

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: P123726

Luminaire Tested: **EL406930-TL409WHWW**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123726
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13990)
Test Lab: INNOVATION CENTER-P1
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL406930-TL409WHWW
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
WALL-WASH WITH WHITE REFLECTOR AND WHITE TRIM RING
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 710.0 lumens
Efficiency: N/A
Efficacy: 54.6 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.16 / 1.2
Luminous Opening: Circular (Dia: 0.29' x H: 0')
CIE Type: Direct

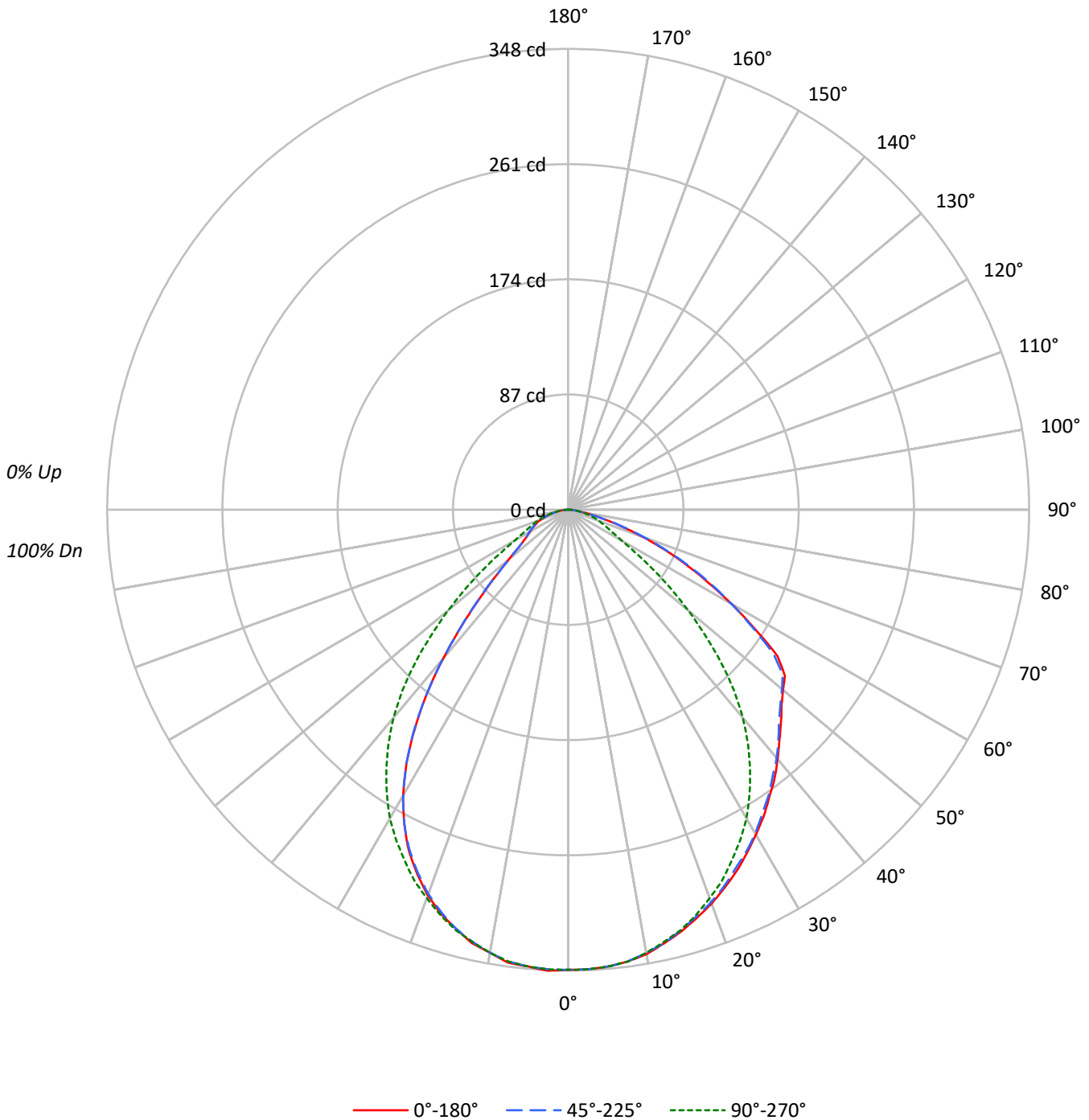
Input Watts (W): 13
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P123726

CATALOG NUMBER: EL406930-TL409WHWW

Luminous Intensity Polar Plot





TEST NUMBER: P123726

CATALOG NUMBER: EL406930-TL409WHWW

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	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75
3	94	85	77	72	92	83	76	71	80	75	70	78	73	69	75	71	68	66
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51
6	75	62	54	48	73	62	54	48	60	53	48	58	52	47	57	51	47	45
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	41
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	38	37
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33
10	57	45	38	33	56	44	37	33	43	37	32	43	37	32	42	36	32	30

