

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: P256766

Luminaire Tested: **HLB4069FS1EMW-3000K**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P256766
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-3000K
Description: 4 IN HALO BLADE (600 LUMEN) - 3000K
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 723.0 lumens
Efficiency: N/A
Efficacy: 60.3 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

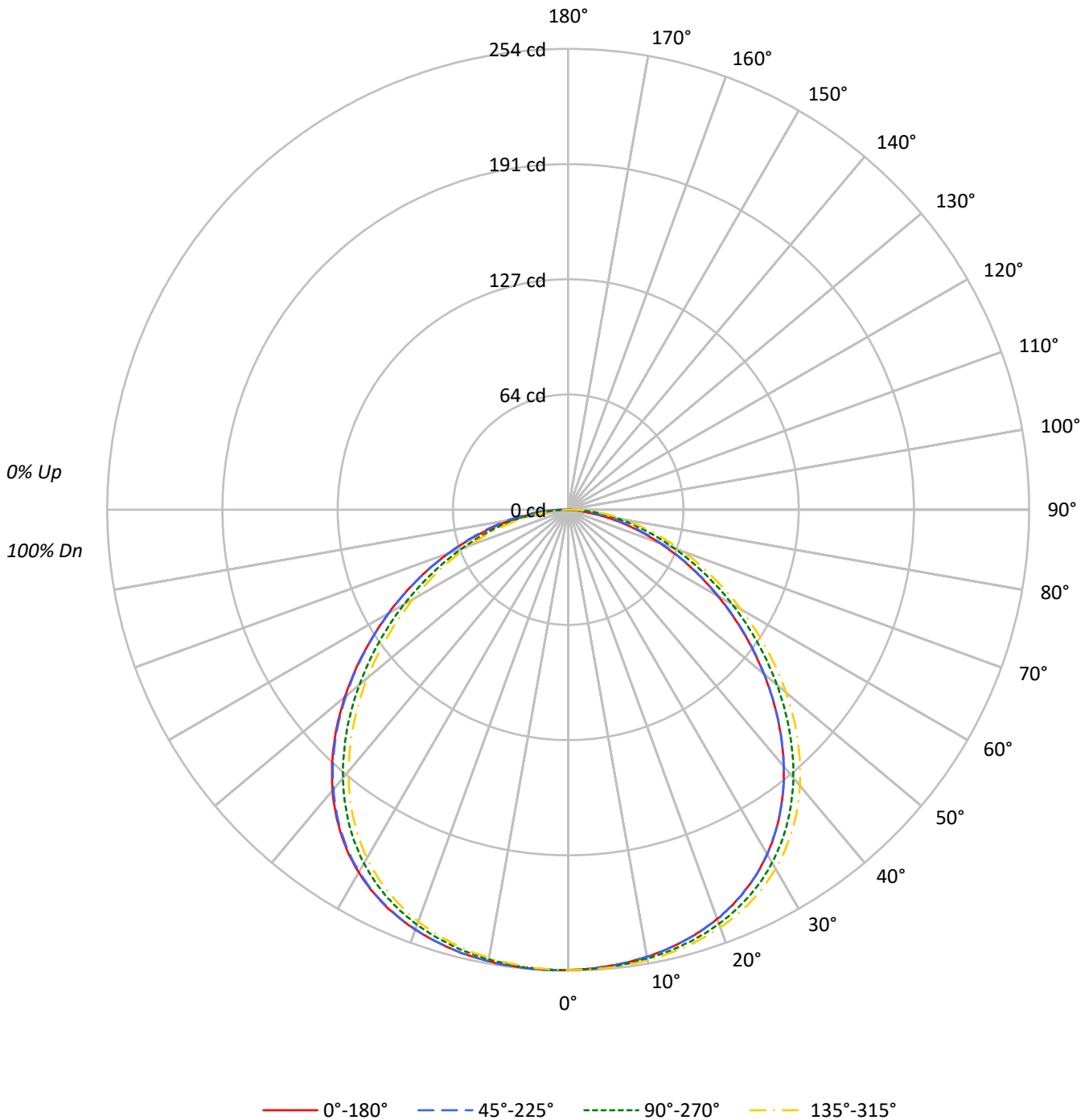
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: HLB4069FS1EMW-3000K

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°	31168	31168	31168	31168
5°	31139	31225	31287	31238
10°	31200	31362	31512	31387
15°	31301	31530	31835	31606
20°	31377	31756	32201	31822
25°	31340	31896	32533	31977
30°	31110	31862	32741	31932
35°	30535	31585	32740	31615
40°	29637	30936	32396	30952
45°	28407	29953	31708	29970
50°	26911	28688	30714	28688
55°	25210	27223	29451	27245
60°	23416	25627	28109	25676
65°	21482	23982	26715	23924
70°	19289	22342	25180	22270
75°	16471	20791	23401	20743
80°	12381	19527	21578	19244
85°	7330	17620	19170	17479



