

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P256769

Luminaire Tested: **HLB4069FS1EMW-5000K**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P256769
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A1806645A001)
Test Lab: EVERFINE
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HLB4069FS1EMW-5000K
Description: 4 IN HALO BLADE (600 LUMEN) - 5000K
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 751.9 lumens
Efficiency: N/A
Efficacy: 62.7 lumens/watt
Spacing Criteria (0/90/45): 1.31 / 1.31 / 1.39
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

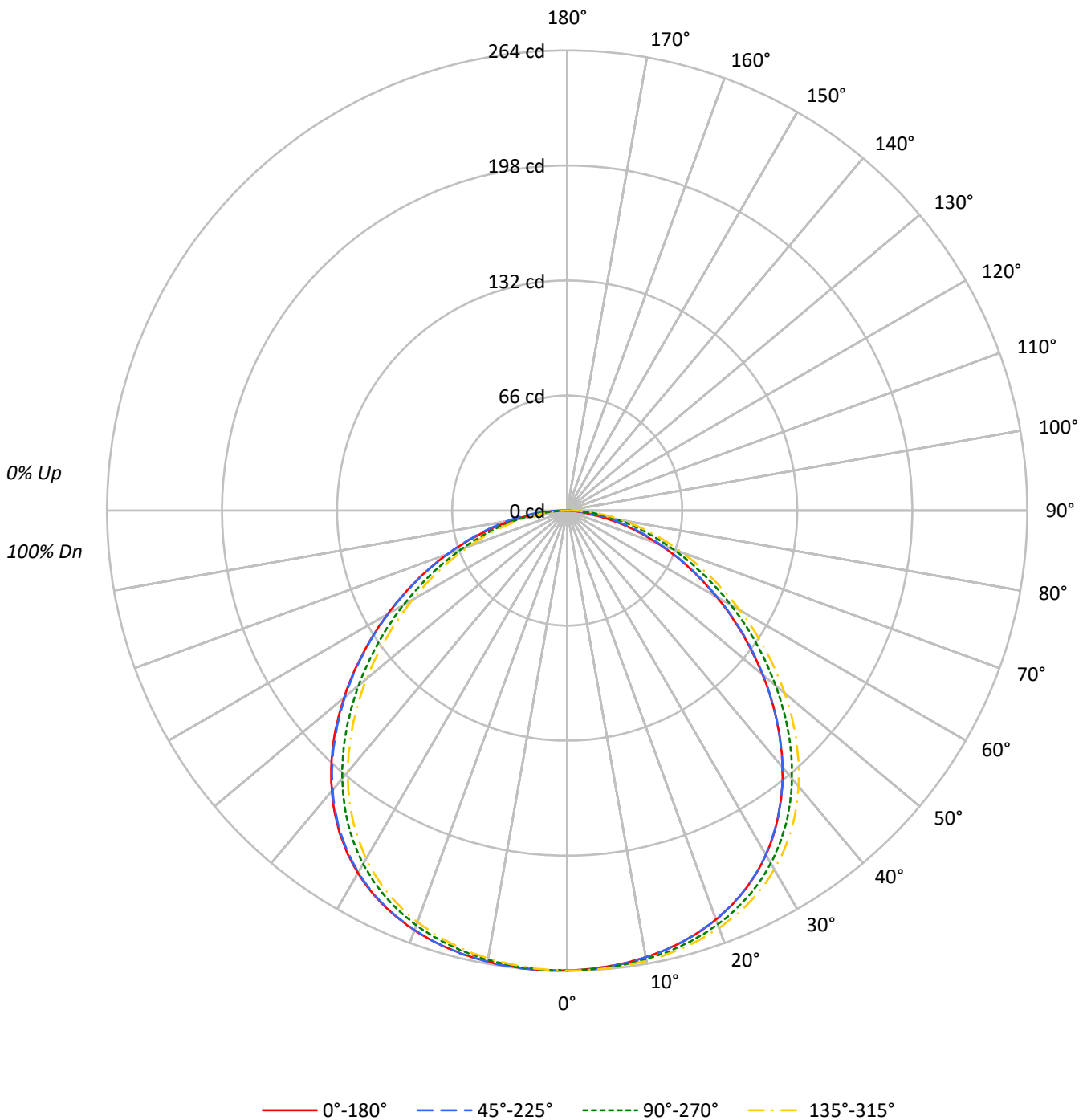
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	73	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	59
4	83	71	62	56	81	70	62	55	67	60	55	65	59	54	63	57	53	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	70	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30
9	57	43	35	30	55	43	35	30	42	35	29	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	32421	32421	32421	32421
5°	32385	32471	32533	32483
10°	32447	32622	32771	32647
15°	32560	32802	33107	32865
20°	32632	33024	33495	33090
25°	32601	33170	33834	33251
30°	32344	33138	34046	33209
35°	31750	32845	34060	32875
40°	30824	32171	33679	32187
45°	29553	31152	32976	31169
50°	27981	29835	31937	29835
55°	26217	28316	30629	28337
60°	24350	26659	29215	26684
65°	22355	24942	27791	24884
70°	20079	23240	26186	23132
75°	17136	21645	24351	21597
80°	12876	20305	22427	20022
85°	7612	18325	19875	18184



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.1	3.3
10°-20°	73.0	9.7
20°-30°	112.9	15.0
30°-40°	136.9	18.2
40°-50°	138.4	18.4
50°-60°	118.5	15.8
60°-70°	85.4	11.4
70°-80°	47.9	6.4
80°-90°	13.8	1.8
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°	210.9	28.1
0°-40°	347.9	46.3
0°-60°	604.8	80.4
0°-90°	751.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	751.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	264	264	264	264	264	
5°	263	263	264	263	263	25
15°	256	258	260	258	256	72
25°	240	245	250	245	240	111
35°	212	219	227	219	212	132
45°	170	179	190	179	170	131
55°	122	132	143	132	122	109
65°	77	86	96	86	77	76
75°	36	46	51	46	36	38
85°	5	13	14	13	5	7
90°	0	0	3	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	263.9	263.9	263.9	263.9	263.9	263.9	263.9	263.9	263.9	263.9	263.9
0.5°	263.8	263.7	263.9	263.9	263.8	263.7	263.9	263.9	263.9	264.0	264.1
1°	263.7	263.6	263.8	263.8	263.7	263.7	263.9	263.9	264.0	264.0	264.1
1.5°	263.6	263.5	263.7	263.7	263.7	263.7	263.9	263.9	264.0	264.0	264.1
2°	263.5	263.5	263.6	263.6	263.6	263.7	263.9	264.0	264.0	264.1	264.1
2.5°	263.4	263.4	263.5	263.5	263.6	263.7	263.8	263.9	264.0	264.1	264.1
3°	263.4	263.3	263.5	263.5	263.5	263.7	263.8	263.9	264.0	264.1	264.1
