

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: P85548

Luminaire Tested: **ML709840ICAT120D-495WW06-H750ICAT**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85548
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML709840ICAT120D-495WW06-H750ICAT
Description: HALO 6 INCH LED DOWNLIGHT WITH 900 Lmn MODULE, DIFFUSE LENS AND SEMISPECULAR REFLECTOR WITH PLASTIC SPECULAR KICKER---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE OF 28.75 FEET----
Light Source: (1)SMT LED 4000K
(1)CL-L241-C26L2-A
Ballast/Driver: (1)ELECTRONIC DRIVER
(1)RHPS311BL-CLO

Summary

Lumens per Lamp: 780 (1 lamp)
Luminaire Lumens: 780.5 lumens
Efficiency: 100.1%
Efficacy: 55.7 lumens/watt
Spacing Criteria (0/90/45): 1.29 / 1.31 / 1.33
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

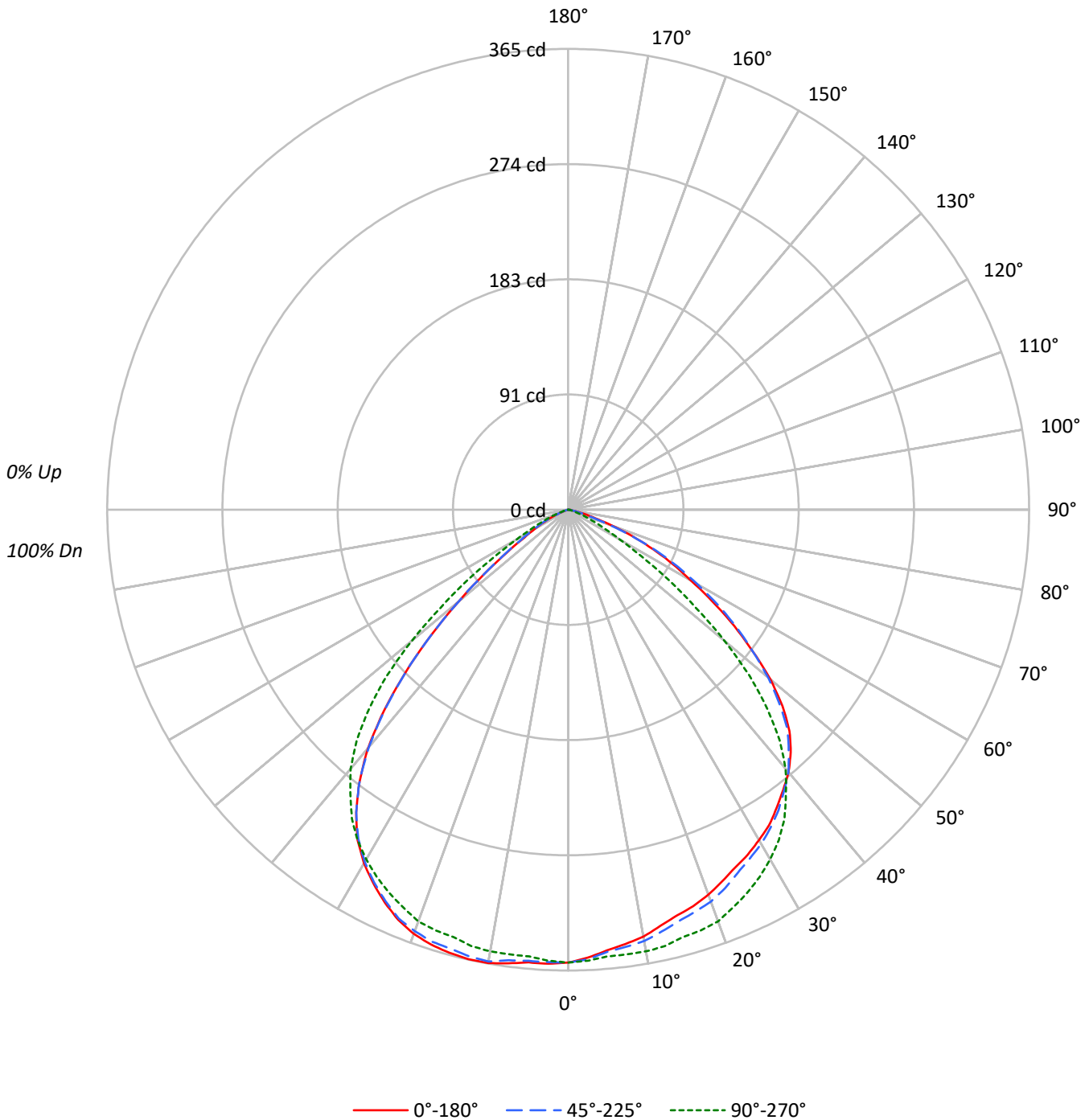
Input Watts (W): 14
Input Voltage (V): NR
Input Current (A_{in}): 0.12081
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89
2	103	97	91	87	101	95	90	86	91	87	84	88	85	82	85	83	80	78
3	96	87	80	75	93	85	79	74	82	77	73	80	75	71	77	74	70	68
4	88	78	71	65	86	77	70	64	75	68	64	72	67	63	70	66	62	60
5	82	71	63	57	80	70	62	57	68	61	56	66	60	56	64	59	55	53
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38
9	62	50	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	35
10	58	46	38	34	57	45	38	34	44	38	33	43	37	33	43	37	33	31

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	21411	21411	21411
5°	20524	20800	21075
10°	19882	20566	21110
15°	19199	20220	20964
20°	18795	20092	20706
25°	18324	19637	20123
30°	18053	19110	19320
35°	17688	18339	17977
40°	17292	17069	15712
45°	16527	14873	12118
50°	14733	11404	7991
55°	12108	7303	4451
60°	9165	3859	2510
65°	6685	2015	1377
70°	3692	948	474
75°	1505	405	139
80°	480	165	165
85°	407	204	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	33.9	4.3	4.3
10°-20°	98.9	12.7	12.7
20°-30°	152.5	19.5	19.6
30°-40°	182.0	23.3	23.3
40°-50°	164.4	21.1	21.1
50°-60°	98.6	12.6	12.6
60°-70°	41.6	5.3	5.3
70°-80°	7.6	1.0	1.0
