

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: P256768

Luminaire Tested: **HLB4069FS1EMW-4000K**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P256768
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-4000K
Description: 4 IN HALO BLADE (600 LUMEN) - 4000K
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 746.1 lumens
Efficiency: N/A
Efficacy: 62.2 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

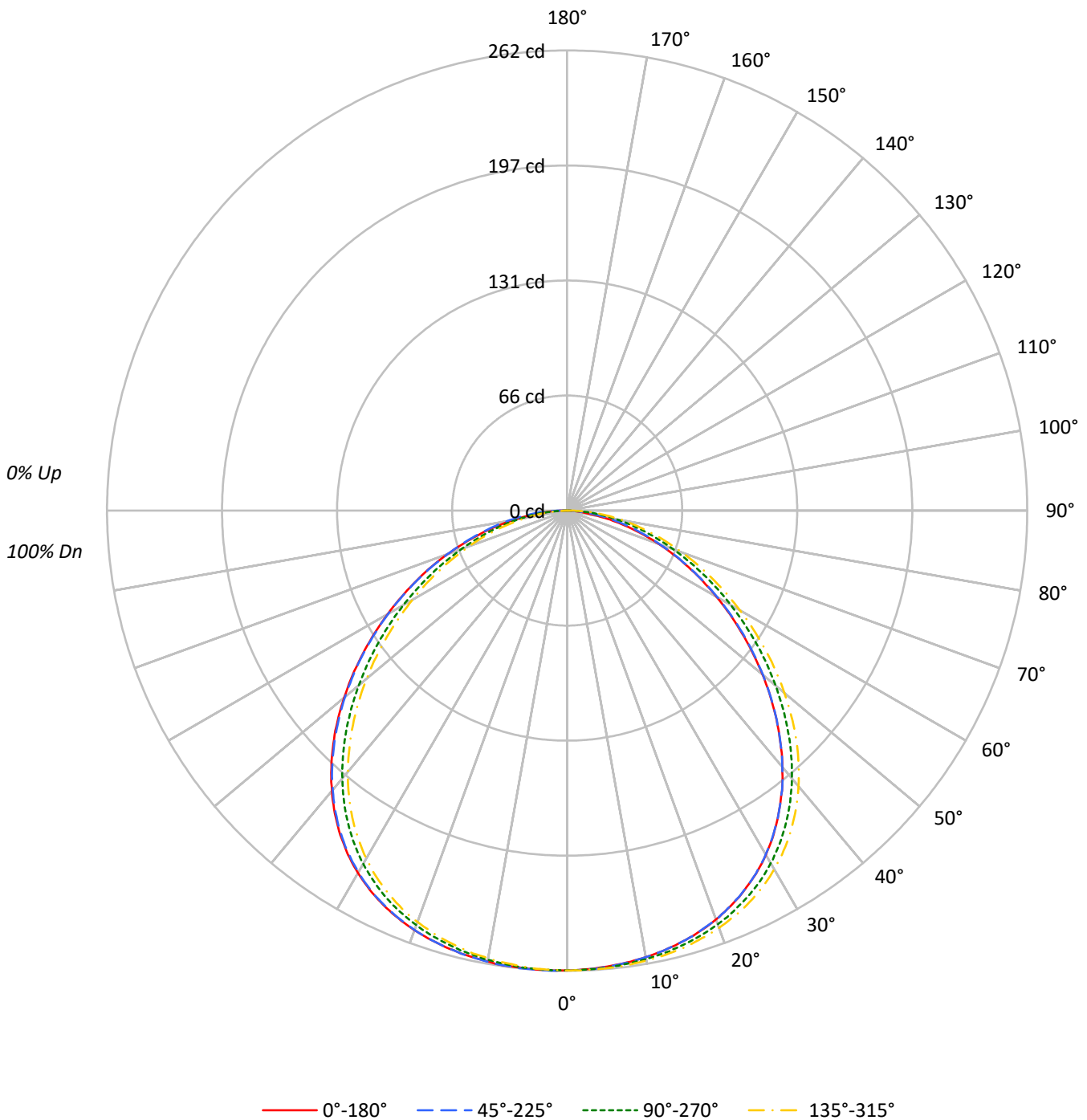
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	32163	32163	32163	32163
5°	32138	32212	32286	32237
10°	32198	32360	32522	32397
15°	32306	32547	32852	32611
20°	32384	32776	33234	32828
25°	32343	32912	33577	32994
30°	32103	32883	33791	32940
35°	31510	32590	33790	32620
40°	30583	31930	33422	31930
45°	29327	30909	32733	30926
50°	27771	29605	31689	29605
55°	26002	28080	30393	28102
60°	24153	26463	28993	26487
65°	22180	24767	27558	24709
70°	19900	23061	25970	22953
75°	16993	21503	24161	21408
80°	12805	20163	22286	19880
85°	7612	18184	19734	18043



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.9	3.3
10°-20°	72.4	9.7
20°-30°	112.0	15.0
30°-40°	135.9	18.2
40°-50°	137.3	18.4
50°-60°	117.6	15.8
60°-70°	84.7	11.4
70°-80°	47.5	6.4
80°-90°	13.7	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°	209.3	28.1
0°-40°	345.2	46.3
0°-60°	600.1	80.4
0°-90°	746.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	746.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	262	262	262	262	262	
5°	261	261	262	261	261	25
15°	254	256	258	256	254	72
25°	239	243	248	243	239	110
35°	210	217	225	218	210	131
45°	169	178	188	178	169	130
55°	121	131	142	131	121	109
65°	76	85	95	85	76	76
75°	36	45	51	45	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°	261.8	261.8	261.8	261.8	261.8	261.8	261.8	261.8	261.8	261.8	261.8
0.5°	261.7	261.7	261.9	261.9	261.7	261.7	261.9	261.8	261.9	261.9	262.0
1°	261.7	261.6	261.8	261.8	261.7	261.7	261.8	261.9	261.9	261.9	262.1
1.5°	261.6	261.5	261.7	261.7	261.6	261.7	261.9	261.9	262.0	262.0	262.1
2°	261.5	261.5	261.6	261.6	261.6	261.7	261.8	261.9	262.0	262.0	262.1
2.5°	261.4	261.4	261.5	261.5	261.5	261.7	261.8	261.9	262.0	262.0	262.1
3°	261.4	261.3	261.4	261.4	261.5	261.6	261.7	261.9	261.9	262.0	262.1
3.5°	261.1	261.2	261.4	261.3	261.4	261.6	261.7	261.8	261.9	262.0	262.1
4°	260.9	260.9	261.1	261.3	261.3	261.5	261.6	261.8	261.9	262.0	262.0
4.5°	260.7	260.7	260.9	261.1	261.3	261.4	261.6	261.7	261.8	262.0	262.0
5°	260.6	260.5	260.7	260.8	261.2	261.4	261.5	261.7	261.8	262.0	262.0
5.5°	260.4	260.4	260.5	260.6	261.1	261.4	261.5	261.6	261.7	261.9	261.9
6°	260.2	260.2	260.3	260.5	260.8	261.1	261.4	261.6	261.6	261.8	261.9
6.5°	260.0	259.9	260.1	260.3	260.7	260.9	261.3	261.5	261.6	261.7	261.7