3.5°	263.1	263.3	263.4	263.4	263.5	263.6	263.7	263.9	264.0	264.1	264.1
4°	262.9	263.0	263.1	263.3	263.4	263.5	263.7	263.8	263.9	264.1	264.1
4.5°	262.8	262.7	262.9	263.2	263.3	263.5	263.6	263.8	263.9	264.0	264.0
5°	262.6	262.6	262.7	262.9	263.3	263.4	263.6	263.7	263.8	264.0	264.0
5.5°	262.4	262.4	262.6	262.7	263.1	263.4	263.5	263.7	263.7	263.9	264.0
6°	262.3	262.2	262.3	262.5	262.9	263.2	263.4	263.6	263.7	263.9	263.9
6.5°	262.0	261.9	262.1	262.3	262.7	263.0	263.3	263.5	263.6	263.8	263.8
7°	261.8	261.7	261.9	262.1	262.6	262.8	263.3	263.4	263.5	263.7	263.6
7.5°	261.7	261.5	261.7	261.9	262.4	262.6	263.2	263.4	263.5	263.6	263.5
8°	261.4	261.5	261.7	261.7	262.2	262.4	262.9	263.4	263.4	263.5	263.4
8.5°	261.0	260.9	261.1	261.5	262.0	262.3	262.7	263.0	263.3	263.4	263.3
9°	260.7	260.7	260.8	261.3	261.7	262.1	262.5	262.9	263.3	263.4	263.3
9.5°	260.5	260.4	260.5	260.9	261.6	261.9	262.4	262.7	262.9	263.1	263.0
10°	260.1	260.1	260.2	260.5	261.5	261.7	262.2	262.5	262.7	262.9	262.8
10.5°	259.9	259.8	259.9	260.3	261.0	261.7	262.0	262.3	262.6	262.7	262.6
11°	259.5	259.6	259.6	259.9	260.7	261.2	261.7	262.1	262.3	262.5	262.4
11.5°	259.1	259.0	259.1	259.7	260.4	260.9	261.5	261.9	262.2	262.3	262.2
12°	258.8	258.7	258.8	259.2	260.1	260.6	261.5	261.7	262.0	262.1	262.0
12.5°	258.3	258.2	258.3	258.8	259.8	260.3	261.0	261.6	261.7	261.9	261.7
13°	257.9	257.8	257.9	258.4	259.6	260.0	260.7	261.1	261.5	261.7	261.6
13.5°	257.4	257.4	257.4	258.0	259.0	259.9	260.4	260.9	261.4	261.6	261.5
14°	257.1	257.0	257.1	257.6	258.7	259.3	260.1	260.5	260.9	261.1	260.9
14.5°	256.5	256.4	256.5	257.1	258.3	258.9	259.8	260.2	260.6	260.7	260.7
15°	256.0	256.0	256.0	256.7	257.9	258.5	259.6	259.9	260.3	260.4	260.3
15.5°	255.4	255.4	255.4	256.1	257.5	258.1	259.0	259.7	260.0	260.1	259.9
16°	254.9	254.9	254.9	255.5	257.1	257.7	258.7	259.2	259.7	259.9	259.7
16.5°	254.4	254.3	254.4	255.1	256.5	257.3	258.2	258.8	259.3	259.3	259.3
17°	253.7	253.7	253.7	254.4	256.1	256.8	257.8	258.4	258.9	258.9	258.9
17.5°	253.1	253.1	253.0	253.9	255.5	256.3	257.3	257.9	258.5	258.5	258.5
18°	252.5	252.5	252.4	253.2	255.1	255.7	257.0	257.5	258.1	258.0	258.1
18.5°	251.8	251.8	251.7	252.6	254.4	255.2	256.3	257.1	257.6	257.6	257.6
19°	251.1	251.1	251.1	251.9	253.8	254.6	255.8	256.5	257.2	257.1	257.1
19.5°	250.4	250.4	250.4	251.3	253.2	254.1	255.3	256.0	256.7	256.6	256.5
20°	249.6	249.6	249.6	250.6	252.6	253.4	254.8	255.5	256.2	256.2	256.1
20.5°	249.1	248.9	249.0	249.8	251.9	252.8	254.3	254.9	255.6	255.6	255.4
21°	248.0	248.0	247.9	249.0	251.3	252.2	253.6	254.4	255.1	255.0	255.0
21.5°	247.2	247.2	247.3	248.2	250.6	251.5	252.9	253.7	254.5	254.4	254.3
22°	246.3	246.3	246.2	247.4	249.8	250.9	252.3	253.0	253.8	253.7	253.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	245.5	245.4	245.5	246.5	249.0	250.0	251.6	252.4	253.2	253.1	253.0