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.1	3.3
10°-20°	70.2	9.7
20°-30°	108.6	15.0
30°-40°	131.7	18.2
40°-50°	133.1	18.4
50°-60°	113.9	15.8
60°-70°	82.1	11.4
70°-80°	46.1	6.4
80°-90°	13.3	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°	202.8	28.1
0°-40°	334.5	46.3
0°-60°	581.5	80.4
0°-90°	723.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	723.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	254	254	254	254	254	
5°	252	253	254	253	252	24
15°	246	248	250	248	246	70
25°	231	235	240	236	231	107
35°	204	211	218	211	204	127
45°	164	172	182	172	164	126
55°	118	127	138	127	118	105
65°	74	82	92	82	74	73
75°	35	44	49	44	35	37
85°	5	12	14	12	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°	253.7	253.7	253.7	253.7	253.7	253.7	253.7	253.7	253.7	253.7	253.7
0.5°	253.6	253.6	253.8	253.8	253.6	253.6	253.8	253.7	253.8	253.8	253.9
1°	253.6	253.5	253.7	253.7	253.6	253.6	253.7	253.8	253.8	253.8	254.0
1.5°	253.5	253.4	253.6	253.6	253.5	253.6	253.7	253.8	253.8	253.9	254.0
2°	253.4	253.4	253.5	253.5	253.5	253.6	253.7	253.8	253.9	253.9	254.0
2.5°	253.3	253.3	253.4	253.4	253.4	253.6	253.7	253.8	253.8	253.9	254.0
3°	253.3	253.2	253.3	253.3	253.4	253.5	253.6	253.8	253.8	253.9	254.0
3.5°	253.0	253.1	253.3	253.2	253.3	253.5	253.6	253.7	253.8	253.9	254.0
4°	252.8	252.9	253.0	253.2	253.3	253.4	253.5	253.7	253.8	253.9	253.9
4.5°	252.7	252.6	252.8	253.0	253.2	253.3	253.5	253.6	253.7	253.9	253.9
5°	252.5	252.5	252.6	252.7	253.2	253.3	253.4	253.6	253.7	253.9	253.8
5.5°	252.3	252.3	252.5	252.6	253.0	253.3	253.4	253.5	253.6	253.8	253.8
6°	252.2	252.1	252.3	252.4	252.8	253.0	253.3	253.5	253.5	253.7	253.7
6.5°	251.9	251.9	252.1	252.2	252.6	252.9	253.2	253.4	253.5	253.6	253.6
7°	251.8	251.6	251.8	252.0	252.5	252.7	253.2	253.3	253.4	253.6	253.5
7.5°	251.6	251.5	251.6	251.8	252.3	252.5	253.1	253.3	253.3	253.5	253.4
8°	251.3	251.4	251.6	251.6	252.1	252.4	252.8	253.3	253.3	253.4	253.3
8.5°	251.0	250.9	251.1	251.5	251.9	252.2	252.6	252.9	253.2	253.3	253.2
9°	250.7	250.7	250.8	251.2	251.7	252.0	252.4	252.8	253.1	253.3	253.1
9.5°	250.5	250.4	250.5	250.8	251.5	251.8	252.3	252.6	252.8	253.0	252.9
10°	250.1	250.1	250.2	250.5	251.4	251.6	252.1	252.4	252.6	252.8	252.7
10.5°	249.9	249.8	249.9	250.3	250.9	251.6	251.9	252.2	252.5	252.6	252.5
11°	249.5	249.6	249.6	249.9	250.7	251.1	251.7	252.0	252.3	252.4	252.3
11.5°	249.1	249.1	249.2	249.7	250.4	250.8	251.5	251.8	252.1	252.3	252.1
12°	248.8	248.8	248.9	249.2	250.1	250.5	251.4	251.6	251.9	252.0	252.0
12.5°	248.4	248.3	248.4	248.8	249.8	250.3	250.9	251.6	251.7	251.8	251.7
13°	247.9	247.9	248.0	248.5	249.6	250.0	250.7	251.1	251.5	251.6	251.5
13.5°	247.5	247.5	247.5	248.1	249.1	249.9	250.4	250.8	251.4	251.6	251.4
14°	247.2	247.1	247.3	247.7	248.8	249.3	250.1	250.5	250.9	251.0	250.9
14.5°	246.6	246.6	246.6	247.2	248.4	248.9	249.8	250.2	250.6	250.7	250.6
15°	246.1	246.1	246.1	246.8	247.9	248.6	249.6	249.9	250.3	250.4	250.3
15.5°	245.6	245.6	245.6	246.3	247.6	248.2	249.0	249.7	250.0	250.1	250.0
16°	245.1	245.1	245.1	245.7	247.2	247.8	248.8	249.2	249.7	249.9	249.7
16.5°	244.6	244.5	244.6	245.3	246.6	247.4	248.3	248.9	249.3	249.4	249.3
17°	244.0	243.9	244.0	244.7	246.2	246.9	247.8	248.4	248.9	249.0	248.9
17.5°	243.4	243.4	243.3	244.1	245.7	246.4	247.4	248.0	248.6	248.6	248.5
18°	242.8	242.8	242.7	243.5	245.3	245.9	247.1	247.6	248.2	248.1	248.1
18.5°	242.1	242.1	242.0	242.9	244.7	245.4	246.5	247.2	247.7	247.7	247.7
19°	241.5	241.4	241.4	242.2	244.1	244.8	246.0	246.7	247.3	247.3	247.2
19.5°	240.8	240.8	240.8	241.6	243.5	244.3	245.5	246.2	246.8	246.8	246.7
20°	240.0	240.0	240.0	241.0	242.9	243.7	245.0	245.7	246.3	246.3	246.2
20.5°	239.5	239.4	239.5	240.2	242.2	243.1	244.5	245.1	245.8	245.8	245.6
21°	238.5	238.5	238.4	239.5	241.6	242.5	243.8	244.6	245.3	245.2	245.2
21.5°	237.7	237.7	237.8	238.7	241.0	241.8	243.2	243.9	244.7	244.7	244.5
22°	236.8	236.9	236.8	237.9	240.2	241.2	242.6	243.3	244.1	244.0	243.9