80°-90°	1.0	0.1	0.1
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	285.3	36.6	36.6
0°-40°	467.3	59.9	59.9
0°-60°	730.3	93.6	93.6
0°-90°	780.5	100.0	100.1
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	780.5	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	359	359	359	359	359	
5°	350	352	355	359	360	33
15°	333	338	350	360	363	94
25°	313	317	335	342	343	145
35°	288	290	298	293	293	180
45°	248	245	223	182	182	189
55°	160	163	97	60	59	143
65°	74	77	22	16	15	73
75°	13	9	4	1	1	16
85°	2	1	1	0	0	2
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7
2.5°	355.2	355.2	355.2	355.2	355.2	355.2	355.2	355.2	356.4	356.4	356.4
5°	350.5	349.3	349.3	350.5	350.5	350.5	350.5	350.5	350.5	351.6	351.6
7.5°	346.9	346.9	346.9	346.9	346.9	348.1	348.1	348.1	349.3	349.3	349.3
10°	343.4	343.4	343.4	343.4	344.6	344.6	344.6	345.7	345.7	346.9	348.1
12.5°	337.5	337.5	337.5	337.5	338.7	338.7	339.8	339.8	341.0	342.2	343.4
15°	332.8	332.8	332.8	332.8	332.8	333.9	335.1	335.1	336.3	337.5	338.7
17.5°	329.2	329.2	329.2	329.2	329.2	330.4	331.6	331.6	332.8	333.9	335.1
20°	324.5	324.5	324.5	324.5	325.7	325.7	326.9	328.0	329.2	330.4	331.6
22.5°	318.6	318.6	318.6	319.8	319.8	321.0	321.0	322.1	323.3	324.5	325.7
25°	312.7	312.7	312.7	312.7	313.9	313.9	315.1	315.1	316.2	317.4	319.8
27.5°	308.0	306.8	306.8	308.0	308.0	308.0	309.2	309.2	310.3	311.5	312.7
30°	302.1	302.1	302.1	302.1	303.3	303.3	303.3	304.4	304.4	305.6	306.8
32.5°	296.2	296.2	296.2	296.2	296.2	296.2	297.4	297.4	297.4	298.5	299.7
35°	287.9	287.9	287.9	287.9	289.1	289.1	289.1	289.1	289.1	290.3	290.3
37.5°	279.7	279.7	279.7	279.7	279.7	279.7	279.7	279.7	279.7	280.8	280.8
40°	271.4	271.4	271.4	271.4	271.4	271.4	271.4	270.2	270.2	271.4	271.4
42.5°	260.8	260.8	260.8	260.8	260.8	259.6	259.6	259.6	259.6	258.4	258.4
45°	247.8	247.8	247.8	246.6	246.6	246.6	246.6	245.4	245.4	245.4	244.3
47.5°	230.1	230.1	230.1	230.1	230.1	228.9	228.9	228.9	227.7	226.6	226.6
50°	208.9	208.9	208.9	208.9	208.9	208.9	207.7	207.7	207.7	206.5	205.3
52.5°	184.1	184.1	185.3	185.3	185.3	185.3	185.3	185.3	185.3	184.1	184.1