23°	244.5	244.5	244.4	245.6	248.2	249.3	250.9	251.7	252.5	252.5	252.4
23.5°	243.5	243.5	243.4	244.6	247.3	248.5	250.1	251.0	251.8	251.7	251.6
24°	242.7	242.6	242.6	243.7	246.5	247.6	249.4	250.3	251.1	251.0	250.9
24.5°	241.6	241.6	241.5	242.8	245.6	246.9	248.7	249.4	250.5	250.2	250.1
25°	240.5	240.5	240.4	241.8	244.7	245.9	247.7	248.7	249.6	249.4	249.3
25.5°	239.4	239.4	239.3	240.7	243.8	245.0	247.0	247.8	248.9	248.7	248.5
26°	238.3	238.3	238.2	239.7	242.8	244.0	246.0	247.1	248.0	247.7	247.7
26.5°	237.1	237.1	237.0	238.5	241.8	243.0	245.2	246.1	247.1	247.0	246.9
27°	236.0	236.0	235.8	237.3	240.7	242.1	244.2	245.2	246.2	246.0	245.8
27.5°	234.8	234.7	234.7	236.2	239.7	241.0	243.2	244.2	245.3	245.2	244.9
28°	233.5	233.4	233.3	234.9	238.5	240.1	242.2	243.1	244.3	244.1	243.9
28.5°	232.2	232.2	232.0	233.6	237.3	238.8	241.1	242.1	243.3	243.0	242.9
29°	230.9	230.9	230.7	232.4	236.2	237.7	240.0	241.0	242.3	242.0	241.8
29.5°	229.5	229.4	229.4	231.0	234.9	236.6	238.8	240.1	241.1	240.9	240.7
30°	228.0	228.0	227.9	229.6	233.6	235.3	237.6	238.8	240.0	239.9	239.7
30.5°	226.6	226.5	226.4	228.1	232.4	234.0	236.4	237.7	238.9	238.7	238.4
31°	225.1	225.2	224.9	226.8	231.0	232.8	235.2	236.6	237.8	237.5	237.2
31.5°	223.6	223.6	223.4	225.3	229.6	231.4	233.9	235.2	236.5	236.4	236.1
32°	222.0	222.0	221.9	223.7	228.1	230.0	232.7	233.9	235.2	235.0	234.7
32.5°	220.4	220.4	220.2	222.1	226.8	228.5	231.3	232.6	234.1	233.7	233.4
33°	218.7	218.8	218.6	220.6	225.3	227.1	229.9	231.2	232.7	232.3	232.0
33.5°	217.0	217.1	216.9	218.9	223.7	225.7	228.4	229.7	231.2	231.0	230.7
34°	215.3	215.4	215.2	217.2	222.1	224.1	227.1	228.3	229.8	229.5	229.2
34.5°	213.6	213.7	213.5	215.5	220.6	222.6	225.5	226.8	228.4	228.1	227.7
35°	211.7	211.9	211.6	213.8	219.0	220.9	223.9	225.4	227.1	226.5	226.3
35.5°	209.9	210.1	209.8	212.1	217.3	219.3	222.3	223.9	225.4	225.0	224.8
36°	208.1	208.3	208.0	210.3	215.5	217.6	220.7	222.2	223.8	223.5	223.3
36.5°	206.2	206.4	206.2	208.4	213.8	215.9	219.1	220.6	222.2	221.9	221.6
37°	204.3	204.5	204.3	206.5	212.0	214.2	217.4	218.9	220.6	220.3	219.9
37.5°	202.4	202.5	202.4	204.6	210.2	212.4	215.7	217.2	218.9	218.6	218.2
38°	200.5	200.6	200.5	202.7	208.3	210.6	213.9	215.4	217.3	216.9	216.5
38.5°	198.5	198.6	198.5	200.7	206.5	208.7	212.1	213.7	215.5	215.1	214.8
39°	196.4	196.5	196.3	198.7	204.6	206.9	210.3	211.8	213.8	213.3	213.0
39.5°	194.2	194.6	194.2	196.7	202.7	204.9	208.4	209.9	211.9	211.5	211.2
40°	192.2	192.4	192.2	194.6	200.6	203.0	206.5	208.1	210.0	209.6	209.3
40.5°	190.0	190.2	190.0	192.5	198.6	201.0	204.6	206.2	208.1	207.8	207.4
41°	188.0	188.1	188.0	190.3	196.6	199.0	202.6	204.3	206.3	205.8	205.5
41.5°	185.8	185.9	185.8	188.2	194.6	197.0	200.6	202.4	204.3	203.9	203.6