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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°	236.1	236.0	236.1	237.0	239.4	240.4	241.9	242.7	243.5	243.3	243.3
23°	235.1	235.1	235.0	236.1	238.6	239.7	241.3	242.0	242.8	242.8	242.7
23.5°	234.2	234.2	234.1	235.2	237.8	239.0	240.5	241.4	242.1	242.0	241.9
24°	233.3	233.3	233.3	234.4	237.0	238.1	239.8	240.6	241.5	241.4	241.2
24.5°	232.3	232.3	232.2	233.4	236.1	237.4	239.2	239.9	240.9	240.6	240.5
25°	231.2	231.2	231.1	232.5	235.3	236.4	238.2	239.2	240.0	239.8	239.7
25.5°	230.2	230.2	230.1	231.4	234.4	235.6	237.5	238.3	239.3	239.1	239.0
26°	229.1	229.1	229.1	230.5	233.4	234.6	236.5	237.6	238.4	238.2	238.1
26.5°	228.0	228.0	227.9	229.3	232.5	233.7	235.8	236.6	237.6	237.5	237.4
27°	226.9	227.0	226.8	228.2	231.5	232.8	234.8	235.8	236.7	236.5	236.4
27.5°	225.8	225.7	225.7	227.1	230.5	231.7	233.8	234.8	235.9	235.7	235.5
28°	224.5	224.5	224.3	225.9	229.3	230.8	232.9	233.8	234.9	234.7	234.5
28.5°	223.2	223.3	223.1	224.6	228.2	229.6	231.8	232.8	233.9	233.7	233.5
29°	222.0	222.0	221.8	223.5	227.1	228.5	230.8	231.8	233.0	232.7	232.5
29.5°	220.7	220.6	220.5	222.1	225.9	227.5	229.6	230.9	231.9	231.7	231.5
30°	219.3	219.2	219.1	220.8	224.6	226.2	228.5	229.6	230.8	230.7	230.5
30.5°	217.9	217.8	217.7	219.3	223.5	225.0	227.4	228.5	229.7	229.5	229.2
31°	216.4	216.5	216.3	218.0	222.1	223.9	226.1	227.5	228.6	228.3	228.1
31.5°	215.0	215.0	214.8	216.7	220.8	222.5	224.9	226.2	227.4	227.3	227.0
32°	213.5	213.5	213.3	215.1	219.4	221.1	223.7	224.9	226.2	226.0	225.7
32.5°	211.9	211.9	211.8	213.6	218.1	219.7	222.4	223.6	225.1	224.7	224.4
33°	210.3	210.4	210.2	212.1	216.7	218.4	221.0	222.3	223.7	223.4	223.1
33.5°	208.7	208.8	208.6	210.5	215.1	217.0	219.6	220.9	222.3	222.2	221.9
34°	207.0	207.1	206.9	208.9	213.6	215.5	218.3	219.5	221.0	220.7	220.4
34.5°	205.4	205.5	205.3	207.2	212.1	214.0	216.8	218.1	219.6	219.3	219.0
35°	203.6	203.8	203.5	205.6	210.6	212.4	215.3	216.8	218.3	217.8	217.6
35.5°	201.8	202.0	201.8	203.9	208.9	210.9	213.8	215.3	216.8	216.3	216.1
36°	200.1	200.3	200.0	202.2	207.3	209.3	212.2	213.7	215.2	214.9	214.7
36.5°	198.3	198.5	198.2	200.4	205.6	207.6	210.6	212.1	213.7	213.4	213.1
37°	196.4	196.6	196.4	198.6	203.9	205.9	209.1	210.5	212.1	211.8	211.5
37.5°	194.7	194.8	194.6	196.7	202.1	204.3	207.4	208.8	210.5	210.2	209.8
38°	192.8	192.9	192.8	194.9	200.3	202.5	205.7	207.2	208.9	208.5	208.2
38.5°	190.9	190.9	190.9	193.0	198.6	200.7	204.0	205.5	207.2	206.9	206.5
39°	188.8	189.0	188.8	191.1	196.8	198.9	202.3	203.7	205.6	205.1	204.8
39.5°	186.8	187.1	186.8	189.1	194.9	197.1	200.4	201.9	203.8	203.4	203.1
40°	184.8	185.0	184.8	187.1	192.9	195.2	198.6	200.1	202.0	201.5	201.2
40.5°	182.7	182.9	182.7	185.1	191.0	193.3	196.7	198.3	200.1	199.8	199.4
41°	180.8	180.9	180.7	183.0	189.1	191.3	194.8	196.4	198.3	197.9	197.6
41.5°	178.7	178.8	178.7	181.0	187.1	189.4	192.9	194.6	196.4	196.1	195.7
42°	176.5	176.7	176.5	178.9	185.1	187.5	190.9	192.6	194.5	194.2	193.9
42.5°	174.3	174.6	174.4	176.9	183.0	185.4	189.0	190.6	192.6	192.2	191.9
43°	172.1	172.4	172.2	174.8	180.9	183.3	187.0	188.6	190.7	190.2	189.9
43.5°	170.0	170.3	170.0	172.5	178.8	181.2	184.9	186.5	188.7	188.1	187.9
44°	167.8	168.1	167.9	170.4	176.8	179.2	182.8	184.5	186.6	186.1	185.9
44.5°	165.6	165.9	165.6	168.2	174.6	177.2	180.8	182.5	184.6	184.1	183.8