55°	160.5	160.5	160.5	161.7	161.7	162.8	162.8	162.8	162.8	162.8	162.8
57.5°	135.7	135.7	136.9	138.1	138.1	139.2	139.2	140.4	140.4	140.4	140.4
60°	112.1	113.3	113.3	114.5	115.6	116.8	116.8	118.0	118.0	118.0	118.0
62.5°	93.2	93.2	94.4	94.4	95.6	95.6	96.8	96.8	96.8	97.9	97.9
65°	74.3	74.3	74.3	75.5	75.5	75.5	75.5	75.5	75.5	76.7	76.7
67.5°	55.5	55.5	55.5	55.5	55.5	54.3	54.3	54.3	54.3	54.3	54.3
70°	36.6	36.6	36.6	36.6	35.4	35.4	34.2	34.2	33.0	33.0	33.0
72.5°	22.4	22.4	21.2	21.2	21.2	20.1	20.1	18.9	17.7	17.7	17.7
75°	13.0	13.0	11.8	11.8	11.8	10.6	10.6	10.6	9.4	9.4	9.4
77.5°	7.1	7.1	7.1	7.1	5.9	5.9	5.9	5.9	5.9	5.9	4.7
80°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7
2.5°	356.4	356.4	356.4	356.4	357.5	357.5	357.5	357.5	357.5	357.5	358.7
5°	351.6	352.8	352.8	352.8	354.0	354.0	354.0	355.2	355.2	356.4	356.4
7.5°	350.5	350.5	351.6	352.8	352.8	354.0	355.2	355.2	356.4	356.4	357.5
10°	349.3	349.3	350.5	351.6	352.8	354.0	354.0	355.2	356.4	357.5	358.7
12.5°	344.6	345.7	346.9	348.1	349.3	350.5	351.6	354.0	355.2	355.2	357.5
15°	339.8	341.0	343.4	344.6	345.7	348.1	349.3	350.5	352.8	354.0	355.2
17.5°	337.5	338.7	339.8	342.2	344.6	345.7	348.1	349.3	350.5	352.8	354.0
20°	333.9	335.1	337.5	338.7	341.0	343.4	344.6	346.9	348.1	349.3	351.6
22.5°	328.0	329.2	331.6	333.9	336.3	337.5	339.8	341.0	343.4	344.6	345.7
25°	321.0	323.3	325.7	328.0	329.2	331.6	333.9	335.1	336.3	337.5	338.7
27.5°	315.1	316.2	318.6	321.0	323.3	324.5	326.9	328.0	329.2	330.4	331.6
30°	308.0	310.3	311.5	313.9	316.2	317.4	318.6	319.8	321.0	322.1	322.1
32.5°	300.9	302.1	304.4	305.6	306.8	309.2	309.2	310.3	311.5	311.5	311.5
35°	291.5	292.6	293.8	295.0	296.2	297.4	297.4	298.5	298.5	297.4	296.2
37.5°	282.0	282.0	283.2	284.4	284.4	284.4	284.4	283.2	282.0	280.8	278.5
40°	271.4	271.4	271.4	271.4	271.4	270.2	269.0	267.9	264.3	262.0	257.2
42.5°	258.4	258.4	257.2	256.1	254.9	252.5	250.2	247.8	243.1	238.4	232.5
45°	244.3	243.1	240.7	238.4	236.0	232.5	227.7	223.0	217.1	210.0	203.0
