

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: P256765

Luminaire Tested: **HLB4069FS1EMW-2700K**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P256765  
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-2700K  
Description: 4 IN HALO BLADE (600 LUMEN) - 2700K  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 721.0 lumens  
Efficiency: N/A  
Efficacy: 60.1 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

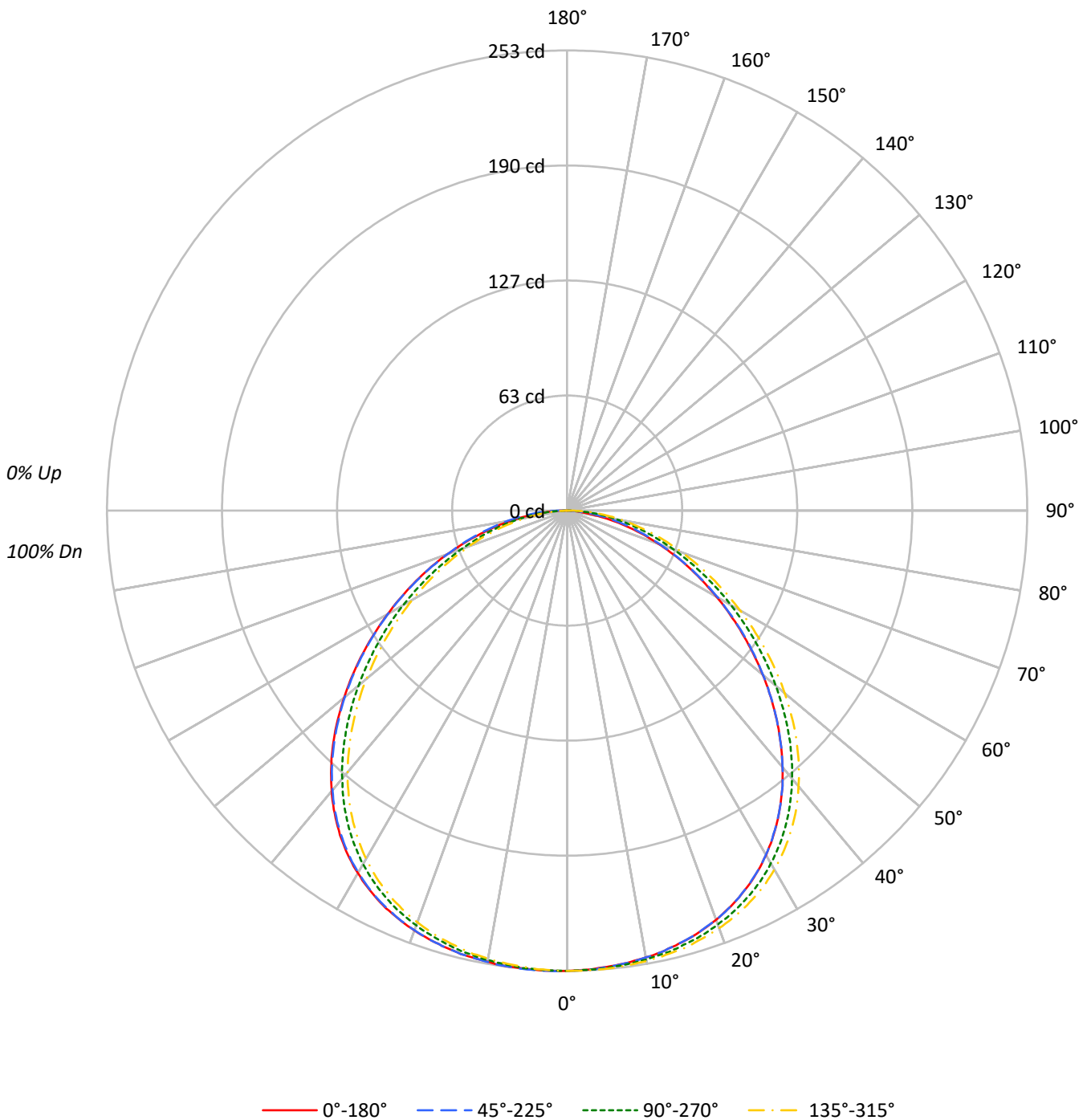
Input Watts (W): 12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

### Luminous Intensity Polar Plot





TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**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°	31094	31094	31094	31094
5°	31053	31127	31201	31164
10°	31112	31274	31424	31299
15°	31224	31441	31746	31517
20°	31299	31665	32109	31730
25°	31259	31801	32452	31882
30°	31025	31776	32656	31833
35°	30460	31495	32665	31525
40°	29557	30856	32315	30872
45°	28337	29866	31638	29901
50°	26834	28592	30618	28612
55°	25146	27138	29387	27159
60°	23367	25554	28011	25578
65°	21424	23924	26657	23866
70°	19253	22270	25108	22199
75°	16471	20791	23354	20696
80°	12310	19456	21508	19173
85°	7330	17479	19170	17338