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	163.5	163.7	163.6	166.0	172.4	175.0	178.7	180.5	182.5	182.1	181.7
45.5°	161.2	161.5	161.4	163.8	170.3	172.8	176.7	178.3	180.5	180.0	179.6
46°	159.0	159.3	159.1	161.5	168.1	170.7	174.4	176.2	178.4	177.8	177.5
46.5°	156.7	157.0	156.8	159.3	165.9	168.5	172.3	174.0	176.2	175.7	175.4
47°	154.5	154.7	154.6	157.0	163.6	166.2	170.1	171.8	174.0	173.5	173.3
47.5°	152.2	152.5	152.4	154.7	161.4	164.0	167.8	169.6	171.8	171.3	171.0
48°	150.0	150.1	150.0	152.5	159.2	161.9	165.5	167.4	169.6	169.2	168.8
48.5°	147.8	147.8	147.9	150.1	156.9	159.6	163.3	165.2	167.3	167.0	166.6
49°	145.4	145.6	145.6	147.8	154.6	157.3	161.1	163.0	165.1	164.8	164.4
49.5°	143.1	143.2	143.3	145.6	152.4	155.0	158.9	160.7	162.9	162.5	162.2
50°	140.8	140.9	141.0	143.3	150.1	152.8	156.5	158.4	160.7	160.2	159.9
50.5°	138.4	138.7	138.8	141.0	147.8	150.4	154.3	156.2	158.4	157.9	157.7
51°	136.1	136.3	136.4	138.7	145.5	148.2	152.0	153.9	156.1	155.6	155.4
51.5°	133.9	133.9	134.2	136.2	143.2	145.9	149.6	151.6	153.8	153.3	153.0
52°	131.5	131.6	132.0	133.9	140.9	143.6	147.3	149.4	151.5	151.0	150.9
52.5°	129.2	129.3	129.7	131.7	138.7	141.3	145.0	147.0	149.2	148.7	148.7
53°	126.8	127.0	127.4	129.4	136.4	139.1	142.6	144.7	147.0	146.3	146.3
53.5°	124.6	124.8	125.2	127.1	134.0	136.7	140.4	142.5	144.6	144.0	144.1
54°	122.2	122.4	122.8	124.8	131.8	134.4	138.0	140.2	142.2	141.7	141.8
54.5°	120.1	120.0	120.6	122.5	129.4	132.1	135.6	137.8	139.9	139.4	139.4
55°	117.7	117.8	118.4	120.1	127.1	129.8	133.4	135.7	137.5	137.1	137.1
55.5°	115.4	115.4	116.1	117.9	124.9	127.5	130.9	133.2	135.2	134.7	134.8
56°	113.2	113.1	113.7	115.6	122.5	125.4	128.5	130.9	132.9	132.4	132.4
56.5°	111.0	111.0	111.6	113.3	120.2	123.0	126.3	128.6	130.6	130.0	130.2
57°	108.6	108.8	109.3	111.1	118.0	120.6	124.0	126.3	128.3	127.6	127.9
57.5°	106.4	106.4	106.9	108.9	115.7	118.4	121.6	123.9	125.9	125.4	125.5
58°	104.1	104.2	104.7	106.6	113.4	116.1	119.4	121.8	123.5	123.0	123.2
58.5°	102.0	102.0	102.4	104.3	111.1	113.7	116.9	119.4	121.3	120.6	121.0
59°	99.7	99.7	100.3	102.1	108.9	111.6	114.6	117.1	118.9	118.4	118.6
59.5°	97.5	97.5	98.0	99.9	106.6	109.3	112.3	114.8	116.6	116.1	116.3
60°	95.3	95.4	95.9	97.8	104.3	107.0	110.0	112.5	114.4	113.8	114.0
60.5°	93.0	93.3	93.6	95.5	102.2	104.7	107.8	110.2	112.1	111.6	111.8
61°	90.8	91.1	91.4	93.4	100.0	102.4	105.6	108.0	109.8	109.2	109.5
61.5°	88.6	88.9	89.2	91.2	97.8	100.2	103.3	105.6	107.6	106.9	107.3
62°	86.5	86.8	87.0	89.1	95.5	98.0	101.1	103.4	105.3	104.7	104.9
62.5°	84.4	84.7	85.0	86.9	93.4	95.9	98.9	101.2	103.0	102.5	102.7
63°	82.3	82.5	82.9	84.9	91.1	93.6	96.7	99.0	100.8	100.3	100.5
63.5°	80.3	80.5	80.6	82.8	88.9	91.4	94.5	96.7	98.6	98.1	98.2
64°	78.1	78.4	78.6	80.7	86.9	89.2	92.4	94.5	96.3	95.9	96.0
64.5°	76.0	76.4	76.5	78.5	84.7	87.0	90.2	92.2	94.1	93.6	93.8
65°	73.9	74.4	74.4	76.5	82.5	84.9	88.1	90.0	91.9	91.4	91.6
65.5°	71.8	72.3	72.3	74.5	80.3	82.7	86.0	87.8	89.7	89.2	89.3
66°	69.9	70.3	70.2	72.4	78.2	80.6	83.8	85.7	87.6	87.2	87.1
66.5°	67.9	68.2	68.2	70.4	76.2	78.5	81.7	83.7	85.3	85.0	85.0
67°	65.8	66.3	66.4	68.3	74.1	76.4	79.8	81.5	83.3	82.9	82.9