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	55967	55967	55967
5°	56003	56003	56003
10°	55751	55571	55571
15°	54990	54806	54623
20°	54262	53507	53130
25°	53523	51941	50572
30°	52720	50060	46358
35°	52059	47063	39688
40°	51714	43134	30852
45°	51764	37183	21348
50°	53059	29575	14637
55°	54209	21684	11460
60°	45850	14918	10665
65°	37434	12618	10521
70°	28074	11446	10410
75°	17865	10271	9586
80°	10205	9185	8164
85°	8133	8133	6100



TEST NUMBER: P123726

CATALOG NUMBER: EL406930-TL409WHWW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.9	4.6
10°-20°	92.4	13.0
20°-30°	134.1	18.9
30°-40°	145.8	20.5
40°-50°	124.4	17.5
50°-60°	94.3	13.3
60°-70°	57.4	8.1
70°-80°	23.8	3.4
80°-90°	4.9	0.7
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°	259.4	36.5
0°-40°	405.2	57.1
0°-60°	623.9	87.9
0°-90°	710.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	710.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	347	347	347	347	347	
5°	346	346	346	346	346	33
15°	330	329	329	328	328	93
25°	301	299	292	283	284	139
35°	265	264	239	203	202	166
45°	227	225	163	95	94	176
55°	193	189	77	41	41	166
65°	98	100	33	29	28	98
75°	29	30	16	15	15	33
85°	4	4	4	3	3	5
90°	0	0	0	0	0	



TEST NUMBER: P123726

CATALOG NUMBER: EL406930-TL409WHWW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4
2.5°	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4
5°	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3
7.5°	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1
10°	340.8	340.8	340.8	339.7	340.8	340.8	339.7	339.7	339.7	339.7	339.7
12.5°	335.3	335.3	335.3	335.3	335.3	335.3	335.3	335.3	335.3	335.3	335.3
15°	329.7	329.7	329.7	329.7	329.7	329.7	328.6	329.7	328.6	328.6	328.6
17.5°	323.1	323.1	323.1	323.1	323.1	323.1	323.1	323.1	323.1	322.0	322.0
20°	316.5	316.5	316.5	316.5	316.5	316.5	315.4	315.4	315.4	315.4	315.4
22.5°	308.8	308.8	308.8	308.8	308.8	308.8	307.7	308.8	307.7	307.7	307.7
25°	301.1	300.0	300.0	300.0	301.1	301.1	300.0	300.0	300.0	298.9	298.9
27.5°	292.2	292.2	292.2	292.2	292.2	292.2	291.1	291.1	291.1	291.1	290.0
30°	283.4	283.4	283.4	283.4	283.4	283.4	283.4	283.4	282.3	282.3	281.2
32.5°	274.6	273.5	273.5	273.5	274.6	274.6	273.5	273.5	273.5	272.4	271.3
35°	264.7	264.7	264.7	264.7	264.7	264.7	264.7	264.7	264.7	263.6	262.5
37.5°	255.9	254.8	254.8	254.8	255.9	255.9	255.9	255.9	254.8	253.6	253.6
40°	245.9	245.9	245.9	245.9	245.9	245.9	245.9	245.9	244.8	244.8	242.6
42.5°	236.0	236.0	236.0	236.0	237.1	237.1	237.1	237.1	236.0	234.9	232.7
45°	227.2	227.2	227.2	227.2	228.3	228.3	228.3	227.2	227.2	225.0	222.8
47.5°	218.4	218.4	218.4	219.5	219.5	219.5	219.5	219.5	218.4	217.3	213.9
50°	211.7	211.7	211.7	211.7	212.8	213.9	212.8	212.8	211.7	210.6	207.3
52.5°	206.2	206.2	206.2	207.3	207.3	207.3	207.3	207.3	206.2	204.0	200.7
55°	193.0	193.0	193.0	193.0	193.0	194.1	193.0	193.0	190.8	188.6	185.3
57.5°	166.5	166.5	166.5	166.5	167.6	167.6	167.6	167.6	166.5	164.3	162.1
60°	142.3	142.3	142.3	142.3	143.4	143.4	142.3	142.3	142.3	142.3	141.2
62.5°	119.1	119.1	119.1	119.1	119.1	120.2	120.2	120.2	121.3	121.3	120.2
65°	98.2	98.2	98.2	98.2	98.2	99.3	99.3	99.3	100.4	100.4	101.5
67.5°	78.3	78.3	78.3	78.3	78.3	78.3	79.4	79.4	80.5	80.5	81.6
70°	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	60.7	61.8	61.8
72.5°	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.1	44.1
75°	28.7	28.7	28.7	28.7	28.7	28.7	29.8	29.8	29.8	29.8	29.8
77.5°	17.6	17.6	17.6	17.6	18.7	18.7	18.7	18.7	18.7	18.7	18.7
80°	11.0	11.0	11.0	11.0	11.0	11.0	12.1	12.1	12.1	11.0	12.1
82.5°	6.6	6.6	7.7	6.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
87.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
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: P123726