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	24.0	3.3
10°-20°	70.0	9.7
20°-30°	108.3	15.0
30°-40°	131.3	18.2
40°-50°	132.7	18.4
50°-60°	113.6	15.8
60°-70°	81.9	11.4
70°-80°	45.9	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°	202.3	28.1
0°-40°	333.6	46.3
0°-60°	579.9	80.4
0°-90°	721.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	721.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	253	253	253	253	253	
5°	252	252	253	253	252	24
15°	246	247	250	248	246	69
25°	231	235	239	235	231	106
35°	203	210	218	210	203	127
45°	163	172	182	172	163	126
55°	117	127	137	127	117	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	



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	253.1	253.1	253.1	253.1	253.1	253.1	253.1	253.1	253.1	253.1	253.1
0.5°	253.0	252.9	253.1	253.1	253.0	252.9	253.1	253.1	253.1	253.2	253.3
1°	252.9	252.9	253.0	253.0	252.9	253.0	253.1	253.1	253.2	253.2	253.3
1.5°	252.8	252.8	252.9	252.9	252.9	252.9	253.1	253.1	253.2	253.2	253.3
2°	252.7	252.7	252.9	252.8	252.8	252.9	253.1	253.2	253.2	253.3	253.3
2.5°	252.7	252.6	252.8	252.7	252.8	252.9	253.0	253.1	253.2	253.3	253.3
3°	252.6	252.6	252.7	252.7	252.7	252.9	253.0	253.1	253.2	253.3	253.3
3.5°	252.3	252.4	252.7	252.6	252.7	252.8	252.9	253.1	253.2	253.3	253.3
4°	252.1	252.1	252.3	252.4	252.6	252.8	252.9	253.0	253.1	253.3	253.3
4.5°	251.9	251.9	252.1	252.3	252.6	252.7	252.9	253.0	253.1	253.2	253.2
5°	251.8	251.8	251.9	252.0	252.4	252.7	252.8	252.9	253.0	253.2	253.2
5.5°	251.6	251.6	251.7	251.9	252.2	252.6	252.7	252.9	252.9	253.1	253.2
6°	251.5	251.4	251.5	251.7	252.0	252.3	252.7	252.8	252.9	253.1	253.1
6.5°	251.2	251.2	251.3	251.5	251.9	252.1	252.6	252.8	252.8	253.0	253.0
7°	251.0	250.9	251.1	251.3	251.7	252.0	252.4	252.7	252.7	252.9	252.9
7.5°	250.9	250.8	250.9	251.1	251.6	251.8	252.4	252.7	252.7	252.8	252.8
8°	250.6	250.7	250.9	250.9	251.4	251.6	252.0	252.6	252.6	252.7	252.7
8.5°	250.3	250.2	250.4	250.8	251.2	251.5	251.9	252.2	252.4	252.7	252.6
9°	250.0	250.0	250.1	250.5	251.0	251.3	251.7	252.0	252.4	252.6	252.4
9.5°	249.8	249.7	249.8	250.1	250.8	251.1	251.6	251.9	252.1	252.3	252.2
10°	249.4	249.4	249.5	249.8	250.7	250.9	251.4	251.7	251.9	252.1	252.0
10.5°	249.2	249.1	249.2	249.6	250.3	250.9	251.2	251.5	251.7	251.9	251.8
11°	248.9	249.0	248.9	249.2	250.0	250.4	250.9	251.3	251.5	251.7	251.6
11.5°	248.5	248.4	248.5	249.0	249.7	250.2	250.8	251.1	251.4	251.5	251.4
12°	248.2	248.1	248.2	248.5	249.4	249.9	250.7	250.9	251.2	251.3	251.3
12.5°	247.8	247.7	247.8	248.2	249.2	249.6	250.2	250.9	251.0	251.1	251.0
13°	247.2	247.2	247.2	247.8	249.0	249.3	250.0	250.4	250.8	250.9	250.8
13.5°	246.8	246.8	246.8	247.5	248.4	249.2	249.7	250.1	250.7	250.9	250.7
14°	246.5	246.4	246.6	246.9	248.2	248.7	249.4	249.8	250.2	250.3	250.2
14.5°	245.9	245.9	245.9	246.5	247.7	248.3	249.1	249.5	249.9	250.0	250.0
15°	245.5	245.4	245.4	246.1	247.2	248.0	249.0	249.2	249.6	249.7	249.6
15.5°	245.0	244.9	245.0	245.6	246.9	247.6	248.4	249.1	249.3	249.4	249.3
16°	244.5	244.4	244.4	245.0	246.5	247.1	248.2	248.6	249.1	249.2	249.1
16.5°	244.0	243.9	244.0	244.6	246.0	246.7	247.6	248.2	248.6	248.7	248.6
17°	243.4	243.3	243.3	244.0	245.6	246.2	247.1	247.8	248.3	248.3	248.3
17.5°	242.7	242.7	242.7	243.5	245.0	245.8	246.7	247.4	247.9	247.9	247.9
18°	242.1	242.1	242.0	242.9	244.6	245.2	246.4	246.9	247.5	247.5	247.5
18.5°	241.4	241.4	241.3	242.2	244.0	244.7	245.8	246.5	247.0	247.0	247.0
19°	240.8	240.8	240.7	241.5	243.4	244.2	245.3	246.0	246.6	246.6	246.5
19.5°	240.1	240.2	240.1	240.9	242.9	243.7	244.9	245.5	246.2	246.1	246.0
20°	239.4	239.4	239.4	240.3	242.2	243.1	244.3	245.0	245.6	245.6	245.5
20.5°	238.8	238.7	238.8	239.6	241.5	242.5	243.9	244.5	245.1	245.1	245.0
21°	237.9	237.9	237.8	238.8	240.9	241.8	243.2	244.0	244.6	244.5	244.5
21.5°	237.0	237.0	237.2	238.0	240.3	241.1	242.6	243.3	244.0	244.0	243.9
22°	236.1	236.2	236.1	237.3	239.5	240.6	241.9	242.7	243.4	243.4	243.3