42°	183.5	183.8	183.6	186.1	192.5	195.0	198.6	200.3	202.3	201.9	201.6
42.5°	181.3	181.6	181.3	183.9	190.3	192.8	196.6	198.2	200.3	199.9	199.6
43°	179.0	179.3	179.1	181.8	188.2	190.6	194.5	196.1	198.3	197.8	197.5
43.5°	176.8	177.1	176.8	179.4	186.0	188.4	192.3	194.0	196.3	195.7	195.4
44°	174.5	174.8	174.6	177.2	183.9	186.3	190.1	191.8	194.1	193.6	193.3
44.5°	172.2	172.6	172.3	174.9	181.6	184.3	188.0	189.8	192.0	191.5	191.2



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	170.1	170.2	170.2	172.7	179.3	182.0	185.8	187.7	189.8	189.4	189.0
45.5°	167.7	167.9	167.8	170.3	177.1	179.8	183.8	185.4	187.7	187.2	186.8
46°	165.3	165.7	165.4	168.0	174.8	177.5	181.4	183.2	185.5	185.0	184.6
46.5°	163.0	163.3	163.1	165.7	172.6	175.2	179.2	181.0	183.3	182.8	182.4
47°	160.6	160.9	160.8	163.3	170.2	172.9	176.9	178.7	180.9	180.5	180.2
47.5°	158.3	158.6	158.5	160.9	167.8	170.6	174.6	176.4	178.7	178.2	177.9
48°	156.0	156.1	156.0	158.6	165.6	168.4	172.2	174.0	176.4	175.9	175.6
48.5°	153.7	153.8	153.8	156.1	163.2	166.0	169.9	171.9	174.0	173.7	173.2
49°	151.2	151.4	151.4	153.8	160.8	163.6	167.6	169.6	171.7	171.4	171.0
49.5°	148.8	149.0	149.1	151.4	158.5	161.2	165.2	167.1	169.4	169.0	168.7
50°	146.4	146.5	146.7	149.0	156.1	158.9	162.8	164.8	167.1	166.6	166.3
50.5°	144.0	144.2	144.4	146.6	153.7	156.4	160.4	162.4	164.7	164.2	164.0
51°	141.5	141.7	141.9	144.2	151.3	154.1	158.1	160.0	162.4	161.8	161.6
51.5°	139.2	139.3	139.6	141.7	148.9	151.8	155.6	157.6	160.0	159.4	159.2
52°	136.7	136.9	137.3	139.3	146.6	149.3	153.2	155.4	157.6	157.1	156.9
52.5°	134.3	134.5	134.9	137.0	144.2	146.9	150.8	152.9	155.2	154.6	154.6
53°	131.9	132.1	132.5	134.6	141.8	144.7	148.3	150.5	152.9	152.2	152.1
53.5°	129.6	129.8	130.2	132.1	139.4	142.2	146.0	148.2	150.4	149.8	149.8
54°	127.1	127.2	127.7	129.8	137.0	139.7	143.5	145.8	147.9	147.4	147.4
54.5°	124.9	124.8	125.4	127.4	134.6	137.4	141.0	143.3	145.5	145.0	145.0
55°	122.4	122.5	123.1	124.9	132.2	135.0	138.7	141.1	143.0	142.5	142.6
55.5°	120.0	120.1	120.7	122.6	129.9	132.6	136.1	138.5	140.6	140.1	140.2
56°	117.7	117.7	118.3	120.2	127.4	130.4	133.7	136.2	138.2	137.7	137.7
56.5°	115.4	115.5	116.0	117.8	125.0	127.9	131.3	133.7	135.8	135.2	135.4
57°	113.0	113.1	113.7	115.5	122.7	125.4	128.9	131.3	133.4	132.7	133.0
57.5°	110.7	110.7	111.2	113.3	120.3	123.1	126.5	128.9	131.0	130.4	130.6
58°	108.3	108.3	108.9	110.9	117.9	120.7	124.1	126.6	128.5	127.9	128.1
58.5°	106.0	106.0	106.5	108.5	115.5	118.3	121.6	124.1	126.2	125.5	125.8
59°	103.7	103.7	104.3	106.2	113.3	116.1	119.2	121.7	123.7	123.2	123.3
59.5°	101.4	101.4	101.9	103.9	110.8	113.7	116.8	119.4	121.2	120.8	120.9
60°	99.1	99.2	99.7	101.7	108.5	111.2	114.4	117.0	118.9	118.3	118.6
60.5°	96.7	97.1	97.3	99.3	106.3	108.9	112.1	114.6	116.6	116.1	116.3