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	63.7	64.3	64.3	66.4	72.1	74.4	77.5	79.2	81.1	80.7	80.8
68°	61.6	62.5	62.3	64.5	70.1	72.3	75.5	77.0	78.8	78.6	78.6
68.5°	59.6	60.5	60.4	62.6	68.0	70.2	73.5	74.9	76.6	76.6	76.5
69°	57.7	58.5	58.4	60.7	66.1	68.2	71.4	72.8	74.5	74.5	74.4
69.5°	55.7	56.6	56.5	58.7	64.2	66.2	69.5	70.7	72.2	72.5	72.3
70°	53.7	54.8	54.6	56.8	62.2	64.3	67.5	68.5	70.1	70.4	70.3
70.5°	51.7	52.9	52.8	54.9	60.2	62.3	65.4	66.5	67.9	68.4	68.2
71°	49.8	51.1	50.9	53.2	58.3	60.4	63.5	64.5	65.9	66.5	66.2
71.5°	47.8	49.3	49.2	51.2	56.5	58.4	61.5	62.3	63.7	64.4	64.3
72°	45.9	47.4	47.5	49.4	54.5	56.4	59.6	60.3	61.5	62.2	62.4
72.5°	44.0	45.6	45.7	47.6	52.7	54.5	57.7	58.1	59.4	60.1	60.3
73°	42.2	43.7	44.0	45.9	50.9	52.8	55.8	56.2	57.4	58.1	58.4
73.5°	40.3	42.0	42.3	44.1	49.1	51.0	53.9	54.2	55.4	56.1	56.5
74°	38.5	40.1	40.5	42.4	47.3	49.2	52.2	52.1	53.3	54.1	54.5
74.5°	36.6	38.4	38.9	40.6	45.5	47.4	50.4	50.1	51.3	52.0	52.7
75°	34.7	36.7	37.1	39.0	43.8	45.6	48.5	48.0	49.3	50.0	50.8
75.5°	32.9	34.9	35.4	37.3	42.1	43.9	46.7	46.1	47.3	48.0	49.0
76°	31.1	33.1	33.8	35.7	40.3	42.1	44.9	44.2	45.4	46.0	47.2
76.5°	29.4	31.4	32.2	34.0	38.7	40.3	43.1	42.3	43.6	44.1	45.5
77°	27.7	29.7	30.7	32.3	37.0	38.8	41.4	40.3	41.7	42.3	43.7
77.5°	26.0	28.0	29.3	30.8	35.4	37.1	39.6	38.6	39.7	40.3	42.0
78°	24.2	26.2	27.7	29.2	33.7	35.4	37.9	36.6	37.9	38.5	40.2
78.5°	22.6	24.6	26.1	27.8	32.3	33.7	36.3	34.7	36.1	36.6	38.6
79°	20.8	23.0	24.6	26.1	30.6	32.1	34.7	32.9	34.1	34.7	37.0
79.5°	19.1	21.4	23.2	24.6	29.0	30.5	33.1	31.1	32.4	32.9	35.3
80°	17.5	19.9	21.5	23.0	27.6	29.1	31.4	29.3	30.5	31.1	33.6
80.5°	15.9	18.5	20.1	21.5	25.9	27.5	29.7	27.7	28.8	29.4	32.1
81°	14.3	17.0	18.7	20.0	24.5	26.0	28.1	26.0	27.0	27.8	30.4
81.5°	12.7	15.9	17.2	18.6	22.9	24.5	26.4	24.3	25.2	25.9	29.0
82°	11.3	14.4	15.9	17.2	21.3	22.9	24.9	22.5	23.5	24.2	27.5
82.5°	10.2	13.1	14.5	15.8	19.8	21.4	23.4	20.8	21.8	22.5	25.8
83°	9.3	11.8	12.9	14.3	18.3	19.8	21.9	19.1	19.9	20.8	24.2
83.5°	8.2	10.4	11.6	12.7	16.9	18.4	20.3	17.5	18.3	19.5	22.8
84°	7.1	9.1	10.3	11.5	15.4	16.9	18.8	16.2	16.6	17.9	21.2
84.5°	6.0	7.7	8.9	10.1	14.1	15.6	17.5	14.9	15.1	16.4	19.6
85°	5.2	6.7	7.6	8.9	12.5	14.2	15.9	13.8	13.6	15.4	18.1
85.5°	4.1	5.5	6.1	7.4	11.1	12.6	14.4	12.5	12.0	14.2	16.7
86°	3.2	4.1	4.9	5.9	9.7	11.2	13.0	11.2	10.9	12.5	15.3
86.5°	2.3	3.0	3.7	4.8	8.5	9.9	11.7	10.2	9.9	11.4	13.8
87°	1.4	2.0	2.3	3.5	7.2	8.7	10.2	9.3	9.0	10.4	12.2
87.5°	0.5	0.6	1.2	2.2	5.7	7.5	9.0	8.0	7.7	9.2	10.9
88°	0.0	0.0	0.0	0.9	4.4	5.9	7.4	6.9	6.8	8.0	9.3
88.5°	0.0	0.0	0.0	0.0	3.1	4.8	6.1	5.8	5.7	6.8	8.3
89°	0.0	0.0	0.0	0.0	1.9	3.3	4.9	4.8	4.9	5.8	6.8
89.5°	0.0	0.0	0.0	0.0	0.5	2.2	3.8	3.9	4.0	4.8	5.3