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	235.4	235.4	235.4	236.3	238.8	239.8	241.2	242.0	242.8	242.7	242.7
23°	234.5	234.5	234.4	235.5	238.0	239.1	240.6	241.3	242.1	242.1	242.0
23.5°	233.5	233.6	233.5	234.6	237.2	238.4	239.9	240.7	241.5	241.3	241.2
24°	232.7	232.7	232.7	233.7	236.3	237.5	239.2	240.0	240.8	240.7	240.6
24.5°	231.6	231.6	231.5	232.8	235.5	236.7	238.5	239.2	240.3	240.0	239.9
25°	230.6	230.6	230.5	231.8	234.6	235.7	237.6	238.5	239.4	239.2	239.1
25.5°	229.6	229.5	229.4	230.8	233.8	234.9	236.8	237.7	238.7	238.5	238.4
26°	228.5	228.5	228.5	229.8	232.8	234.0	235.9	236.9	237.8	237.6	237.5
26.5°	227.4	227.4	227.3	228.7	231.8	233.1	235.1	235.9	236.9	236.8	236.7
27°	226.3	226.3	226.1	227.6	230.8	232.2	234.2	235.2	236.0	235.9	235.7
27.5°	225.1	225.1	225.1	226.4	229.9	231.1	233.2	234.2	235.2	235.1	234.9
28°	223.9	223.9	223.8	225.2	228.7	230.2	232.3	233.2	234.2	234.1	233.9
28.5°	222.7	222.7	222.5	224.0	227.6	229.0	231.1	232.2	233.3	233.1	232.9
29°	221.4	221.4	221.2	222.9	226.5	228.0	230.1	231.1	232.4	232.0	231.9
29.5°	220.0	220.0	219.9	221.5	225.2	226.8	229.0	230.2	231.2	231.0	230.8
30°	218.7	218.6	218.5	220.1	224.0	225.6	227.9	229.0	230.2	230.0	229.8
30.5°	217.3	217.3	217.2	218.8	222.9	224.4	226.7	227.9	229.1	228.9	228.6
31°	215.8	215.9	215.7	217.5	221.5	223.3	225.5	226.8	228.1	227.7	227.5
31.5°	214.4	214.4	214.2	216.0	220.2	221.8	224.3	225.5	226.8	226.6	226.4
32°	212.9	212.9	212.8	214.5	218.8	220.5	223.1	224.3	225.6	225.3	225.1
32.5°	211.3	211.3	211.1	213.0	217.5	219.1	221.7	223.1	224.5	224.1	223.8
33°	209.7	209.8	209.6	211.5	216.1	217.8	220.4	221.7	223.2	222.8	222.5
33.5°	208.1	208.2	208.0	209.9	214.5	216.4	219.0	220.3	221.7	221.5	221.2
34°	206.4	206.6	206.3	208.3	213.0	214.9	217.8	218.9	220.3	220.1	219.8
34.5°	204.8	204.9	204.7	206.7	211.5	213.4	216.2	217.6	219.0	218.7	218.4
35°	203.1	203.2	203.0	205.0	210.0	211.9	214.7	216.1	217.8	217.3	217.0
35.5°	201.2	201.5	201.2	203.4	208.4	210.3	213.2	214.7	216.1	215.7	215.5
36°	199.5	199.7	199.5	201.7	206.7	208.7	211.6	213.1	214.6	214.3	214.1
36.5°	197.7	198.0	197.7	199.8	205.0	207.1	210.1	211.5	213.1	212.8	212.6
37°	195.8	196.1	195.8	198.1	203.3	205.4	208.5	209.9	211.5	211.2	210.9
37.5°	194.1	194.2	194.1	196.2	201.6	203.7	206.9	208.3	209.9	209.6	209.3
38°	192.3	192.4	192.3	194.3	199.8	202.0	205.1	206.7	208.4	208.0	207.7
38.5°	190.3	190.4	190.3	192.5	198.1	200.1	203.5	204.9	206.7	206.2	205.9
39°	188.3	188.5	188.3	190.5	196.2	198.4	201.7	203.1	205.0	204.5	204.3
39.5°	186.3	186.6	186.3	188.6	194.3	196.6	199.8	201.3	203.2	202.8	202.5
40°	184.3	184.5	184.3	186.7	192.4	194.6	198.0	199.5	201.5	201.0	200.7
40.5°	182.2	182.5	182.2	184.6	190.5	192.8	196.1	197.8	199.6	199.2	198.9
41°	180.2	180.3	180.2	182.6	188.6	190.8	194.3	195.8	197.8	197.4	197.1
41.5°	178.2	178.3	178.2	180.5	186.6	188.9	192.4	194.1	195.9	195.5	195.2
42°	176.0	176.3	176.1	178.4	184.5	187.0	190.4	192.1	194.0	193.6	193.4
42.5°	173.8	174.2	173.9	176.4	182.5	184.9	188.5	190.1	192.1	191.8	191.4
43°	171.7	172.0	171.7	174.3	180.4	182.8	186.5	188.1	190.1	189.7	189.4
43.5°	169.5	169.8	169.6	172.1	178.4	180.7	184.4	186.0	188.2	187.6	187.4
44°	167.4	167.7	167.4	169.9	176.4	178.7	182.4	184.0	186.2	185.6	185.3
44.5°	165.1	165.4	165.2	167.7	174.1	176.8	180.3	182.0	184.1	183.6	183.3