61°	94.5	94.7	95.0	97.2	104.0	106.5	109.8	112.3	114.2	113.6	113.9
61.5°	92.2	92.5	92.7	94.9	101.7	104.2	107.4	109.8	111.9	111.2	111.6
62°	90.0	90.3	90.5	92.6	99.3	101.9	105.1	107.5	109.5	108.9	109.1
62.5°	87.8	88.1	88.4	90.4	97.1	99.7	102.9	105.3	107.1	106.6	106.8
63°	85.5	85.8	86.2	88.3	94.7	97.4	100.6	102.9	104.8	104.4	104.5
63.5°	83.5	83.7	83.8	86.1	92.5	95.0	98.3	100.5	102.5	102.0	102.1
64°	81.2	81.5	81.8	83.9	90.3	92.7	96.0	98.2	100.2	99.8	99.8
64.5°	79.0	79.5	79.6	81.7	88.1	90.5	93.8	95.9	97.9	97.4	97.5
65°	76.9	77.4	77.4	79.5	85.8	88.3	91.6	93.6	95.6	95.1	95.2
65.5°	74.7	75.2	75.2	77.5	83.5	86.0	89.4	91.3	93.3	92.8	92.9
66°	72.7	73.1	73.0	75.3	81.4	83.8	87.2	89.1	91.1	90.7	90.6
66.5°	70.6	70.9	70.9	73.2	79.3	81.7	84.9	87.0	88.7	88.4	88.4
67°	68.4	68.9	69.1	71.1	77.1	79.5	82.9	84.7	86.6	86.2	86.2



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	66.2	66.9	66.9	69.1	75.0	77.3	80.6	82.4	84.3	83.9	84.0
68°	64.1	65.0	64.8	67.0	72.9	75.2	78.5	80.1	82.0	81.8	81.7
68.5°	62.0	62.9	62.8	65.1	70.7	73.0	76.4	77.9	79.7	79.6	79.6
69°	60.0	60.8	60.8	63.1	68.8	70.9	74.2	75.7	77.5	77.4	77.4
69.5°	58.0	58.9	58.8	61.0	66.8	68.9	72.3	73.6	75.1	75.4	75.2
70°	55.9	57.0	56.8	59.0	64.7	66.8	70.2	71.3	72.9	73.2	73.1
70.5°	53.8	55.0	54.9	57.1	62.6	64.7	68.0	69.2	70.6	71.1	70.9
71°	51.7	53.1	52.9	55.3	60.6	62.8	66.0	67.1	68.6	69.2	68.9
71.5°	49.7	51.2	51.2	53.3	58.8	60.7	64.0	64.8	66.2	66.9	66.9
72°	47.7	49.3	49.4	51.4	56.7	58.7	61.9	62.7	64.0	64.7	64.9
72.5°	45.8	47.4	47.5	49.5	54.8	56.7	60.0	60.4	61.8	62.6	62.7
73°	43.9	45.5	45.8	47.7	52.9	54.9	58.0	58.4	59.7	60.4	60.7
73.5°	41.9	43.6	44.0	45.9	51.1	53.0	56.1	56.3	57.6	58.4	58.8
74°	40.0	41.7	42.1	44.1	49.1	51.1	54.3	54.2	55.5	56.3	56.7
74.5°	38.1	39.9	40.4	42.3	47.4	49.3	52.4	52.1	53.3	54.1	54.8
75°	36.1	38.2	38.6	40.5	45.6	47.4	50.5	49.9	51.3	52.0	52.9
75.5°	34.3	36.3	36.8	38.8	43.8	45.6	48.6	47.9	49.2	49.9	51.0
76°	32.4	34.4	35.2	37.1	41.9	43.8	46.7	45.9	47.2	47.9	49.1
76.5°	30.6	32.6	33.5	35.3	40.2	42.0	44.8	44.0	45.3	45.9	47.3
77°	28.8	30.9	31.9	33.6	38.5	40.3	43.1	41.9	43.4	44.0	45.5
77.5°	27.0	29.1	30.5	32.0	36.8	38.6	41.2	40.1	41.3	41.9	43.6
78°	25.2	27.2	28.8	30.4	35.0	36.8	39.5	38.1	39.4	40.0	41.8
78.5°	23.5	25.6	27.1	28.9	33.6	35.0	37.8	36.1	37.5	38.0	40.2
79°	21.6	23.9	25.6	27.1	31.8	33.4	36.1	34.3	35.5	36.1	38.4
79.5°	19.9	22.3	24.1	25.6	30.2	31.7	34.4	32.4	33.6	34.2	36.7
80°	18.2	20.7	22.4	23.9	28.7	30.3	32.7	30.5	31.7	32.3	35.0
80.5°	16.6	19.3	20.9	22.4	27.0	28.6	30.9	28.8	29.9	30.5	33.4
81°	14.9	17.7	19.4	20.8	25.4	27.0	29.2	27.0	28.0	28.9	31.6
81.5°	13.2	16.5	17.9	19.4	23.8	25.5	27.5	25.3	26.2	27.0	30.1
82°	11.8	14.9	16.5	17.8	22.2	23.8	25.9	23.4	24.4	25.1	28.6
82.5°	10.6	13.6	15.1	16.5	20.6	22.3	24.3	21.6	22.7	23.4	26.8