7°	259.8	259.7	259.9	260.1	260.5	260.8	261.3	261.4	261.5	261.7	261.6
7.5°	259.6	259.5	259.7	259.9	260.3	260.6	261.2	261.4	261.4	261.6	261.5
8°	259.4	259.5	259.6	259.7	260.1	260.4	260.9	261.4	261.4	261.5	261.4
8.5°	259.0	258.9	259.1	259.5	259.9	260.3	260.6	261.0	261.3	261.4	261.3
9°	258.7	258.7	258.8	259.3	259.7	260.1	260.5	260.8	261.2	261.4	261.2
9.5°	258.5	258.4	258.5	258.8	259.5	259.9	260.3	260.7	260.9	261.1	261.0
10°	258.1	258.1	258.1	258.5	259.4	259.7	260.2	260.5	260.7	260.9	260.8
10.5°	257.9	257.8	257.9	258.3	259.0	259.6	259.9	260.3	260.5	260.7	260.6
11°	257.5	257.6	257.6	257.9	258.7	259.1	259.7	260.1	260.3	260.5	260.4
11.5°	257.1	257.0	257.1	257.7	258.4	258.9	259.5	259.9	260.1	260.3	260.2
12°	256.8	256.7	256.8	257.2	258.1	258.5	259.4	259.6	259.9	260.1	260.0
12.5°	256.3	256.2	256.3	256.8	257.8	258.3	259.0	259.6	259.7	259.9	259.7
13°	255.9	255.8	255.9	256.4	257.6	258.0	258.7	259.1	259.5	259.7	259.6
13.5°	255.4	255.4	255.4	256.0	257.0	257.9	258.4	258.8	259.4	259.6	259.4
14°	255.1	255.0	255.2	255.6	256.7	257.3	258.1	258.5	258.9	259.0	258.9
14.5°	254.5	254.5	254.5	255.1	256.3	256.9	257.8	258.2	258.6	258.7	258.6
15°	254.0	254.0	254.0	254.7	255.9	256.5	257.6	257.9	258.3	258.4	258.3
15.5°	253.5	253.4	253.5	254.1	255.5	256.1	257.0	257.7	258.0	258.1	257.9
16°	252.9	252.9	252.9	253.6	255.1	255.7	256.8	257.2	257.7	257.9	257.7
16.5°	252.5	252.3	252.5	253.1	254.5	255.3	256.2	256.8	257.3	257.3	257.3
17°	251.8	251.7	251.8	252.5	254.1	254.8	255.8	256.4	256.9	256.9	256.9
17.5°	251.1	251.1	251.1	251.9	253.5	254.3	255.3	255.9	256.5	256.5	256.5
18°	250.6	250.5	250.4	251.3	253.1	253.7	255.0	255.5	256.1	256.1	256.1
18.5°	249.9	249.8	249.8	250.7	252.5	253.3	254.4	255.1	255.6	255.6	255.6
19°	249.2	249.2	249.1	250.0	251.9	252.7	253.9	254.6	255.2	255.2	255.1
19.5°	248.5	248.5	248.5	249.3	251.3	252.1	253.4	254.0	254.7	254.6	254.6
20°	247.7	247.7	247.7	248.7	250.7	251.5	252.8	253.5	254.2	254.2	254.1
20.5°	247.1	247.0	247.1	247.9	250.0	250.9	252.3	252.9	253.6	253.6	253.5
21°	246.1	246.1	246.0	247.1	249.3	250.2	251.6	252.5	253.1	253.0	253.0
21.5°	245.3	245.3	245.4	246.3	248.7	249.6	251.0	251.7	252.5	252.5	252.3
22°	244.4	244.4	244.3	245.5	247.9	249.0	250.3	251.0	251.9	251.8	251.7



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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°	243.6	243.6	243.6	244.6	247.1	248.1	249.7	250.4	251.2	251.1	251.1
23°	242.6	242.6	242.5	243.7	246.2	247.4	249.0	249.8	250.6	250.6	250.4
23.5°	241.6	241.7	241.5	242.8	245.4	246.6	248.2	249.1	249.9	249.7	249.7
24°	240.8	240.7	240.7	241.9	244.6	245.7	247.5	248.3	249.2	249.1	249.0
24.5°	239.7	239.7	239.6	240.9	243.7	245.0	246.8	247.5	248.6	248.3	248.2