CATALOG NUMBER: EL406930-TL409WHWW

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4
2.5°	347.4	347.4	347.4	347.4	348.5	347.4	347.4	347.4	347.4	347.4	348.5
5°	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3
7.5°	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1
10°	340.8	339.7	339.7	339.7	340.8	339.7	339.7	339.7	339.7	339.7	339.7
12.5°	335.3	335.3	335.3	335.3	335.3	335.3	335.3	334.2	334.2	334.2	334.2
15°	328.6	328.6	328.6	328.6	328.6	328.6	328.6	328.6	327.5	327.5	327.5
17.5°	322.0	322.0	322.0	322.0	322.0	320.9	320.9	320.9	320.9	319.8	319.8
20°	315.4	315.4	314.3	314.3	314.3	313.2	313.2	312.1	312.1	311.0	311.0
22.5°	307.7	306.6	306.6	305.5	305.5	304.4	303.3	303.3	302.2	301.1	300.0
25°	298.9	297.8	297.8	296.7	295.6	294.5	294.5	292.2	291.1	290.0	288.9
27.5°	290.0	290.0	288.9	286.7	285.6	284.5	282.3	281.2	279.0	276.8	274.6
30°	281.2	280.1	279.0	276.8	275.7	273.5	271.3	269.1	265.8	262.5	259.2
32.5°	271.3	270.2	268.0	265.8	263.6	261.4	258.1	254.8	250.3	245.9	241.5
35°	261.4	260.3	258.1	254.8	251.4	248.1	244.8	239.3	233.8	228.3	221.7
37.5°	251.4	249.2	245.9	242.6	239.3	233.8	229.4	222.8	216.2	208.4	199.6
40°	240.4	238.2	233.8	229.4	223.9	218.4	212.8	205.1	196.3	186.4	176.5
42.5°	230.5	226.1	221.7	216.2	209.5	201.8	194.1	185.3	174.2	163.2	152.2
45°	220.6	215.0	208.4	200.7	191.9	183.1	173.1	163.2	152.2	140.1	127.9
47.5°	210.6	204.0	196.3	185.3	174.2	163.2	152.2	140.1	127.9	116.9	104.8
50°	202.9	195.2	184.2	172.0	156.6	143.4	130.1	118.0	105.9	94.8	83.8
52.5°	195.2	186.4	174.2	157.7	141.2	124.6	109.2	97.0	86.0	76.1	67.3
55°	179.8	170.9	157.7	140.1	122.4	104.8	89.3	77.2	68.4	60.7	54.0
57.5°	157.7	150.0	136.7	119.1	101.5	83.8	70.6	59.6	51.8	47.4	43.0
60°	137.9	131.2	119.1	102.6	84.9	68.4	55.1	46.3	40.8	37.5	36.4
62.5°	119.1	113.6	102.6	88.2	72.8	57.3	45.2	38.6	34.2	33.1	30.9
65°	100.4	95.9	88.2	75.0	61.8	48.5	38.6	33.1	29.8	28.7	27.6
67.5°	81.6	79.4	71.7	61.8	50.7	40.8	33.1	28.7	26.5	25.4	25.4
70°	61.8	60.7	56.2	48.5	40.8	33.1	27.6	24.3	23.2	23.2	23.2
72.5°	45.2	44.1	41.9	36.4	30.9	26.5	22.1	21.0	19.9	19.9	19.9
75°	30.9	30.9	28.7	26.5	23.2	19.9	17.6	16.5	16.5	16.5	16.5
77.5°	18.7	19.9	18.7	17.6	16.5	14.3	13.2	13.2	13.2	13.2	13.2
80°	12.1	12.1	12.1	12.1	11.0	9.9	9.9	9.9	9.9	9.9	9.9
82.5°	7.7	7.7	7.7	7.7	7.7	7.7	6.6	6.6	6.6	6.6	6.6
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
87.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1	1.1	1.1
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: P123726