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

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	2.2	2.8	2.9	3.9	3.6



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	253.7	253.7	253.7	253.7	253.7	253.7
0.5°	253.9	253.7	253.6	253.7	253.6	253.6
1°	253.9	253.7	253.6	253.6	253.5	253.6
1.5°	253.9	253.7	253.5	253.6	253.4	253.5
2°	253.9	253.7	253.5	253.5	253.3	253.4
2.5°	253.9	253.6	253.4	253.5	253.3	253.3
3°	253.9	253.6	253.4	253.4	253.2	253.3
3.5°	253.9	253.5	253.3	253.3	253.1	253.0
4°	253.9	253.5	253.3	253.3	252.9	252.8
4.5°	253.9	253.4	253.2	253.1	252.7	252.7
5°	253.8	253.3	253.2	252.9	252.6	252.5
5.5°	253.8	253.3	252.9	252.7	252.4	252.3
6°	253.7	253.1	252.7	252.6	252.3	252.2
6.5°	253.6	252.9	252.6	252.4	252.1	251.9
7°	253.5	252.7	252.4	252.2	251.9	251.8
7.5°	253.4	252.6	252.2	252.0	251.7	251.6
8°	253.3	252.4	252.1	251.8	251.5	251.3
8.5°	253.3	252.3	251.8	251.6	251.4	251.0
9°	252.9	252.1	251.6	251.6	250.9	250.7
9.5°	252.7	251.9	251.5	251.1	250.7	250.5
10°	252.6	251.6	251.4	250.9	250.4	250.1
10.5°	252.3	251.6	250.9	250.5	250.1	249.9
11°	252.2	251.1	250.7	250.2	249.8	249.5
11.5°	251.9	250.9	250.3	249.9	249.7	249.1
12°	251.7	250.6	250.1	249.8	249.1	248.8
12.5°	251.6	250.3	249.8	249.3	248.8	248.4
13°	251.3	250.0	249.6	248.9	248.3	247.9
13.5°	250.9	249.8	249.0	248.5	247.9	247.5
14°	250.6	249.3	248.8	248.1	247.6	247.2
14.5°	250.3	248.9	248.3	247.6	247.2	246.6
15°	249.9	248.5	247.9	247.2	246.6	246.1
15.5°	249.8	248.0	247.5	246.7	246.2	245.6
16°	249.2	247.6	247.2	246.2	245.6	245.1
16.5°	248.9	247.2	246.5	245.7	245.2	244.6
17°	248.4	246.7	246.1	245.2	244.6	244.0
17.5°	248.0	246.2	245.6	244.7	244.0	243.4
18°	247.5	245.7	245.1	244.1	243.5	242.8
18.5°	247.2	245.1	244.5	243.4	242.9	242.1
19°	246.6	244.7	243.9	242.9	242.2	241.5
19.5°	246.0	244.0	243.2	242.2	241.5	240.8
20°	245.5	243.4	242.7	241.5	241.0	240.0
20.5°	244.9	242.8	241.9	240.9	240.1	239.5
21°	244.3	242.0	241.3	240.1	239.4	238.5
21.5°	243.6	241.4	240.6	239.5	238.6	237.7
22°	243.0	240.6	239.9	238.5	237.8	236.8