25°	238.6	238.6	238.5	239.9	242.8	244.0	245.8	246.8	247.7	247.5	247.4
25.5°	237.5	237.5	237.4	238.8	241.9	243.1	245.1	245.9	246.9	246.8	246.6
26°	236.4	236.4	236.4	237.8	240.9	242.1	244.1	245.2	246.1	245.8	245.7
26.5°	235.3	235.3	235.2	236.6	239.9	241.2	243.3	244.2	245.2	245.1	245.0
27°	234.2	234.2	234.0	235.4	238.9	240.2	242.3	243.3	244.3	244.1	243.9
27.5°	233.0	232.9	232.9	234.3	237.9	239.1	241.3	242.3	243.4	243.3	243.0
28°	231.7	231.6	231.5	233.1	236.7	238.2	240.3	241.2	242.4	242.2	242.0
28.5°	230.4	230.4	230.2	231.8	235.5	237.0	239.2	240.2	241.4	241.1	241.0
29°	229.1	229.1	228.9	230.6	234.4	235.8	238.1	239.2	240.4	240.1	240.0
29.5°	227.7	227.7	227.6	229.2	233.1	234.8	237.0	238.2	239.3	239.1	238.9
30°	226.3	226.2	226.1	227.8	231.8	233.5	235.8	237.0	238.2	238.0	237.8
30.5°	224.8	224.8	224.7	226.4	230.7	232.2	234.6	235.8	237.0	236.8	236.5
31°	223.3	223.4	223.2	225.0	229.2	231.0	233.3	234.8	236.0	235.6	235.4
31.5°	221.9	221.9	221.7	223.6	227.9	229.6	232.1	233.4	234.7	234.6	234.3
32°	220.3	220.3	220.2	222.0	226.4	228.2	230.9	232.1	233.4	233.2	232.9
32.5°	218.7	218.7	218.5	220.4	225.1	226.7	229.5	230.8	232.3	231.9	231.6
33°	217.0	217.1	216.9	218.9	223.6	225.4	228.1	229.4	230.9	230.5	230.2
33.5°	215.3	215.4	215.2	217.2	222.0	223.9	226.7	227.9	229.4	229.3	229.0
34°	213.6	213.7	213.6	215.5	220.4	222.4	225.3	226.5	228.0	227.8	227.4
34.5°	211.9	212.0	211.8	213.8	218.9	220.8	223.7	225.1	226.6	226.3	226.0
35°	210.1	210.3	210.0	212.2	217.3	219.2	222.2	223.7	225.3	224.8	224.5
35.5°	208.3	208.5	208.2	210.4	215.6	217.6	220.6	222.1	223.7	223.2	223.0
36°	206.5	206.7	206.4	208.7	213.9	215.9	219.0	220.5	222.1	221.8	221.5
36.5°	204.6	204.9	204.6	206.8	212.2	214.2	217.4	218.9	220.5	220.2	219.9
37°	202.7	202.9	202.7	204.9	210.4	212.5	215.7	217.2	218.9	218.6	218.2
37.5°	200.9	201.0	200.9	203.0	208.6	210.8	214.0	215.5	217.3	216.9	216.6
38°	199.0	199.0	198.9	201.1	206.7	209.0	212.3	213.8	215.6	215.2	214.9
38.5°	197.0	197.0	197.0	199.1	204.9	207.1	210.5	212.0	213.8	213.5	213.1
39°	194.8	195.0	194.8	197.2	203.0	205.3	208.7	210.2	212.1	211.7	211.4
39.5°	192.7	193.1	192.7	195.2	201.1	203.4	206.8	208.3	210.3	209.9	209.5
40°	190.7	190.9	190.7	193.1	199.1	201.4	204.9	206.5	208.4	208.0	207.7
40.5°	188.6	188.8	188.5	191.1	197.1	199.4	203.0	204.6	206.5	206.2	205.8
41°	186.5	186.6	186.5	188.9	195.1	197.4	201.0	202.7	204.7	204.2	203.9
41.5°	184.4	184.5	184.4	186.8	193.1	195.5	199.0	200.8	202.7	202.3	202.0
42°	182.1	182.4	182.2	184.6	191.0	193.5	197.0	198.8	200.7	200.4	200.1
42.5°	179.9	180.2	179.9	182.5	188.8	191.3	195.0	196.7	198.7	198.4	198.0
43°	177.6	177.9	177.7	180.4	186.7	189.1	193.0	194.6	196.8	196.3	196.0