CATALOG NUMBER: EL406930-TL409WHWW

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4
2.5°	348.5	347.4	347.4	347.4	347.4	347.4	347.4	347.4	347.4	348.5	347.4
5°	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3
7.5°	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	344.1	343.0
10°	339.7	339.7	339.7	339.7	339.7	339.7	339.7	339.7	339.7	339.7	339.7
12.5°	335.3	334.2	334.2	334.2	334.2	334.2	334.2	334.2	334.2	334.2	334.2
15°	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5
17.5°	319.8	319.8	319.8	318.7	318.7	318.7	318.7	318.7	318.7	318.7	318.7
20°	309.9	309.9	309.9	308.8	308.8	308.8	308.8	309.9	308.8	308.8	308.8
22.5°	300.0	298.9	297.8	297.8	297.8	296.7	296.7	297.8	296.7	297.8	296.7
25°	287.8	285.6	284.5	284.5	283.4	283.4	283.4	283.4	283.4	283.4	283.4
27.5°	273.5	271.3	270.2	269.1	268.0	268.0	266.9	266.9	266.9	266.9	266.9
30°	257.0	254.8	252.5	250.3	250.3	249.2	249.2	248.1	248.1	249.2	248.1
32.5°	238.2	233.8	231.6	229.4	228.3	227.2	227.2	226.1	227.2	227.2	226.1
35°	217.3	211.7	208.4	205.1	204.0	202.9	202.9	201.8	201.8	201.8	201.8
37.5°	193.0	186.4	180.9	178.7	176.5	175.3	174.2	174.2	174.2	174.2	174.2
40°	166.5	158.8	153.3	150.0	147.8	146.7	146.7	145.6	145.6	145.6	145.6
42.5°	141.2	132.3	125.7	122.4	120.2	119.1	119.1	118.0	118.0	118.0	118.0
45°	116.9	107.0	100.4	97.0	95.9	94.8	93.7	93.7	93.7	93.7	93.7
47.5°	94.8	86.0	79.4	76.1	75.0	73.9	73.9	73.9	73.9	73.9	73.9
50°	75.0	68.4	62.9	60.7	59.6	58.4	58.4	58.4	58.4	58.4	58.4
52.5°	59.6	54.0	50.7	49.6	48.5	47.4	47.4	47.4	47.4	47.4	47.4
55°	48.5	45.2	43.0	41.9	40.8	40.8	40.8	40.8	40.8	40.8	40.8
57.5°	40.8	38.6	37.5	37.5	36.4	36.4	36.4	36.4	36.4	36.4	36.4
60°	35.3	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	33.1
62.5°	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9
65°	27.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	27.6	27.6
67.5°	25.4	25.4	26.5	26.5	26.5	25.4	25.4	25.4	25.4	25.4	25.4
70°	23.2	23.2	23.2	23.2	23.2	23.2	22.1	22.1	22.1	22.1	22.1
72.5°	19.9	19.9	19.9	19.9	19.9	18.7	18.7	18.7	18.7	18.7	18.7
75°	16.5	16.5	16.5	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
77.5°	13.2	13.2	13.2	13.2	12.1	12.1	12.1	12.1	12.1	12.1	12.1
80°	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	8.8	8.8
82.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
85°	4.4	4.4	3.3	4.4	4.4	3.3	3.3	3.3	3.3	3.3	3.3
87.5°	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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: P123726

CATALOG NUMBER: EL406930-TL409WHWW

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	347.4	347.4	347.4	347.4
2.5°	347.4	347.4	347.4	348.5
5°	346.3	346.3	346.3	346.3
7.5°	343.0	343.0	343.0	345.2
10°	339.7	339.7	339.7	339.7
12.5°	334.2	334.2	334.2	335.3
15°	327.5	327.5	327.5	327.5
17.5°	318.7	318.7	319.8	319.8
20°	308.8	308.8	309.9	309.9
22.5°	296.7	297.8	297.8	297.8
25°	283.4	283.4	283.4	284.5
27.5°	266.9	268.0	268.0	268.0
30°	248.1	248.1	249.2	249.2
32.5°	226.1	227.2	227.2	227.2
35°	201.8	202.9	202.9	201.8
37.5°	174.2	174.2	175.3	175.3
40°	145.6	145.6	146.7	146.7
42.5°	118.0	118.0	119.1	119.1
45°	93.7	93.7	93.7	93.7
47.5°	73.9	73.9	73.9	73.9
50°	58.4	58.4	58.4	58.4
52.5°	47.4	47.4	47.4	47.4
55°	40.8	40.8	40.8	40.8
57.5°	36.4	36.4	36.4	36.4
60°	33.1	33.1	33.1	33.1
62.5°	30.9	30.9	30.9	30.9
65°	27.6	27.6	27.6	27.6
67.5°	25.4	25.4	25.4	25.4
70°	22.1	22.1	22.1	22.1
72.5°	18.7	18.7	18.7	18.7
75°	15.4	15.4	15.4	15.4
77.5°	12.1	12.1	12.1	12.1
80°	8.8	8.8	8.8	8.8
82.5°	6.6	6.6	6.6	6.6
85°	3.3	3.3	3.3	3.3
87.5°	1.1	1.1	1.1	1.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)