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	242.4	239.9	239.2	237.8	236.9	236.1
23°	241.7	239.3	238.3	236.8	236.1	235.1
23.5°	241.2	238.3	237.6	236.1	235.2	234.2
24°	240.2	237.7	236.5	235.1	234.3	233.3
24.5°	239.5	236.6	235.8	234.1	233.4	232.3
25°	238.6	235.9	234.8	233.2	232.4	231.2
25.5°	237.8	234.9	233.8	232.2	231.3	230.2
26°	236.9	233.8	232.9	231.1	230.4	229.1
26.5°	236.1	232.9	231.8	230.1	229.2	228.0
27°	235.2	231.9	230.8	229.1	228.1	226.9
27.5°	234.2	230.8	229.7	227.9	227.1	225.8
28°	233.3	229.7	228.7	226.7	225.8	224.5
28.5°	232.2	228.6	227.4	225.7	224.5	223.2
29°	231.1	227.4	226.2	224.2	223.4	222.0
29.5°	230.0	226.3	225.1	223.0	222.0	220.7
30°	229.0	225.1	223.8	221.6	220.7	219.3
30.5°	227.7	223.9	222.4	220.4	219.3	217.9
31°	226.6	222.5	221.0	218.9	217.9	216.4
31.5°	225.4	221.1	219.7	217.5	216.6	215.0
32°	224.0	219.7	218.4	216.0	215.1	213.5
32.5°	222.7	218.3	216.9	214.5	213.5	211.9
33°	221.3	217.0	215.4	213.0	212.0	210.3
33.5°	220.0	215.4	213.8	211.5	210.4	208.7
34°	218.7	213.9	212.3	209.9	208.7	207.0
34.5°	217.2	212.4	210.7	208.3	207.1	205.4
35°	215.6	210.8	209.1	206.7	205.5	203.6
35.5°	214.1	209.1	207.5	205.0	203.7	201.8
36°	212.6	207.4	205.9	203.3	202.0	200.1
36.5°	211.0	205.7	204.2	201.5	200.2	198.3
37°	209.4	204.0	202.4	199.7	198.4	196.4
37.5°	207.7	202.3	200.6	197.8	196.6	194.7
38°	206.0	200.5	198.8	196.0	194.7	192.8
38.5°	204.3	198.7	196.9	194.1	192.8	190.9
39°	202.5	196.8	195.0	192.1	190.9	188.8
39.5°	200.7	194.9	193.1	190.1	189.0	186.8
40°	198.9	193.0	191.2	188.2	187.0	184.8
40.5°	197.0	191.2	189.2	186.1	184.9	182.7
41°	195.1	189.2	187.2	184.2	182.8	180.8
41.5°	193.2	187.1	185.3	182.1	180.7	178.7
42°	191.3	185.1	183.2	180.1	178.7	176.5
42.5°	189.3	183.0	181.1	177.9	176.7	174.3
43°	187.3	180.9	179.1	175.8	174.4	172.1
43.5°	185.2	178.9	177.0	173.8	172.2	170.0
44°	183.1	176.8	174.9	171.5	170.2	167.8
44.5°	181.0	174.6	172.7	169.4	168.0	165.6