43.5°	175.4	175.7	175.5	178.0	184.6	187.0	190.9	192.5	194.8	194.1	193.9
44°	173.2	173.5	173.2	175.8	182.5	184.9	188.7	190.4	192.6	192.1	191.8
44.5°	170.9	171.2	170.9	173.6	180.2	182.9	186.6	188.3	190.5	190.0	189.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	168.8	168.9	168.9	171.4	177.9	180.6	184.4	186.2	188.4	187.9	187.5
45.5°	166.4	166.7	166.5	169.0	175.7	178.4	182.3	184.0	186.2	185.8	185.4
46°	164.0	164.4	164.2	166.7	173.4	176.1	180.0	181.8	184.1	183.5	183.2
46.5°	161.7	162.0	161.8	164.4	171.2	173.9	177.8	179.6	181.9	181.4	181.0
47°	159.4	159.7	159.5	162.1	168.9	171.6	175.5	177.3	179.5	179.1	178.8
47.5°	157.1	157.4	157.2	159.7	166.5	169.2	173.2	175.0	177.3	176.8	176.5
48°	154.8	154.9	154.8	157.4	164.3	167.1	170.8	172.7	175.0	174.6	174.2
48.5°	152.5	152.6	152.7	154.9	161.9	164.7	168.5	170.5	172.7	172.4	171.9
49°	150.0	150.2	150.2	152.6	159.5	162.3	166.3	168.3	170.4	170.1	169.7
49.5°	147.6	147.8	147.9	150.3	157.3	160.0	163.9	165.8	168.1	167.7	167.4
50°	145.3	145.4	145.6	147.9	154.9	157.7	161.5	163.5	165.8	165.3	165.0
50.5°	142.8	143.1	143.3	145.5	152.5	155.2	159.2	161.2	163.4	163.0	162.7
51°	140.4	140.6	140.8	143.1	150.2	152.9	156.9	158.8	161.1	160.6	160.4
51.5°	138.1	138.2	138.5	140.6	147.7	150.6	154.4	156.4	158.7	158.2	157.9
52°	135.7	135.8	136.2	138.2	145.4	148.2	152.0	154.2	156.4	155.9	155.7
52.5°	133.3	133.4	133.8	136.0	143.1	145.8	149.6	151.7	154.0	153.5	153.4
53°	130.9	131.1	131.5	133.6	140.7	143.6	147.2	149.4	151.7	151.0	151.0
53.5°	128.6	128.8	129.2	131.1	138.3	141.1	144.9	147.0	149.2	148.6	148.7
54°	126.1	126.3	126.7	128.8	136.0	138.7	142.4	144.6	146.8	146.2	146.3
54.5°	123.9	123.9	124.4	126.4	133.6	136.4	139.9	142.2	144.4	143.9	143.8
55°	121.4	121.6	122.2	124.0	131.1	134.0	137.6	140.0	141.9	141.4	141.5
55.5°	119.1	119.1	119.8	121.6	128.8	131.6	135.0	137.5	139.6	139.0	139.1
56°	116.8	116.8	117.4	119.3	126.4	129.4	132.6	135.1	137.2	136.6	136.6
56.5°	114.5	114.6	115.1	116.9	124.0	126.9	130.3	132.7	134.7	134.2	134.3
57°	112.1	112.2	112.8	114.6	121.7	124.4	127.9	130.3	132.4	131.7	132.0
57.5°	109.8	109.8	110.4	112.4	119.4	122.2	125.5	127.9	130.0	129.4	129.5
58°	107.4	107.5	108.0	110.0	117.0	119.8	123.2	125.7	127.5	126.9	127.2
58.5°	105.2	105.2	105.7	107.7	114.7	117.3	120.7	123.2	125.2	124.5	124.9
59°	102.9	102.9	103.5	105.4	112.4	115.2	118.3	120.8	122.7	122.2	122.4
59.5°	100.6	100.6	101.1	103.1	110.0	112.8	115.9	118.5	120.3	119.8	120.0
60°	98.3	98.5	98.9	100.9	107.7	110.4	113.6	116.1	118.0	117.4	117.7
60.5°	96.0	96.3	96.6	98.6	105.5	108.1	111.2	113.7	115.7	115.2	115.4
61°	93.7	94.0	94.3	96.4	103.2	105.7	108.9	111.4	113.3	112.7	113.0
61.5°	91.5	91.7	92.0	94.1	100.9	103.4	106.6	109.0	111.0	110.3	110.8
62°	89.3	89.6	89.8	91.9	98.5	101.1	104.3	106.7	108.7	108.0	108.3