83°	9.6	12.3	13.4	14.9	19.1	20.6	22.8	19.8	20.7	21.7	25.2
83.5°	8.5	10.8	12.1	13.2	17.6	19.1	21.1	18.2	19.1	20.2	23.7
84°	7.4	9.4	10.7	11.9	16.0	17.6	19.6	16.8	17.3	18.6	22.0
84.5°	6.3	8.0	9.2	10.5	14.6	16.2	18.2	15.4	15.7	17.0	20.3
85°	5.4	7.0	7.9	9.2	13.0	14.7	16.6	14.3	14.1	16.0	18.8
85.5°	4.3	5.8	6.4	7.7	11.5	13.1	15.0	12.9	12.5	14.7	17.3
86°	3.3	4.2	5.1	6.2	10.1	11.7	13.6	11.6	11.3	13.0	15.9
86.5°	2.4	3.1	3.9	5.0	8.8	10.3	12.1	10.6	10.3	11.9	14.3
87°	1.4	2.0	2.4	3.7	7.5	9.1	10.6	9.6	9.4	10.8	12.7
87.5°	0.5	0.6	1.2	2.3	5.9	7.8	9.4	8.4	8.0	9.6	11.3
88°	0.0	0.0	0.0	0.9	4.6	6.1	7.7	7.2	7.0	8.4	9.7
88.5°	0.0	0.0	0.0	0.0	3.2	5.0	6.3	6.1	6.0	7.1	8.6
89°	0.0	0.0	0.0	0.0	2.0	3.4	5.1	5.0	5.1	6.0	7.1
89.5°	0.0	0.0	0.0	0.0	0.5	2.3	3.9	4.1	4.1	5.0	5.5



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.0	0.0	0.0	0.0	0.5	2.3	2.9	3.0	4.0	3.8



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	263.9	263.9	263.9	263.9	263.9	263.9
0.5°	264.0	263.8	263.7	263.8	263.7	263.8
1°	264.0	263.8	263.7	263.8	263.6	263.7
1.5°	264.1	263.8	263.6	263.7	263.5	263.6
2°	264.1	263.8	263.6	263.7	263.5	263.5
2.5°	264.1	263.8	263.5	263.6	263.4	263.4
3°	264.1	263.7	263.5	263.5	263.3	263.4
3.5°	264.1	263.7	263.4	263.4	263.3	263.1
4°	264.1	263.6	263.4	263.4	263.0	262.9
4.5°	264.0	263.5	263.3	263.2	262.8	262.8
5°	264.0	263.4	263.3	263.0	262.7	262.6
5.5°	263.9	263.4	263.1	262.8	262.5	262.4
6°	263.8	263.3	262.8	262.7	262.3	262.3
6.5°	263.7	263.0	262.7	262.4	262.2	262.0
7°	263.6	262.8	262.5	262.3	262.0	261.8
7.5°	263.5	262.7	262.3	262.1	261.7	261.7
8°	263.4	262.5	262.1	261.9	261.6	261.4
8.5°	263.4	262.3	261.9	261.7	261.5	261.0
9°	263.0	262.2	261.7	261.6	261.0	260.7
9.5°	262.8	261.9	261.5	261.2	260.7	260.5
10°	262.7	261.7	261.5	260.9	260.4	260.1
10.5°	262.4	261.6	260.9	260.6	260.1	259.9
11°	262.3	261.2	260.7	260.2	259.8	259.5
11.5°	262.0	260.9	260.4	259.9	259.6	259.1
12°	261.8	260.6	260.1	259.8	259.0	258.8
12.5°	261.6	260.3	259.8	259.2	258.7	258.3
13°	261.3	259.9	259.6	258.9	258.3	257.9
13.5°	261.0	259.8	259.0	258.4	257.8	257.4
14°	260.6	259.2	258.7	258.0	257.5	257.1
14.5°	260.3	258.9	258.2	257.5	257.1	256.5
15°	259.9	258.4	257.8	257.1	256.5	256.0
15.5°	259.8	257.9	257.3	256.6	256.0	255.4
16°	259.2	257.5	257.1	256.1	255.4	254.9
16.5°	258.8	257.1	256.4	255.6	255.0	254.4
17°	258.3	256.5	255.9	255.0	254.4	253.7
17.5°	257.9	256.1	255.4	254.5	253.8	253.1
18°	257.4	255.5	254.9	253.8	253.2	252.5
18.5°	257.1	254.9	254.3	253.1	252.6	251.8
19°	256.4	254.5	253.6	252.6	251.8	251.1
19.5°	255.9	253.8	253.0	251.9	251.2	250.4
20°	255.3	253.1	252.4	251.1	250.6	249.6
20.5°	254.7	252.5	251.6	250.5	249.7	249.1
21°	254.1	251.7	250.9	249.7	249.0	248.0
21.5°	253.4	251.0	250.2	249.1	248.1	247.2
22°	252.8	250.3	249.4	248.0	247.3	246.3