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	163.1	163.2	163.2	165.5	171.9	174.5	178.2	180.0	182.1	181.7	181.3
45.5°	160.8	161.1	161.0	163.3	169.8	172.4	176.3	177.8	179.9	179.5	179.1
46°	158.5	158.9	158.6	161.1	167.6	170.2	174.0	175.7	177.9	177.4	177.1
46.5°	156.3	156.6	156.4	158.9	165.4	168.0	171.8	173.6	175.7	175.2	174.9
47°	154.0	154.3	154.2	156.6	163.2	165.8	169.6	171.4	173.5	173.1	172.8
47.5°	151.8	152.1	152.0	154.3	161.0	163.6	167.4	169.1	171.4	170.8	170.5
48°	149.5	149.7	149.6	152.1	158.7	161.5	165.1	166.9	169.1	168.7	168.4
48.5°	147.4	147.5	147.5	149.7	156.5	159.1	162.9	164.8	166.9	166.6	166.2
49°	144.9	145.1	145.1	147.5	154.1	156.9	160.6	162.6	164.6	164.3	164.0
49.5°	142.7	142.8	142.9	145.2	152.0	154.6	158.4	160.2	162.5	162.1	161.8
50°	140.4	140.6	140.7	142.9	149.6	152.4	156.1	158.0	160.2	159.7	159.5
50.5°	138.0	138.3	138.4	140.6	147.4	150.0	153.8	155.8	157.9	157.5	157.3
51°	135.8	135.9	136.1	138.3	145.1	147.8	151.6	153.4	155.7	155.1	154.9
51.5°	133.5	133.5	133.8	135.9	142.8	145.6	149.2	151.2	153.4	152.9	152.6
52°	131.2	131.3	131.7	133.5	140.6	143.2	146.9	149.0	151.2	150.7	150.4
52.5°	128.8	128.9	129.3	131.4	138.3	140.9	144.5	146.7	148.8	148.3	148.2
53°	126.5	126.7	127.0	129.0	136.1	138.7	142.3	144.3	146.6	146.0	145.9
53.5°	124.2	124.4	124.8	126.7	133.6	136.3	140.0	142.1	144.2	143.6	143.6
54°	121.9	122.0	122.5	124.4	131.4	134.0	137.6	139.7	141.9	141.3	141.4
54.5°	119.7	119.7	120.3	122.2	129.1	131.8	135.3	137.4	139.5	139.0	139.0
55°	117.4	117.5	118.0	119.8	126.7	129.4	133.0	135.3	137.2	136.7	136.7
55.5°	115.2	115.2	115.8	117.5	124.5	127.2	130.5	132.9	134.8	134.3	134.4
56°	112.9	112.8	113.4	115.3	122.2	125.1	128.2	130.6	132.6	132.0	132.1
56.5°	110.7	110.8	111.3	113.0	119.8	122.6	126.0	128.2	130.3	129.6	129.8
57°	108.3	108.4	109.0	110.8	117.6	120.3	123.6	126.0	127.9	127.3	127.5
57.5°	106.1	106.2	106.7	108.6	115.4	118.1	121.3	123.6	125.6	125.1	125.2
58°	103.8	103.9	104.4	106.3	113.0	115.8	119.0	121.5	123.2	122.6	122.9
58.5°	101.7	101.7	102.2	104.0	110.8	113.4	116.6	119.0	121.0	120.3	120.7
59°	99.4	99.4	100.1	101.9	108.6	111.3	114.2	116.7	118.6	118.1	118.2
59.5°	97.2	97.2	97.7	99.7	106.3	109.0	112.0	114.4	116.3	115.8	116.0
60°	95.1	95.2	95.6	97.5	104.0	106.7	109.8	112.2	114.0	113.4	113.7
60.5°	92.7	93.1	93.3	95.3	101.9	104.4	107.5	109.9	111.8	111.3	111.5
61°	90.6	90.8	91.2	93.2	99.7	102.2	105.3	107.6	109.5	108.9	109.2
61.5°	88.4	88.6	88.9	91.0	97.5	100.0	103.0	105.3	107.3	106.6	107.0
62°	86.3	86.5	86.8	88.8	95.3	97.7	100.8	103.1	105.1	104.4	104.7
62.5°	84.2	84.5	84.8	86.7	93.1	95.7	98.6	101.0	102.7	102.2	102.4
63°	82.0	82.3	82.6	84.7	90.8	93.4	96.4	98.7	100.5	100.1	100.2
63.5°	80.1	80.3	80.4	82.5	88.7	91.2	94.2	96.4	98.3	97.8	97.9
64°	77.9	78.2	78.4	80.5	86.6	88.9	92.1	94.2	96.1	95.7	95.7
64.5°	75.8	76.2	76.3	78.3	84.5	86.8	90.0	92.0	93.8	93.4	93.5
65°	73.7	74.2	74.2	76.3	82.3	84.7	87.8	89.8	91.7	91.2	91.3
65.5°	71.6	72.1	72.1	74.4	80.1	82.4	85.7	87.6	89.5	88.9	89.0
66°	69.8	70.1	70.1	72.2	78.0	80.4	83.5	85.5	87.3	86.9	86.9
66.5°	67.7	68.0	68.0	70.2	76.0	78.3	81.5	83.4	85.1	84.8	84.8
67°	65.6	66.1	66.2	68.1	74.0	76.2	79.6	81.2	83.0	82.6	82.6





TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	63.5	64.2	64.2	66.2	71.9	74.2	77.3	79.0	80.9	80.5	80.6
68°	61.4	62.3	62.1	64.3	69.9	72.1	75.3	76.8	78.6	78.4	78.3
68.5°	59.5	60.3	60.2	62.4	67.8	70.0	73.3	74.8	76.4	76.4	76.3
69°	57.5	58.3	58.2	60.5	66.0	67.9	71.2	72.6	74.3	74.3	74.3
69.5°	55.6	56.5	56.4	58.5	64.1	66.1	69.3	70.6	72.0	72.3	72.1
70°	53.6	54.7	54.5	56.6	62.0	64.1	67.3	68.3	69.9	70.2	70.1
70.5°	51.6	52.7	52.6	54.8	60.1	62.1	65.3	66.4	67.7	68.1	68.0
71°	49.7	50.9	50.8	53.0	58.1	60.2	63.3	64.4	65.8	66.3	66.0
71.5°	47.6	49.2	49.1	51.1	56.3	58.2	61.3	62.1	63.5	64.2	64.2
72°	45.8	47.2	47.3	49.3	54.4	56.3	59.4	60.1	61.4	62.0	62.2
72.5°	43.9	45.4	45.5	47.4	52.5	54.4	57.5	57.9	59.3	60.0	60.2
73°	42.1	43.6	43.9	45.8	50.7	52.6	55.6	56.0	57.2	57.9	58.2
73.5°	40.2	41.8	42.1	44.0	49.0	50.9	53.8	54.1	55.3	56.0	56.4
74°	38.4	40.0	40.4	42.3	47.1	49.1	52.0	52.0	53.2	54.0	54.4
74.5°	36.5	38.2	38.8	40.5	45.4	47.2	50.2	50.0	51.1	51.9	52.5
75°	34.7	36.6	37.0	38.9	43.8	45.5	48.3	47.8	49.2	49.9	50.7
75.5°	32.8	34.8	35.3	37.2	42.0	43.8	46.6	46.0	47.2	47.8	48.9
76°	31.0	33.0	33.8	35.6	40.2	42.0	44.8	44.1	45.3	45.9	47.0
76.5°	29.3	31.3	32.1	33.9	38.6	40.2	42.9	42.2	43.5	44.0	45.3
77°	27.6	29.7	30.6	32.2	36.9	38.7	41.3	40.2	41.6	42.1	43.7
77.5°	25.9	27.8	29.2	30.7	35.3	37.0	39.6	38.5	39.6	40.2	41.8
78°	24.2	26.1	27.6	29.2	33.7	35.3	37.8	36.5	37.7	38.4	40.1
78.5°	22.5	24.6	26.0	27.6	32.2	33.6	36.2	34.7	36.0	36.5	38.6
79°	20.7	23.0	24.6	26.0	30.5	32.0	34.6	32.8	34.1	34.6	36.8
79.5°	19.1	21.4	23.1	24.5	29.0	30.4	32.9	31.0	32.2	32.7	35.2
80°	17.4	19.9	21.4	23.0	27.5	29.1	31.3	29.3	30.4	31.0	33.6
80.5°	15.9	18.5	20.0	21.4	25.9	27.4	29.6	27.6	28.8	29.3	32.0
81°	14.3	17.0	18.7	19.9	24.4	25.9	28.0	25.9	26.9	27.6	30.4
81.5°	12.6	15.8	17.1	18.6	22.8	24.4	26.3	24.3	25.2	25.8	28.9
82°	11.3	14.3	15.8	17.1	21.2	22.8	24.9	22.4	23.4	24.1	27.4
82.5°	10.2	13.1	14.5	15.8	19.7	21.4	23.4	20.7	21.7	22.4	25.7
83°	9.3	11.8	12.9	14.3	18.3	19.8	21.8	19.0	19.9	20.8	24.2
83.5°	8.2	10.3	11.6	12.8	16.8	18.4	20.2	17.4	18.3	19.4	22.7
84°	7.1	9.1	10.2	11.4	15.4	16.8	18.8	16.1	16.5	17.8	21.1
84.5°	6.0	7.6	8.9	10.1	14.1	15.5	17.4	14.8	15.0	16.3	19.5
85°	5.2	6.6	7.5	8.9	12.4	14.1	15.9	13.8	13.6	15.4	18.1
85.5°	4.1	5.5	6.1	7.3	11.1	12.6	14.4	12.4	12.0	14.1	16.6
86°	3.2	4.1	4.9	5.9	9.7	11.2	13.0	11.1	10.8	12.5	15.2
86.5°	2.3	3.0	3.7	4.8	8.5	9.9	11.6	10.2	9.9	11.4	13.8
87°	1.3	1.9	2.2	3.6	7.2	8.7	10.2	9.3	9.0	10.4	12.2
87.5°	0.5	0.6	1.1	2.1	5.6	7.4	9.0	8.1	7.8	9.2	10.8
88°	0.0	0.0	0.0	0.8	4.4	5.8	7.3	6.8	6.7	8.1	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: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**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: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	253.1	253.1	253.1	253.1	253.1	253.1
0.5°	253.2	253.0	252.9	253.1	252.9	253.0
1°	253.2	253.0	252.9	253.0	252.9	252.9
1.5°	253.3	253.0	252.9	252.9	252.8	252.8
2°	253.3	253.0	252.8	252.9	252.7	252.7
2.5°	253.3	253.0	252.8	252.8	252.6	252.7
3°	253.3	252.9	252.7	252.7	252.6	252.6
3.5°	253.3	252.9	252.7	252.7	252.4	252.3
4°	253.3	252.8	252.6	252.6	252.2	252.1
4.5°	253.2	252.7	252.6	252.3	252.0	251.9
5°	253.2	252.7	252.4	252.1	251.8	251.8
5.5°	253.1	252.7	252.2	252.0	251.7	251.6
6°	253.0	252.4	252.0	251.8	251.5	251.5
6.5°	252.9	252.2	251.8	251.6	251.4	251.2
7°	252.9	252.0	251.7	251.5	251.2	251.0
7.5°	252.7	251.9	251.5	251.3	251.0	250.9
8°	252.7	251.7	251.3	251.1	250.8	250.6
8.5°	252.6	251.5	251.1	250.9	250.7	250.3
9°	252.2	251.4	250.9	250.9	250.2	250.0
9.5°	252.0	251.1	250.8	250.4	250.0	249.8
10°	251.8	250.9	250.7	250.2	249.7	249.4
10.5°	251.6	250.9	250.2	249.9	249.4	249.2
11°	251.5	250.5	250.0	249.5	249.2	248.9
11.5°	251.2	250.2	249.7	249.3	249.0	248.5
12°	251.0	249.9	249.4	249.2	248.4	248.2
12.5°	250.9	249.6	249.1	248.6	248.2	247.8
13°	250.6	249.3	249.0	248.3	247.7	247.2
13.5°	250.2	249.2	248.4	247.8	247.2	246.8
14°	249.9	248.6	248.1	247.4	246.8	246.5
14.5°	249.6	248.3	247.7	246.9	246.5	245.9
15°	249.3	247.8	247.2	246.5	245.9	245.5
15.5°	249.1	247.4	246.7	246.0	245.5	245.0
16°	248.6	246.9	246.5	245.6	245.0	244.5
16.5°	248.2	246.5	245.8	245.1	244.6	244.0
17°	247.8	246.0	245.4	244.6	244.0	243.4
17.5°	247.2	245.5	244.9	244.1	243.4	242.7
18°	246.8	245.0	244.4	243.4	242.8	242.1
18.5°	246.5	244.5	243.9	242.8	242.1	241.4
19°	245.9	244.0	243.2	242.2	241.5	240.8
19.5°	245.4	243.4	242.6	241.5	240.8	240.1
20°	244.8	242.7	241.9	240.8	240.3	239.4
20.5°	244.3	242.1	241.3	240.2	239.5	238.8
21°	243.7	241.4	240.6	239.4	238.8	237.9
21.5°	243.0	240.7	239.9	238.8	238.0	237.0
22°	242.4	240.0	239.2	237.9	237.2	236.1