62.5°	87.1	87.4	87.7	89.7	96.4	99.0	102.1	104.4	106.3	105.8	105.9
63°	84.9	85.2	85.5	87.6	94.0	96.6	99.8	102.1	104.0	103.6	103.7
63.5°	82.9	83.1	83.2	85.4	91.8	94.3	97.5	99.8	101.7	101.2	101.3
64°	80.6	80.9	81.1	83.2	89.6	92.0	95.3	97.5	99.4	99.0	99.0
64.5°	78.4	78.8	78.9	81.0	87.4	89.8	93.1	95.2	97.1	96.6	96.8
65°	76.3	76.8	76.8	78.9	85.2	87.6	90.9	92.9	94.8	94.3	94.5
65.5°	74.1	74.6	74.6	76.9	82.9	85.3	88.7	90.6	92.5	92.1	92.2
66°	72.2	72.5	72.5	74.7	80.7	83.1	86.5	88.4	90.4	90.0	89.9
66.5°	70.1	70.4	70.4	72.6	78.7	81.0	84.3	86.3	88.1	87.8	87.7
67°	67.9	68.4	68.5	70.5	76.5	78.9	82.3	84.1	85.9	85.5	85.5



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	65.7	66.4	66.3	68.5	74.4	76.7	80.0	81.7	83.6	83.3	83.3
68°	63.6	64.5	64.3	66.5	72.3	74.6	77.9	79.5	81.3	81.2	81.1
68.5°	61.5	62.4	62.3	64.6	70.2	72.4	75.8	77.3	79.1	79.0	78.9
69°	59.6	60.4	60.3	62.6	68.3	70.3	73.7	75.1	76.9	76.9	76.8
69.5°	57.5	58.4	58.3	60.5	66.3	68.4	71.7	73.0	74.5	74.8	74.6
70°	55.4	56.6	56.3	58.6	64.2	66.3	69.6	70.7	72.3	72.6	72.5
70.5°	53.4	54.6	54.4	56.7	62.1	64.2	67.5	68.7	70.1	70.5	70.4
71°	51.4	52.7	52.5	54.9	60.2	62.3	65.5	66.6	68.0	68.6	68.3
71.5°	49.3	50.8	50.8	52.9	58.3	60.2	63.5	64.3	65.7	66.4	66.3
72°	47.3	48.9	49.0	51.0	56.3	58.3	61.5	62.2	63.5	64.2	64.4
72.5°	45.4	47.0	47.1	49.1	54.4	56.2	59.5	60.0	61.3	62.1	62.3
73°	43.5	45.1	45.4	47.3	52.5	54.5	57.6	58.0	59.2	60.0	60.2
73.5°	41.6	43.3	43.6	45.5	50.7	52.6	55.7	55.9	57.2	57.9	58.3
74°	39.7	41.4	41.8	43.8	48.8	50.7	53.8	53.8	55.1	55.8	56.2
74.5°	37.8	39.6	40.1	41.9	47.0	48.9	52.0	51.7	52.9	53.7	54.4
75°	35.8	37.9	38.3	40.2	45.3	47.1	50.1	49.5	50.9	51.6	52.5
75.5°	34.0	36.0	36.5	38.5	43.5	45.3	48.2	47.6	48.8	49.5	50.6
76°	32.1	34.2	34.9	36.8	41.6	43.5	46.3	45.6	46.8	47.5	48.7
76.5°	30.3	32.4	33.2	35.0	39.9	41.6	44.4	43.7	45.0	45.5	46.9
77°	28.6	30.7	31.7	33.4	38.2	40.0	42.7	41.6	43.0	43.6	45.1
77.5°	26.8	28.8	30.2	31.7	36.5	38.3	40.9	39.8	41.0	41.6	43.3
78°	25.0	27.0	28.6	30.2	34.8	36.5	39.2	37.8	39.1	39.7	41.5
78.5°	23.3	25.4	26.9	28.6	33.3	34.7	37.5	35.8	37.2	37.8	39.9
79°	21.5	23.7	25.4	26.9	31.6	33.1	35.8	34.0	35.2	35.8	38.1
79.5°	19.7	22.1	23.9	25.4	30.0	31.5	34.1	32.1	33.4	33.9	36.4
80°	18.1	20.6	22.2	23.7	28.5	30.0	32.4	30.3	31.5	32.1	34.7
80.5°	16.4	19.1	20.7	22.2	26.8	28.4	30.6	28.6	29.7	30.3	33.1
81°	14.8	17.6	19.3	20.6	25.2	26.8	29.0	26.8	27.8	28.6	31.4
81.5°	13.1	16.4	17.8	19.2	23.6	25.3	27.3	25.1	26.0	26.7	29.9
82°	11.7	14.8	16.4	17.7	22.0	23.7	25.7	23.2	24.2	24.9	28.3
82.5°	10.6	13.5	15.0	16.4	20.4	22.1	24.1	21.5	22.5	23.2	26.6
83°	9.6	12.2	13.3	14.8	18.9	20.5	22.6	19.7	20.6	21.5	25.0
83.5°	8.4	10.7	12.0	13.1	17.5	19.0	20.9	18.1	18.9	20.1	23.6