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	252.0	249.5	248.8	247.3	246.4	245.5
23°	251.3	248.9	247.8	246.3	245.5	244.5
23.5°	250.8	247.9	247.1	245.5	244.6	243.5
24°	249.8	247.2	246.0	244.5	243.7	242.7
24.5°	249.0	246.1	245.2	243.5	242.7	241.6
25°	248.2	245.3	244.2	242.5	241.7	240.5
25.5°	247.3	244.2	243.2	241.5	240.6	239.4
26°	246.4	243.2	242.2	240.4	239.6	238.3
26.5°	245.5	242.2	241.1	239.3	238.4	237.1
27°	244.6	241.1	240.0	238.3	237.2	236.0
27.5°	243.5	240.1	238.9	237.0	236.1	234.8
28°	242.6	238.9	237.8	235.8	234.8	233.5
28.5°	241.5	237.7	236.5	234.7	233.5	232.2
29°	240.3	236.5	235.3	233.2	232.3	230.9
29.5°	239.2	235.3	234.1	231.9	230.9	229.5
30°	238.1	234.1	232.7	230.5	229.5	228.0
30.5°	236.8	232.9	231.3	229.2	228.0	226.6
31°	235.6	231.3	229.9	227.7	226.7	225.1
31.5°	234.4	230.0	228.5	226.2	225.3	223.6
32°	233.0	228.5	227.1	224.6	223.7	222.0
32.5°	231.6	227.1	225.5	223.1	222.0	220.4
33°	230.2	225.6	224.0	221.5	220.5	218.7
33.5°	228.8	224.0	222.4	219.9	218.8	217.0
34°	227.5	222.5	220.8	218.3	217.1	215.3
34.5°	225.9	220.9	219.1	216.7	215.4	213.6
35°	224.2	219.2	217.5	214.9	213.7	211.7
35.5°	222.7	217.5	215.8	213.2	211.9	209.9
36°	221.1	215.7	214.1	211.4	210.1	208.1
36.5°	219.4	214.0	212.4	209.5	208.2	206.2
37°	217.7	212.2	210.5	207.7	206.4	204.3
37.5°	216.0	210.4	208.6	205.7	204.4	202.4
38°	214.3	208.5	206.7	203.8	202.5	200.5
38.5°	212.5	206.7	204.8	201.9	200.5	198.5
39°	210.6	204.7	202.8	199.8	198.5	196.4
39.5°	208.7	202.7	200.8	197.8	196.5	194.2
40°	206.8	200.7	198.8	195.7	194.5	192.2
40.5°	204.8	198.8	196.8	193.6	192.3	190.0
41°	202.9	196.8	194.7	191.5	190.1	188.0
41.5°	200.9	194.6	192.7	189.4	187.9	185.8
42°	198.9	192.5	190.5	187.3	185.8	183.5
42.5°	196.9	190.4	188.4	185.0	183.7	181.3
43°	194.7	188.2	186.2	182.8	181.4	179.0
43.5°	192.6	186.1	184.0	180.7	179.1	176.8
44°	190.4	183.9	181.9	178.4	177.0	174.5
44.5°	188.3	181.6	179.6	176.2	174.7	172.2



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	186.2	179.4	177.3	173.9	172.4	170.1
45.5°	184.0	177.2	175.0	171.6	170.1	167.7
46°	181.7	174.9	172.9	169.2	167.8	165.3
46.5°	179.4	172.5	170.5	166.8	165.6	163.0
47°	177.1	170.2	168.1	164.5	163.2	160.6
47.5°	174.8	168.0	165.9	162.2	160.8	158.3
48°	172.5	165.6	163.5	159.8	158.5	156.0
48.5°	170.2	163.3	161.1	157.5	156.0	153.7
49°	168.0	160.9	158.8	155.2	153.7	151.2
49.5°	165.5	158.6	156.4	152.6	151.4	148.8
50°	163.1	156.1	154.0	150.3	149.0	146.4
50.5°	160.7	153.8	151.6	147.8	146.6	144.0
51°	158.3	151.4	149.2	145.3	144.2	141.5
51.5°	155.9	149.0	146.8	143.0	141.8	139.2
52°	153.6	146.6	144.4	140.7	139.4	136.7
52.5°	151.1	144.2	142.1	138.2	137.1	134.3
53°	148.7	141.8	139.7	135.8	134.8	131.9
53.5°	146.3	139.5	137.3	133.4	132.4	129.6
54°	143.8	137.1	134.9	130.8	130.0	127.1