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	241.7	239.2	238.6	237.2	236.3	235.4
23°	241.0	238.7	237.7	236.1	235.4	234.5
23.5°	240.5	237.7	236.9	235.4	234.5	233.5
24°	239.6	237.0	235.9	234.5	233.7	232.7
24.5°	238.8	236.0	235.1	233.5	232.8	231.6
25°	238.0	235.2	234.2	232.6	231.7	230.6
25.5°	237.2	234.2	233.2	231.5	230.7	229.6
26°	236.2	233.2	232.3	230.5	229.7	228.5
26.5°	235.4	232.3	231.1	229.5	228.6	227.4
27°	234.5	231.2	230.1	228.5	227.5	226.3
27.5°	233.6	230.2	229.1	227.3	226.4	225.1
28°	232.7	229.1	228.1	226.1	225.1	223.9
28.5°	231.5	228.0	226.8	225.1	223.9	222.7
29°	230.5	226.8	225.6	223.6	222.8	221.4
29.5°	229.4	225.6	224.5	222.4	221.3	220.0
30°	228.4	224.4	223.2	221.0	220.0	218.7
30.5°	227.2	223.3	221.7	219.8	218.7	217.3
31°	225.9	221.8	220.4	218.4	217.4	215.8
31.5°	224.8	220.5	219.1	216.9	216.0	214.4
32°	223.4	219.1	217.9	215.4	214.5	212.9
32.5°	222.1	217.8	216.2	213.9	212.9	211.3
33°	220.7	216.3	214.8	212.5	211.4	209.7
33.5°	219.4	214.8	213.3	210.9	209.8	208.1
34°	218.1	213.3	211.8	209.3	208.2	206.4
34.5°	216.5	211.8	210.1	207.8	206.6	204.8
35°	215.0	210.2	208.6	206.1	204.9	203.1
35.5°	213.6	208.6	207.0	204.4	203.2	201.2
36°	212.0	206.9	205.3	202.8	201.5	199.5
36.5°	210.4	205.2	203.7	200.9	199.6	197.7
37°	208.8	203.5	201.9	199.1	197.9	195.8
37.5°	207.2	201.8	200.0	197.3	196.0	194.1
38°	205.4	199.9	198.2	195.4	194.2	192.3
38.5°	203.8	198.2	196.4	193.6	192.3	190.3
39°	202.0	196.2	194.5	191.7	190.3	188.3
39.5°	200.1	194.3	192.6	189.6	188.5	186.3
40°	198.3	192.5	190.6	187.7	186.5	184.3
40.5°	196.5	190.6	188.7	185.6	184.4	182.2
41°	194.5	188.7	186.8	183.7	182.3	180.2
41.5°	192.7	186.7	184.7	181.7	180.2	178.2
42°	190.7	184.6	182.7	179.6	178.2	176.0
42.5°	188.8	182.6	180.6	177.5	176.2	173.8
43°	186.8	180.4	178.6	175.2	173.9	171.7
43.5°	184.6	178.4	176.5	173.3	171.8	169.5
44°	182.6	176.4	174.4	171.1	169.7	167.4
44.5°	180.5	174.1	172.2	168.9	167.5	165.1



