2	170.9	182.9	194.9	201.1	207.3	219.8	231.8	242.9	254.4	266.4
35°	148.8	157.0	167.5	180.0	186.2	192.5	204.9	217.4	229.4	240.5	252.0
37.5°	137.3	144.5	153.6	164.6	171.8	178.1	190.6	203.0	214.5	226.1	237.1
40°	126.2	132.5	141.1	151.7	157.4	163.7	176.2	189.1	200.6	211.7	222.7
42.5°	116.6	121.9	129.1	138.2	144.5	149.8	162.7	175.2	186.2	197.3	208.3
45°	108.0	112.3	118.1	125.8	131.0	137.8	149.8	161.3	172.3	183.4	193.9
47.5°	99.4	103.2	108.0	115.2	119.5	124.8	136.8	147.8	158.9	169.0	179.0
50°	92.2	95.0	98.9	104.6	109.0	112.8	123.8	135.4	145.4	155.5	164.6
52.5°	85.0	86.9	90.2	95.5	98.4	102.2	111.8	122.4	132.5	142.1	150.2
55°	77.8	79.7	82.1	85.9	88.8	91.7	99.8	109.9	119.0	126.7	134.9
57.5°	70.6	72.0	73.9	77.3	79.2	81.6	88.3	96.5	104.6	112.3	118.6
60°	64.3	65.3	66.7	68.6	70.1	71.5	76.3	84.0	91.7	97.4	103.2
62.5°	57.1	57.6	58.6	60.5	61.4	62.4	65.8	72.5	78.7	84.0	88.8
65°	50.4	50.9	51.4	52.3	53.3	53.8	56.6	61.4	66.7	71.0	74.4
67.5°	43.7	44.2	44.2	45.1	45.1	46.1	47.5	50.4	55.2	58.6	61.4
70°	37.0	37.4	37.4	37.9	37.4	37.9	39.4	41.3	44.2	47.0	49.0
72.5°	30.7	30.2	30.2	30.2	30.2	30.7	31.2	32.2	34.6	37.0	37.4
75°	24.0	24.0	23.5	23.5	23.5	23.5	23.5	24.0	25.4	26.9	27.4
77.5°	17.8	17.3	17.3	16.8	16.8	16.8	16.3	16.3	16.8	17.8	17.8
80°	11.5	11.0	10.6	11.0	10.1	10.6	10.1	9.6	9.6	9.6	9.1
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.3	4.3	4.3
85°	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.4
87.5°	1.0	1.0	1.0	1.4	1.4	1.4	1.4	1.4	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3
2.5°	365.3	366.7	368.1	368.6	369.1	370.5	371.5	372.9	373.4	374.4	375.3
5°	365.3	368.1	370.5	372.0	372.9	375.3	377.7	379.2	381.6	383.0	384.5
7.5°	364.3	368.1	371.5	373.4	375.3	378.2	381.6	384.5	387.3	389.3	391.7
10°	361.4	366.2	370.5	372.9	375.3	379.7	383.5	386.9	390.2	393.1	395.5
12.5°	357.1	362.9	368.1	371.0	373.4	378.7	383.0	386.9	390.2	392.6	394.5
15°	350.9	358.1	364.3	367.2	370.1	375.8	380.1	383.5	386.4	387.8	389.3
17.5°	343.7	351.3	358.5	361.9	364.8	370.1	373.9	376.3	377.7	378.7	378.2
20°	335.5	343.7	350.9	354.2	357.6	361.9	364.8	365.7	365.3	364.8	363.8
22.5°	325.4	334.1	341.7	344.6	347.5	350.9	351.8	351.3	350.4	349.4	348.0
25°	314.9	323.5	330.7	333.1	335.5	336.9	336.5	335.5	334.1	332.6	330.2
27.5°	302.9	312.0	317.7	320.6	321.1	321.1	319.7	318.2	315.8	313.9	311.5
30°	290.4	298.1	303.8	304.8	305.3	304.3	302.9	300.5	297.1	295.7	293.3
32.5°	276.0	284.1	288.5	288.5	287.5	286.1	283.2	280.8	278.9	275.5	273.1
35°	262.5	268.8	271.2	271.2	269.7	267.3	264.9	261.6	258.7	256.8	253.4
37.5°	247.2	253.4	254.4	252.9	252.0	249.1	245.3	242.4	239.0	236.6	234.2
40°	232.8	237.1	236.1	234.7	233.7	230.9	226.5	223.2	219.8	216.9	214.5
42.5°	216.5	219.3	217.9	216.9	215.0	211.7	207.8	204.5	201.1	198.2	195.8
45°	201.6	203.0	200.6	198.7	197.3	193.4	190.6	185.8	182.4	179.5	177.6
47.5°	185.8	185.8	183.4	181.4	179.0	175.2	171.8	167.0	165.1	161.3	159.4
50°	170.4	169.0	166.1	163.7	161.8	157.4	153.1	149.8	146.4	143.5	141.6