84°	7.4	9.4	10.6	11.8	15.9	17.4	19.4	16.7	17.1	18.5	21.8
84.5°	6.2	7.9	9.2	10.4	14.5	16.1	18.1	15.3	15.6	16.9	20.2
85°	5.4	6.9	7.8	9.1	12.9	14.6	16.4	14.2	14.0	15.9	18.7
85.5°	4.3	5.7	6.3	7.6	11.5	13.0	14.8	12.8	12.4	14.6	17.2
86°	3.3	4.2	5.1	6.1	10.0	11.6	13.5	11.6	11.2	12.9	15.7
86.5°	2.4	3.1	3.8	4.9	8.8	10.2	12.1	10.6	10.2	11.8	14.2
87°	1.4	2.0	2.4	3.7	7.4	9.0	10.5	9.6	9.3	10.7	12.6
87.5°	0.5	0.6	1.2	2.2	5.9	7.7	9.3	8.3	8.0	9.5	11.2
88°	0.0	0.0	0.0	0.9	4.5	6.0	7.6	7.1	7.0	8.3	9.6
88.5°	0.0	0.0	0.0	0.0	3.2	4.9	6.3	6.0	5.9	7.1	8.5
89°	0.0	0.0	0.0	0.0	2.0	3.4	5.1	5.0	5.1	6.0	7.0
89.5°	0.0	0.0	0.0	0.0	0.5	2.3	3.9	4.1	4.1	4.9	5.5



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

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	3.7



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	261.8	261.8	261.8	261.8	261.8	261.8
0.5°	262.0	261.8	261.7	261.8	261.7	261.7
1°	262.0	261.8	261.7	261.7	261.6	261.7
1.5°	262.0	261.8	261.6	261.7	261.5	261.6
2°	262.0	261.8	261.6	261.6	261.4	261.5
2.5°	262.0	261.7	261.5	261.6	261.3	261.4
3°	262.0	261.7	261.5	261.5	261.3	261.4
3.5°	262.0	261.6	261.4	261.4	261.2	261.1
4°	262.0	261.6	261.4	261.4	261.0	260.9
4.5°	262.0	261.5	261.3	261.2	260.8	260.7
5°	261.9	261.4	261.2	261.0	260.6	260.6
5.5°	261.9	261.4	261.0	260.8	260.5	260.4
6°	261.8	261.2	260.8	260.6	260.3	260.2
6.5°	261.7	261.0	260.6	260.4	260.2	260.0
7°	261.6	260.8	260.5	260.2	260.0	259.8
7.5°	261.5	260.7	260.3	260.0	259.7	259.6
8°	261.4	260.5	260.1	259.8	259.6	259.4
8.5°	261.4	260.3	259.9	259.7	259.4	259.0
9°	261.0	260.1	259.7	259.6	259.0	258.7
9.5°	260.8	259.9	259.5	259.1	258.7	258.5
10°	260.6	259.7	259.4	258.9	258.4	258.1
10.5°	260.4	259.6	258.9	258.5	258.1	257.9
11°	260.2	259.2	258.7	258.2	257.8	257.5
11.5°	260.0	258.9	258.3	257.9	257.6	257.1
12°	259.8	258.6	258.1	257.8	257.0	256.8
12.5°	259.6	258.3	257.8	257.2	256.7	256.3
13°	259.3	257.9	257.6	256.9	256.3	255.9
13.5°	259.0	257.8	257.0	256.4	255.8	255.4
14°	258.6	257.2	256.7	256.0	255.5	255.1
14.5°	258.3	256.9	256.2	255.5	255.1	254.5
15°	257.9	256.4	255.8	255.1	254.5	254.0
15.5°	257.8	256.0	255.4	254.6	254.1	253.5
16°	257.2	255.5	255.1	254.1	253.5	252.9
16.5°	256.8	255.1	254.4	253.6	253.1	252.5
17°	256.3	254.6	253.9	253.1	252.5	251.8
17.5°	255.9	254.1	253.4	252.5	251.8	251.1
18°	255.4	253.6	252.9	251.9	251.2	250.6
18.5°	255.1	253.0	252.3	251.2	250.6	249.9
19°	254.4	252.5	251.6	250.7	249.9	249.2
19.5°	253.9	251.8	251.0	249.9	249.2	248.5
20°	253.3	251.1	250.4	249.2	248.7	247.7
20.5°	252.7	250.5	249.7	248.6	247.8	247.1
21°	252.1	249.8	249.0	247.7	247.0	246.1
21.5°	251.4	249.1	248.3	247.1	246.2	245.3
22°	250.8	248.3	247.5	246.1	245.4	244.4



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	250.1	247.6	246.9	245.4	244.5	243.6