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	178.6	172.1	170.0	166.8	165.3	163.1
45.5°	176.5	169.9	167.9	164.5	163.1	160.8
46°	174.2	167.7	165.8	162.3	161.0	158.5
46.5°	172.0	165.4	163.5	160.0	158.8	156.3
47°	169.8	163.2	161.3	157.8	156.5	154.0
47.5°	167.7	161.1	159.0	155.4	154.2	151.8
48°	165.4	158.8	156.8	153.2	152.0	149.5
48.5°	163.2	156.6	154.4	151.1	149.6	147.4
49°	161.1	154.3	152.3	148.8	147.4	144.9
49.5°	158.7	152.1	150.0	146.4	145.1	142.7
50°	156.4	149.7	147.7	144.1	142.9	140.4
50.5°	154.1	147.5	145.4	141.8	140.6	138.0
51°	151.8	145.1	143.1	139.3	138.3	135.8
51.5°	149.5	142.9	140.8	137.1	136.0	133.5
52°	147.3	140.6	138.4	134.9	133.7	131.2
52.5°	144.8	138.3	136.3	132.5	131.5	128.8
53°	142.6	136.0	133.9	130.3	129.3	126.5
53.5°	140.2	133.7	131.6	127.9	127.0	124.2
54°	137.9	131.5	129.3	125.5	124.6	121.9
54.5°	135.7	129.1	127.1	123.2	122.4	119.7
55°	133.3	126.8	124.6	121.0	120.1	117.4
55.5°	130.9	124.7	122.4	118.5	117.7	115.2
56°	128.6	122.3	120.1	116.4	115.5	112.9
56.5°	126.3	120.1	117.8	114.0	113.1	110.7
57°	123.9	117.8	115.6	111.7	110.9	108.3
57.5°	121.7	115.5	113.2	109.5	108.7	106.1
58°	119.4	113.1	111.0	107.2	106.3	103.8
58.5°	117.0	111.0	108.8	105.0	104.1	101.7
59°	114.8	108.6	106.4	102.8	101.8	99.4
59.5°	112.5	106.4	104.1	100.7	99.6	97.2
60°	110.3	104.1	102.0	98.3	97.4	95.1
60.5°	108.0	101.9	99.8	96.2	95.2	92.7
61°	105.7	99.7	97.5	94.1	93.0	90.6
61.5°	103.4	97.4	95.4	91.9	90.8	88.4
62°	101.3	95.2	93.2	89.7	88.6	86.3
62.5°	99.1	93.0	90.9	87.6	86.5	84.2
63°	96.9	90.8	88.7	85.5	84.3	82.0
63.5°	94.8	88.7	86.6	83.4	82.2	80.1
64°	92.5	86.5	84.6	81.4	80.1	77.9
64.5°	90.4	84.4	82.3	79.3	77.9	75.8
65°	88.2	82.1	80.3	77.1	75.9	73.7
65.5°	86.2	80.2	78.1	75.1	73.7	71.6
66°	83.9	77.9	76.1	73.0	71.8	69.8
66.5°	81.8	75.9	74.0	71.1	69.7	67.7
67°	79.9	73.8	71.9	69.1	67.6	65.6