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	179.0	172.5	170.5	167.2	165.8	163.5
45.5°	176.9	170.4	168.3	165.0	163.6	161.2
46°	174.7	168.2	166.2	162.7	161.4	159.0
46.5°	172.5	165.9	163.9	160.4	159.2	156.7
47°	170.3	163.7	161.7	158.2	156.9	154.5
47.5°	168.1	161.5	159.5	155.9	154.6	152.2
48°	165.9	159.2	157.2	153.7	152.4	150.0
48.5°	163.7	157.0	154.9	151.4	150.0	147.8
49°	161.5	154.7	152.6	149.2	147.8	145.4
49.5°	159.1	152.5	150.4	146.8	145.5	143.1
50°	156.8	150.1	148.1	144.5	143.3	140.8
50.5°	154.5	147.9	145.8	142.2	141.0	138.4
51°	152.2	145.5	143.5	139.8	138.7	136.1
51.5°	149.9	143.2	141.1	137.5	136.4	133.9
52°	147.7	141.0	138.8	135.3	134.1	131.5
52.5°	145.3	138.7	136.7	132.8	131.8	129.2
53°	143.0	136.4	134.3	130.6	129.6	126.8
53.5°	140.7	134.1	132.0	128.2	127.3	124.6
54°	138.3	131.9	129.7	125.8	125.0	122.2
54.5°	136.0	129.5	127.4	123.5	122.7	120.1
55°	133.7	127.2	125.0	121.3	120.3	117.7
55.5°	131.3	125.0	122.7	118.9	118.0	115.4
56°	129.0	122.6	120.4	116.7	115.8	113.2
56.5°	126.7	120.4	118.1	114.4	113.5	111.0
57°	124.3	118.1	115.9	112.0	111.2	108.6
57.5°	122.1	115.7	113.6	109.9	109.0	106.4
58°	119.7	113.4	111.3	107.5	106.6	104.1
58.5°	117.3	111.3	109.1	105.3	104.4	102.0
59°	115.1	108.9	106.7	103.0	102.1	99.7
59.5°	112.8	106.6	104.4	100.9	99.9	97.5
60°	110.5	104.5	102.3	98.6	97.7	95.3
60.5°	108.3	102.2	100.1	96.4	95.4	93.0
61°	106.0	99.9	97.8	94.4	93.3	90.8
61.5°	103.7	97.7	95.6	92.1	91.1	88.6
62°	101.6	95.5	93.5	89.9	88.9	86.5
62.5°	99.4	93.3	91.2	87.9	86.7	84.4
63°	97.2	91.1	89.0	85.7	84.5	82.3
63.5°	95.0	89.0	86.9	83.7	82.4	80.3
64°	92.7	86.7	84.8	81.6	80.3	78.1
64.5°	90.6	84.6	82.6	79.4	78.2	76.0
65°	88.4	82.3	80.5	77.3	76.1	73.9
65.5°	86.4	80.4	78.3	75.3	74.0	71.8
66°	84.2	78.2	76.3	73.3	72.0	69.9
66.5°	82.1	76.1	74.2	71.3	69.8	67.9
67°	80.1	74.1	72.1	69.2	67.9	65.8



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	77.9	71.9	70.1	67.2	66.0	63.7
68°	75.8	69.9	68.0	65.2	63.9	61.6
68.5°	73.8	68.0	66.2	63.2	61.7	59.6
69°	71.8	65.9	64.2	61.3	59.7	57.7
69.5°	69.9	64.0	62.2	59.4	57.7	55.7
70°	67.8	62.0	60.2	57.6	55.7	53.7
70.5°	65.8	60.1	58.3	55.7	53.7	51.7
71°	63.9	58.1	56.4	53.8	51.7	49.8
71.5°	61.8	56.3	54.5	51.9	49.7	47.8
72°	59.9	54.4	52.7	50.1	47.7	45.9
72.5°	58.0	52.6	50.8	48.2	45.8	44.0
73°	56.2	50.8	49.0	46.5	43.9	42.2
73.5°	54.3	49.0	47.2	44.7	42.0	40.3
74°	52.5	47.2	45.5	43.1	40.1	38.5
74.5°	50.6	45.4	43.8	41.2	38.3	36.6
75°	48.7	43.7	42.1	39.4	36.6	34.7
75.5°	46.9	42.0	40.2	37.5	34.8	32.9
76°	45.1	40.2	38.6	35.8	33.0	31.1
76.5°	43.4	38.5	37.0	34.1	31.1	29.4
77°	41.8	36.9	35.3	32.5	29.5	27.7
77.5°	40.1	35.3	33.7	30.7	27.7	26.0
78°	38.2	33.6	32.1	29.2	25.9	24.2
78.5°	36.6	31.8	30.5	27.5	24.3	22.6
79°	34.8	30.3	29.0	25.8	22.7	20.8
79.5°	33.3	28.7	27.5	24.2	21.0	19.1
80°	31.7	27.2	25.8	22.7	19.3	17.5
80.5°	30.1	25.8	24.4	21.2	17.6	15.9
81°	28.5	24.2	22.8	19.7	15.9	14.3
81.5°	26.9	22.7	21.2	18.1	14.4	12.7
82°	25.3	21.2	19.7	16.7	12.9	11.3
82.5°	23.8	19.8	18.3	15.4	11.7	10.2
83°	22.3	18.1	16.8	14.0	10.4	9.3
83.5°	20.8	16.7	15.3	12.5	9.2	8.2
84°	19.5	15.3	13.9	11.1	8.2	7.1
84.5°	18.0	14.1	12.4	9.9	7.3	6.0
85°	16.3	12.4	11.0	8.8	6.1	5.2
85.5°	15.1	11.1	9.6	7.6	5.1	4.1
86°	13.7	9.6	8.4	6.0	4.0	3.2
86.5°	12.2	8.4	7.0	5.0	3.1	2.3
87°	11.0	7.0	5.6	3.9	2.2	1.4
87.5°	9.3	5.8	4.1	2.4	1.4	0.5
88°	8.1	4.3	2.9	1.4	0.4	0.0
88.5°	6.8	3.0	1.6	0.1	0.0	0.0
89°	5.7	1.7	0.5	0.0	0.0	0.0
89.5°	4.0	0.6	0.0	0.0	0.0	0.0



TEST NUMBER: P256766

CATALOG NUMBER: HLB4069FS1EMW-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	2.6	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)