23°	249.4	246.9	245.9	244.4	243.6	242.6
23.5°	248.9	246.0	245.2	243.6	242.7	241.6
24°	247.9	245.3	244.1	242.6	241.8	240.8
24.5°	247.1	244.2	243.3	241.6	240.8	239.7
25°	246.2	243.4	242.3	240.7	239.8	238.6
25.5°	245.4	242.4	241.3	239.6	238.7	237.5
26°	244.5	241.3	240.3	238.5	237.7	236.4
26.5°	243.6	240.3	239.2	237.4	236.5	235.3
27°	242.7	239.3	238.2	236.4	235.4	234.2
27.5°	241.7	238.2	237.0	235.2	234.3	233.0
28°	240.7	237.1	236.0	234.0	233.0	231.7
28.5°	239.6	235.9	234.7	232.9	231.7	230.4
29°	238.5	234.7	233.4	231.4	230.5	229.1
29.5°	237.4	233.5	232.3	230.1	229.1	227.7
30°	236.3	232.2	230.9	228.7	227.7	226.3
30.5°	235.0	231.1	229.5	227.4	226.3	224.8
31°	233.8	229.6	228.1	225.9	224.9	223.3
31.5°	232.6	228.2	226.7	224.4	223.5	221.9
32°	231.2	226.7	225.4	222.9	221.9	220.3
32.5°	229.8	225.3	223.8	221.4	220.3	218.7
33°	228.4	223.9	222.2	219.8	218.8	217.0
33.5°	227.0	222.3	220.7	218.2	217.1	215.3
34°	225.7	220.7	219.1	216.6	215.4	213.6
34.5°	224.1	219.2	217.4	215.0	213.7	211.9
35°	222.5	217.5	215.8	213.3	212.0	210.1
35.5°	221.0	215.8	214.2	211.5	210.3	208.3
36°	219.4	214.1	212.5	209.8	208.4	206.5
36.5°	217.7	212.3	210.7	207.9	206.6	204.6
37°	216.1	210.6	208.9	206.0	204.8	202.7
37.5°	214.3	208.7	207.0	204.1	202.8	200.9
38°	212.6	206.9	205.1	202.2	200.9	199.0
38.5°	210.9	205.1	203.2	200.3	198.9	197.0
39°	209.0	203.1	201.3	198.3	197.0	194.8
39.5°	207.1	201.1	199.3	196.2	195.0	192.7
40°	205.2	199.1	197.3	194.2	193.0	190.7
40.5°	203.3	197.3	195.3	192.1	190.8	188.6
41°	201.3	195.3	193.2	190.1	188.7	186.5
41.5°	199.3	193.1	191.2	187.9	186.5	184.4
42°	197.4	191.0	189.1	185.8	184.4	182.1
42.5°	195.3	188.9	186.9	183.6	182.3	179.9
43°	193.2	186.7	184.8	181.4	180.0	177.6
43.5°	191.1	184.6	182.6	179.3	177.8	175.4
44°	188.9	182.5	180.5	177.0	175.6	173.2
44.5°	186.8	180.2	178.2	174.8	173.3	170.9



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	184.8	178.0	175.9	172.5	171.1	168.8
45.5°	182.6	175.8	173.7	170.3	168.8	166.4
46°	180.3	173.5	171.6	167.9	166.5	164.0
46.5°	178.0	171.2	169.1	165.6	164.3	161.7
47°	175.7	168.9	166.8	163.3	161.9	159.4
47.5°	173.5	166.7	164.6	160.9	159.6	157.1
48°	171.2	164.3	162.2	158.6	157.3	154.8
48.5°	168.9	162.0	159.8	156.3	154.8	152.5
49°	166.7	159.7	157.5	154.0	152.5	150.0
49.5°	164.2	157.3	155.2	151.5	150.2	147.6
50°	161.8	154.9	152.8	149.1	147.8	145.3
50.5°	159.5	152.6	150.4	146.7	145.5	142.8
51°	157.1	150.2	148.1	144.2	143.1	140.4
51.5°	154.7	147.8	145.7	141.9	140.7	138.1
52°	152.4	145.5	143.3	139.6	138.4	135.7
52.5°	149.9	143.1	141.0	137.1	136.0	133.3
53°	147.6	140.7	138.6	134.7	133.8	130.9
53.5°	145.2	138.4	136.2	132.3	131.4	128.6
54°	142.7	136.1	133.9	129.8	129.0	126.1