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	77.7	71.7	70.0	67.0	65.8	63.5
68°	75.6	69.8	67.8	65.0	63.8	61.4
68.5°	73.5	67.7	66.0	63.0	61.5	59.5
69°	71.6	65.8	64.1	61.1	59.6	57.5
69.5°	69.7	63.8	62.0	59.2	57.5	55.6
70°	67.6	61.8	60.0	57.4	55.5	53.6
70.5°	65.6	59.9	58.1	55.6	53.6	51.6
71°	63.8	57.9	56.3	53.7	51.6	49.7
71.5°	61.6	56.1	54.4	51.7	49.6	47.6
72°	59.8	54.2	52.5	50.0	47.6	45.8
72.5°	57.8	52.4	50.7	48.0	45.7	43.9
73°	56.0	50.6	48.9	46.3	43.8	42.1
73.5°	54.2	48.9	47.1	44.6	41.8	40.2
74°	52.4	47.1	45.3	42.9	40.0	38.4
74.5°	50.5	45.3	43.7	41.1	38.2	36.5
75°	48.6	43.6	41.9	39.3	36.5	34.7
75.5°	46.8	41.8	40.1	37.4	34.7	32.8
76°	45.0	40.1	38.6	35.7	32.9	31.0
76.5°	43.2	38.5	36.8	34.0	31.0	29.3
77°	41.6	36.8	35.2	32.4	29.4	27.6
77.5°	40.0	35.2	33.6	30.6	27.6	25.9
78°	38.1	33.6	32.0	29.1	25.8	24.2
78.5°	36.5	31.7	30.4	27.4	24.3	22.5
79°	34.8	30.2	28.9	25.8	22.6	20.7
79.5°	33.3	28.6	27.4	24.2	20.9	19.1
80°	31.6	27.1	25.8	22.6	19.3	17.4
80.5°	30.0	25.7	24.4	21.1	17.5	15.9
81°	28.5	24.1	22.7	19.7	15.9	14.3
81.5°	26.8	22.6	21.2	18.1	14.4	12.6
82°	25.2	21.1	19.7	16.6	12.9	11.3
82.5°	23.8	19.7	18.3	15.3	11.6	10.2
83°	22.2	18.1	16.7	14.0	10.4	9.3
83.5°	20.7	16.6	15.3	12.4	9.2	8.2
84°	19.5	15.3	13.9	11.1	8.2	7.1
84.5°	18.0	14.1	12.3	9.9	7.2	6.0
85°	16.3	12.3	10.9	8.8	6.0	5.2
85.5°	15.1	11.0	9.6	7.5	5.1	4.1
86°	13.7	9.6	8.4	6.0	4.0	3.2
86.5°	12.1	8.4	7.0	5.0	3.1	2.3
87°	10.9	6.9	5.5	3.9	2.1	1.3
87.5°	9.3	5.7	4.1	2.3	1.4	0.5
88°	8.1	4.3	2.9	1.4	0.4	0.0
88.5°	6.7	3.1	1.6	0.1	0.0	0.0
89°	5.7	1.6	0.5	0.0	0.0	0.0
89.5°	4.1	0.5	0.0	0.0	0.0	0.0



TEST NUMBER: P256765

CATALOG NUMBER: HLB4069FS1EMW-2700K

**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)