

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: P130215

Luminaire Tested: **HL612ICAT - HLM6930 - HL6NFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130215
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33472)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6930 - HL6NFL - 456P
Description: HALO ALLSLOPE 6" 21W, Black Coilex Baffle, White Metal Trim Ring
using 25 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1400.8 lumens
Efficiency: N/A
Efficacy: 73.3 lumens/watt
Spacing Criteria (0/90/45): 1.94 / 0.71 / 1.18
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

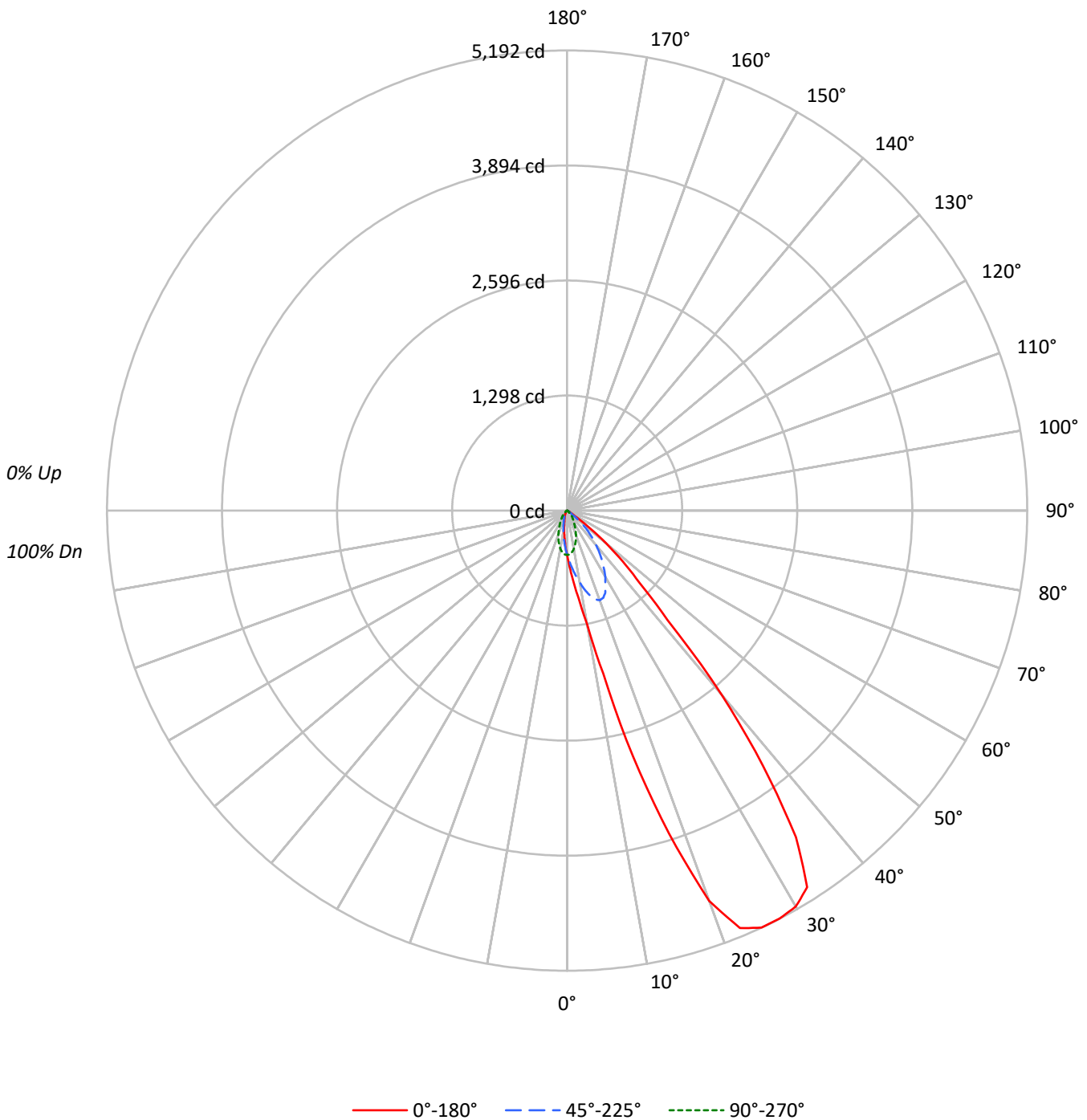
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

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	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94	92					92			
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	89	87	85	83					83			
3	99	92	86	82	97	90	85	81	88	83	80	85	81	78	83	80	77	75					75			
4	93	84	78	73	91	83	77	73	81	76	72	79	74	71	77	73	70	68					68			
5	87	77	71	66	85	76	70	65	75	69	65	73	68	64	71	67	64	62					62			
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56					56			
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51					51			
8	72	61	54	49	71	60	54	49	59	53	49	58	52	48	57	52	48	47					47			
9	68	56	49	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43					43			
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39					39			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29708	29708	29708
5°	46448	28412	18580
10°	75865	25261	11122
15°	165717	21131	6819
20°	271412	16710	4593
25°	304224	12529	3370
30°	308276	9203	2647
35°	276384	6734	2009
40°	172870	4906	1440
45°	76964	3061	780
50°	40363	1918	331
55°	7861	1230	60
60°	2861	760	65
65°	1682	351	144
70°	868	161	161
75°	185	185	93
80°	0	219	0
85°	0	271	0