47.5°	225.4	224.2	220.7	217.1	211.2	206.5	200.6	194.7	187.6	179.4	171.1
50°	204.1	201.8	198.2	192.3	184.1	177.0	168.7	161.7	153.4	145.1	136.9
52.5°	182.9	179.4	173.5	166.4	155.8	146.3	135.7	127.4	120.4	112.1	103.8
55°	161.7	156.9	151.0	141.6	129.8	116.8	105.0	96.8	89.7	82.6	75.5
57.5°	139.2	135.7	128.6	118.0	103.8	89.7	77.9	68.4	62.5	57.8	53.1
60°	118.0	114.5	107.4	95.6	82.6	68.4	55.5	47.2	42.5	38.9	36.6
62.5°	96.8	94.4	87.3	77.9	64.9	50.7	40.1	33.0	28.3	27.1	26.0
65°	76.7	74.3	68.4	60.2	48.4	37.8	28.3	22.4	20.1	18.9	17.7
67.5°	54.3	53.1	49.6	42.5	34.2	26.0	18.9	15.3	13.0	11.8	11.8
70°	33.0	33.0	30.7	27.1	21.2	16.5	11.8	9.4	8.3	7.1	7.1
72.5°	17.7	17.7	16.5	15.3	11.8	9.4	7.1	4.7	4.7	4.7	3.5
75°	8.3	8.3	8.3	7.1	5.9	4.7	3.5	3.5	2.4	2.4	2.4
77.5°	4.7	4.7	4.7	3.5	3.5	3.5	2.4	2.4	2.4	1.2	1.2
80°	3.5	3.5	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2
82.5°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0
87.5°	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7
2.5°	358.7	358.7	358.7	358.7	358.7	358.7	358.7	358.7	359.9	359.9	359.9
5°	357.5	357.5	357.5	357.5	358.7	358.7	358.7	358.7	358.7	359.9	359.9
7.5°	358.7	358.7	358.7	359.9	359.9	359.9	361.1	361.1	361.1	362.3	362.3
10°	359.9	359.9	361.1	362.3	362.3	363.4	363.4	363.4	364.6	364.6	364.6
12.5°	358.7	358.7	359.9	361.1	361.1	362.3	362.3	363.4	363.4	363.4	364.6
15°	356.4	357.5	358.7	358.7	359.9	359.9	361.1	361.1	362.3	362.3	362.3
17.5°	355.2	355.2	356.4	357.5	357.5	358.7	358.7	359.9	359.9	361.1	361.1
20°	352.8	352.8	354.0	354.0	355.2	355.2	356.4	356.4	356.4	357.5	357.5
22.5°	346.9	348.1	348.1	349.3	349.3	350.5	350.5	350.5	350.5	351.6	351.6
25°	339.8	341.0	341.0	341.0	342.2	342.2	342.2	342.2	342.2	343.4	343.4
27.5°	331.6	331.6	331.6	332.8	332.8	332.8	332.8	332.8	332.8	333.9	333.9
30°	322.1	322.1	322.1	322.1	322.1	322.1	322.1	322.1	322.1	323.3	323.3
32.5°	310.3	310.3	310.3	309.2	309.2	309.2	309.2	309.2	309.2	309.2	309.2
35°	295.0	293.8	293.8	292.6	292.6	292.6	292.6	292.6	292.6	292.6	292.6
37.5°	276.1	273.8	272.6	271.4	271.4	271.4	271.4	271.4	271.4	271.4	271.4