54.5°	141.5	134.6	132.5	128.5	127.6	124.9
55°	139.0	132.3	130.0	126.1	125.2	122.4
55.5°	136.5	130.0	127.7	123.6	122.7	120.0
56°	134.1	127.5	125.2	121.3	120.4	117.7
56.5°	131.7	125.2	122.8	118.9	118.0	115.4
57°	129.2	122.9	120.5	116.5	115.6	113.0
57.5°	126.9	120.4	118.1	114.3	113.4	110.7
58°	124.5	117.9	115.7	111.8	110.9	108.3
58.5°	122.0	115.7	113.5	109.5	108.5	106.0
59°	119.7	113.3	111.0	107.2	106.2	103.7
59.5°	117.3	110.9	108.6	104.9	103.9	101.4
60°	114.9	108.6	106.4	102.6	101.6	99.1
60.5°	112.6	106.3	104.1	100.3	99.2	96.7
61°	110.2	103.9	101.7	98.1	97.0	94.5
61.5°	107.8	101.6	99.4	95.8	94.7	92.2
62°	105.6	99.3	97.3	93.5	92.4	90.0
62.5°	103.4	97.0	94.8	91.4	90.2	87.8
63°	101.1	94.7	92.6	89.2	87.9	85.5
63.5°	98.8	92.5	90.3	87.0	85.7	83.5
64°	96.4	90.2	88.2	84.9	83.5	81.2
64.5°	94.3	87.9	85.9	82.6	81.3	79.0
65°	92.0	85.6	83.7	80.4	79.2	76.9
65.5°	89.8	83.6	81.4	78.3	76.9	74.7
66°	87.5	81.3	79.4	76.2	74.8	72.7
66.5°	85.4	79.1	77.1	74.1	72.6	70.6
67°	83.3	77.1	75.0	72.0	70.6	68.4



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	81.0	74.8	72.9	69.9	68.6	66.2
68°	78.8	72.7	70.7	67.8	66.4	64.1
68.5°	76.7	70.7	68.8	65.7	64.2	62.0
69°	74.6	68.6	66.7	63.7	62.1	60.0
69.5°	72.7	66.5	64.6	61.7	60.0	58.0
70°	70.6	64.4	62.6	59.9	57.9	55.9
70.5°	68.4	62.5	60.6	57.9	55.9	53.8
71°	66.4	60.4	58.7	56.0	53.8	51.7
71.5°	64.3	58.5	56.7	54.0	51.7	49.7
72°	62.3	56.5	54.8	52.1	49.6	47.7
72.5°	60.3	54.7	52.9	50.1	47.6	45.8
73°	58.4	52.8	51.0	48.3	45.6	43.9
73.5°	56.5	50.9	49.1	46.5	43.7	41.9
74°	54.6	49.1	47.3	44.8	41.7	40.0
74.5°	52.7	47.2	45.5	42.8	39.9	38.1
75°	50.7	45.5	43.7	41.0	38.1	36.1
75.5°	48.8	43.6	41.8	39.1	36.2	34.3
76°	46.9	41.8	40.2	37.2	34.3	32.4
76.5°	45.1	40.1	38.4	35.4	32.4	30.6
77°	43.4	38.4	36.7	33.8	30.6	28.8
77.5°	41.7	36.7	35.0	32.0	28.8	27.0
78°	39.8	35.0	33.4	30.4	26.9	25.2
78.5°	38.0	33.1	31.7	28.6	25.3	23.5
79°	36.2	31.5	30.1	26.9	23.6	21.6
79.5°	34.6	29.8	28.6	25.2	21.8	19.9
80°	33.0	28.3	26.9	23.6	20.1	18.2
80.5°	31.3	26.8	25.4	22.0	18.3	16.6
81°	29.6	25.1	23.7	20.5	16.6	14.9
81.5°	27.9	23.6	22.1	18.8	14.9	13.2
82°	26.3	22.0	20.5	17.3	13.4	11.8
82.5°	24.8	20.5	19.1	16.0	12.1	10.6
83°	23.2	18.8	17.4	14.6	10.8	9.6
83.5°	21.6	17.3	15.9	13.0	9.6	8.5
84°	20.3	15.9	14.5	11.6	8.5	7.4
84.5°	18.7	14.6	12.9	10.3	7.6	6.3
85°	17.0	12.9	11.4	9.2	6.3	5.4
85.5°	15.7	11.5	10.0	7.9	5.3	4.3
86°	14.2	10.0	8.7	6.3	4.2	3.3
86.5°	12.6	8.7	7.3	5.2	3.2	2.4
87°	11.4	7.3	5.8	4.0	2.3	1.4
87.5°	9.7	6.0	4.3	2.5	1.5	0.5
88°	8.4	4.4	3.0	1.5	0.4	0.0
88.5°	7.1	3.1	1.7	0.1	0.0	0.0
89°	6.0	1.7	0.5	0.0	0.0	0.0
89.5°	4.2	0.6	0.0	0.0	0.0	0.0



TEST NUMBER: P256769

CATALOG NUMBER: HLB4069FS1EMW-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	2.7	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)