52.5°	154.1	152.2	148.3	145.9	145.0	139.7	135.8	131.5	128.6	125.3	123.4
55°	137.8	134.9	130.6	128.6	126.7	122.4	118.1	113.8	110.9	108.5	106.6
57.5°	121.0	117.6	113.8	111.4	109.0	104.6	100.3	96.5	94.1	91.7	90.2
60°	103.7	101.3	97.4	95.0	92.6	88.8	84.0	81.1	79.2	76.3	75.8
62.5°	88.8	85.4	81.1	79.2	77.3	73.4	69.6	67.2	64.8	63.4	61.4
65°	73.9	70.6	66.7	64.8	63.4	60.0	57.1	54.7	52.8	50.9	49.4
67.5°	59.5	57.1	53.8	52.3	50.4	47.5	45.1	43.2	41.3	39.4	37.9
70°	47.5	44.6	41.8	40.8	39.8	37.0	35.0	33.1	31.2	29.8	28.3
72.5°	36.5	34.1	31.7	30.2	29.3	27.8	26.4	24.5	23.0	21.6	20.6
75°	25.9	24.5	22.6	21.6	20.6	19.7	17.8	16.8	16.3	15.4	14.4
77.5°	16.8	15.4	14.4	13.4	13.4	12.5	11.5	11.0	10.1	10.1	9.6
80°	8.6	8.2	7.7	7.7	7.7	6.7	6.2	6.2	5.8	5.3	5.3
82.5°	3.8	3.8	3.4	3.4	3.4	2.9	2.9	2.4	2.4	1.9	1.9
85°	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	0.5	0.5	0.5
87.5°	1.4	1.4	1.4	1.4	1.4	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



TEST NUMBER: P345469

CATALOG NUMBER: PR4FS12D010 PR4M12WW9FSBZ 1000lm3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	363.3	363.3	363.3	363.3	363.3	363.3	363.3	363.3
2.5°	375.8	376.8	376.8	377.3	377.7	378.2	377.7	378.2
5°	385.9	387.3	387.8	387.8	388.8	389.3	390.2	390.2
7.5°	393.6	395.0	396.0	396.5	397.4	398.4	398.4	398.4
10°	397.4	398.9	399.3	400.3	400.8	401.3	401.7	401.7
12.5°	396.0	397.4	397.9	397.9	398.9	398.9	398.9	399.3
15°	389.7	389.3	389.3	389.3	388.8	388.8	388.8	388.3
17.5°	377.3	376.8	376.8	376.8	376.3	375.8	375.3	374.4
20°	363.3	362.4	361.4	361.9	360.9	360.5	360.0	360.0
22.5°	347.0	345.6	345.1	344.6	343.7	343.2	342.2	342.2
25°	329.3	328.3	326.9	326.4	325.9	324.9	324.0	324.0
27.5°	310.5	309.1	308.6	307.7	307.2	306.2	305.7	306.2
30°	291.3	289.9	289.4	288.5	286.5	287.5	286.5	286.1
32.5°	271.2	269.7	268.8	267.8	267.8	266.4	266.4	265.9
35°	251.5	250.1	249.1	248.6	247.7	247.7	246.7	246.2
37.5°	232.3	230.9	229.9	229.4	228.5	227.5	227.0	227.5
40°	212.6	211.2	210.2	209.7	208.8	207.8	207.8	207.8
42.5°	193.4	192.0	192.0	191.0	189.6	189.1	188.6	188.6
45°	175.7	173.8	173.3	172.3	172.3	171.4	170.9	170.9
47.5°	157.0	155.5	155.0	154.6	154.1	153.6	153.6	153.6
50°	139.7	137.8	137.8	136.8	136.3	136.8	135.8	135.4
52.5°	122.4	121.0	120.5	120.5	119.5	119.5	119.5	119.0
55°	105.1	104.2	104.2	103.7	102.7	103.2	103.2	102.2
57.5°	89.3	87.8	87.8	87.4	87.4	87.4	86.4	87.4
60°	74.4	73.4	73.0	72.5	72.0	72.0	72.0	71.5
62.5°	60.5	59.5	59.0	58.6	57.6	57.6	56.6	56.2
65°	48.0	47.0	46.1	45.6	44.6	44.2	44.2	43.7
67.5°	36.5	35.5	34.6	34.1	33.1	32.6	32.2	32.2
70°	27.4	25.9	25.9	25.4	25.0	25.0	24.5	24.5
72.5°	19.7	19.7	19.2	19.2	18.7	18.7	18.7	18.7
75°	13.9	13.9	13.9	13.9	13.4	13.4	13.0	13.0
77.5°	9.1	9.1	9.1	8.6	8.6	8.6	8.6	8.6
80°	4.8	4.8	4.8	4.8	4.8	4.3	4.8	4.3
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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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