40°	253.7	250.2	247.8	246.6	245.4	245.4	245.4	245.4	245.4	245.4	245.4
42.5°	226.6	221.8	218.3	215.9	215.9	214.8	215.9	215.9	215.9	215.9	215.9
45°	195.9	188.8	185.3	182.9	181.7	181.7	181.7	181.7	181.7	181.7	181.7
47.5°	162.8	155.8	151.0	148.7	147.5	147.5	147.5	147.5	147.5	147.5	147.5
50°	128.6	122.7	118.0	115.6	114.5	113.3	113.3	113.3	113.3	114.5	113.3
52.5°	96.8	90.9	87.3	85.0	85.0	83.8	83.8	83.8	83.8	83.8	83.8
55°	69.6	66.1	62.5	61.4	61.4	60.2	60.2	60.2	60.2	60.2	59.0
57.5°	49.6	47.2	44.8	44.8	43.7	43.7	43.7	42.5	42.5	42.5	42.5
60°	35.4	34.2	33.0	33.0	33.0	31.9	31.9	31.9	31.9	30.7	30.7
62.5°	26.0	24.8	24.8	23.6	23.6	23.6	23.6	22.4	22.4	22.4	22.4
65°	17.7	17.7	16.5	16.5	16.5	16.5	15.3	15.3	15.3	15.3	15.3
67.5°	10.6	10.6	10.6	10.6	9.4	9.4	9.4	9.4	9.4	9.4	9.4
70°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	4.7	4.7	4.7	4.7
72.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.4	2.4	2.4
75°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P85548

CATALOG NUMBER: ML709840ICAT120D-495WW06-H750ICAT

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	358.7	358.7	358.7	358.7
2.5°	359.9	359.9	359.9	359.9
5°	359.9	359.9	359.9	359.9
7.5°	362.3	362.3	362.3	362.3
10°	364.6	364.6	364.6	364.6
12.5°	364.6	364.6	364.6	364.6
15°	362.3	362.3	362.3	363.4
17.5°	361.1	361.1	361.1	361.1
20°	357.5	357.5	357.5	357.5
22.5°	351.6	351.6	351.6	351.6
25°	343.4	343.4	343.4	343.4
27.5°	333.9	333.9	333.9	333.9
30°	323.3	323.3	323.3	323.3
32.5°	309.2	309.2	309.2	310.3
35°	292.6	292.6	292.6	292.6
37.5°	271.4	271.4	271.4	271.4
40°	246.6	246.6	246.6	246.6
42.5°	215.9	212.4	215.9	215.9
45°	181.7	181.7	181.7	181.7
47.5°	147.5	147.5	147.5	147.5
50°	113.3	113.3	113.3	113.3
52.5°	83.8	83.8	83.8	83.8
55°	59.0	59.0	59.0	59.0
57.5°	42.5	42.5	41.3	41.3
60°	30.7	30.7	30.7	30.7
62.5°	22.4	22.4	22.4	22.4
65°	15.3	15.3	15.3	15.3
67.5°	9.4	9.4	9.4	9.4
70°	4.7	4.7	4.7	4.7
72.5°	2.4	2.4	2.4	2.4
75°	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2
80°	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)