54.5°	140.4	133.6	131.5	127.5	126.6	123.9
55°	137.9	131.2	129.0	125.2	124.2	121.4
55.5°	135.5	129.0	126.7	122.7	121.8	119.1
56°	133.1	126.5	124.2	120.4	119.5	116.8
56.5°	130.7	124.2	121.9	118.0	117.1	114.5
57°	128.2	121.9	119.6	115.6	114.7	112.1
57.5°	126.0	119.4	117.2	113.4	112.5	109.8
58°	123.6	117.0	114.8	111.0	110.0	107.4
58.5°	121.1	114.8	112.6	108.6	107.7	105.2
59°	118.8	112.4	110.1	106.3	105.4	102.9
59.5°	116.4	110.0	107.8	104.1	103.0	100.6
60°	114.1	107.8	105.5	101.8	100.8	98.3
60.5°	111.7	105.4	103.3	99.5	98.5	96.0
61°	109.4	103.1	101.0	97.4	96.3	93.7
61.5°	107.0	100.8	98.6	95.1	94.0	91.5
62°	104.8	98.5	96.5	92.8	91.7	89.3
62.5°	102.6	96.3	94.1	90.7	89.5	87.1
63°	100.3	94.0	91.9	88.5	87.2	84.9
63.5°	98.0	91.8	89.6	86.4	85.0	82.9
64°	95.7	89.5	87.5	84.2	82.8	80.6
64.5°	93.5	87.3	85.2	82.0	80.7	78.4
65°	91.3	85.0	83.1	79.8	78.6	76.3
65.5°	89.2	83.0	80.8	77.7	76.3	74.1
66°	86.8	80.7	78.8	75.6	74.3	72.2
66.5°	84.7	78.5	76.6	73.5	72.1	70.1
67°	82.6	76.5	74.4	71.4	70.0	67.9



TEST NUMBER: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	80.4	74.2	72.4	69.4	68.1	65.7
68°	78.2	72.2	70.2	67.2	65.9	63.6
68.5°	76.1	70.1	68.3	65.2	63.7	61.5
69°	74.1	68.0	66.2	63.2	61.6	59.6
69.5°	72.1	66.0	64.1	61.3	59.5	57.5
70°	70.0	63.9	62.1	59.4	57.4	55.4
70.5°	67.9	62.0	60.1	57.5	55.5	53.4
71°	65.9	59.9	58.2	55.5	53.4	51.4
71.5°	63.8	58.1	56.3	53.6	51.3	49.3
72°	61.8	56.1	54.3	51.7	49.2	47.3
72.5°	59.8	54.3	52.5	49.7	47.3	45.4
73°	58.0	52.4	50.6	47.9	45.3	43.5
73.5°	56.0	50.5	48.7	46.1	43.3	41.6
74°	54.2	48.7	46.9	44.4	41.3	39.7
74.5°	52.2	46.8	45.2	42.5	39.6	37.8
75°	50.3	45.1	43.4	40.7	37.8	35.8
75.5°	48.4	43.3	41.5	38.7	35.9	34.0
76°	46.5	41.5	39.8	36.9	34.0	32.1
76.5°	44.8	39.8	38.1	35.1	32.1	30.3
77°	43.1	38.1	36.4	33.6	30.4	28.6
77.5°	41.3	36.4	34.7	31.7	28.6	26.8
78°	39.4	34.7	33.1	30.1	26.7	25.0
78.5°	37.7	32.9	31.5	28.4	25.1	23.3
79°	36.0	31.2	29.9	26.7	23.4	21.5
79.5°	34.4	29.6	28.4	25.0	21.7	19.7
80°	32.8	28.1	26.7	23.4	20.0	18.1
80.5°	31.1	26.6	25.2	21.8	18.2	16.4
81°	29.4	24.9	23.6	20.4	16.5	14.8
81.5°	27.7	23.4	21.9	18.7	14.8	13.1
82°	26.1	21.8	20.4	17.2	13.3	11.7
82.5°	24.6	20.4	18.9	15.9	12.1	10.6
83°	23.0	18.7	17.3	14.5	10.7	9.6
83.5°	21.5	17.2	15.8	12.9	9.5	8.4
84°	20.2	15.8	14.3	11.5	8.4	7.4
84.5°	18.5	14.5	12.8	10.2	7.5	6.2
85°	16.9	12.8	11.3	9.1	6.2	5.4
85.5°	15.6	11.4	9.9	7.8	5.3	4.3
86°	14.1	9.9	8.7	6.2	4.1	3.3
86.5°	12.5	8.6	7.3	5.1	3.2	2.4
87°	11.3	7.2	5.8	4.0	2.2	1.4
87.5°	9.6	6.0	4.2	2.5	1.5	0.5
88°	8.3	4.4	3.0	1.5	0.4	0.0
88.5°	7.0	3.1	1.7	0.1	0.0	0.0
89°	5.9	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: P256768

CATALOG NUMBER: HLB4069FS1EMW-4000K

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)