TEST NUMBER: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.9	3.6
10°-20°	212.5	15.2
20°-30°	456.0	32.6
30°-40°	438.8	31.3
40°-50°	194.6	13.9
50°-60°	38.6	2.8
60°-70°	7.6	0.5
70°-80°	1.8	0.1
80°-90°	1.0	0.1
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°	718.3	51.3
0°-40°	1157.1	82.6
0°-60°	1390.3	99.3
0°-90°	1400.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1400.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	498	498	498	498	498	
5°	793	653	485	357	317	91
15°	2873	992	366	156	118	872
25°	5192	1020	214	75	58	2366
35°	4499	684	110	44	33	2655
45°	1154	344	46	18	12	1010
55°	104	37	16	5	1	163
65°	19	13	4	2	2	20
75°	2	2	2	2	1	3
85°	0	2	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7
2.5°	636.1	608.9	591.8	603.4	594.1	595.7	583.2	585.6	584.8	570.0	564.6
5°	793.2	730.2	734.9	743.4	721.6	720.1	700.6	690.5	679.7	653.2	638.4
7.5°	1004.7	950.3	924.6	916.8	881.8	866.3	837.5	807.2	776.9	738.8	709.2
10°	1310.3	1249.7	1199.9	1175.8	1108.1	1069.2	1008.6	948.7	890.4	825.8	775.3
12.5°	1882.7	1727.9	1632.3	1558.4	1425.4	1326.6	1213.9	1106.6	1018.7	915.3	834.4
15°	2872.6	2653.3	2432.4	2242.7	1938.6	1686.7	1470.5	1276.9	1136.9	991.5	879.5
17.5°	3820.5	3610.6	3387.4	3147.9	2706.9	2213.9	1766.8	1462.7	1238.8	1049.0	905.9
20°	4686.0	4414.6	4146.3	3864.8	3337.6	2782.4	2108.9	1616.7	1309.5	1077.0	907.5
22.5°	5098.2	4913.9	4680.6	4390.5	3773.9	3119.9	2337.6	1701.5	1331.3	1065.4	881.8
25°	5191.5	5062.4	4885.9	4644.0	3985.4	3258.3	2390.4	1678.9	1294.0	1019.5	832.8
27.5°	5189.2	5064.0	4910.8	4671.3	3969.8	3187.5	2248.1	1564.6	1204.6	930.1	772.2
30°	5158.8	5036.7	4833.8	4512.6	3747.4	2913.8	1976.7	1404.4	1089.5	862.4	706.9
32.5°	5039.9	4889.8	4571.7	4116.8	3317.4	2451.1	1659.5	1224.8	969.7	769.9	637.7
35°	4498.6	4419.3	3970.6	3487.7	2673.5	1883.4	1355.4	1044.4	842.2	684.3	563.0
37.5°	3630.8	3576.3	3182.9	2687.5	1953.4	1463.5	1108.1	898.2	730.2	598.0	487.6
40°	2713.2	2623.7	2255.9	1854.7	1418.4	1139.2	906.7	750.4	625.2	506.2	413.7
42.5°	1675.8	1681.2	1460.4	1304.9	1066.1	892.7	738.8	621.3	522.6	421.5	339.8
45°	1154.0	1148.6	1059.9	966.6	822.7	728.6	601.9	510.9	432.4	344.5	275.3
47.5°	850.0	846.8	800.2	734.9	646.2	566.9	479.0	402.8	328.2	258.2	199.1
50°	572.3	570.0	538.9	506.2	440.9	385.7	318.1	252.0	201.4	152.4	114.3
52.5°	289.3	288.5	270.6	261.3	228.6	195.2	154.0	120.5	98.0	72.3	52.9
55°	104.2	107.3	104.2	98.8	86.3	73.9	59.1	50.5	43.5	37.3	33.4
57.5°	49.0	47.4	45.9	44.3	41.2	38.1	35.0	33.4	31.9	29.6	28.0
60°	35.0	34.2	33.4	33.4	31.1	30.3	28.0	27.2	25.7	23.3	21.8
62.5°	26.4	25.7	25.7	24.9	24.1	23.3	21.8	21.0	20.2	18.7	17.1
65°	18.7	18.7	18.7	19.4	17.9	17.1	16.3	15.6	14.8	13.2	12.4
67.5°	13.2	12.4	12.4	13.2	12.4	12.4	10.9	10.9	10.1	9.3	8.6
70°	8.6	8.6	7.8	7.8	7.8	7.0	7.0	6.2	6.2	5.4	4.7
72.5°	4.7	4.7	3.9	3.9	3.9	3.9	3.1	3.1	3.1	3.1	2.3
75°	1.6	0.8	0.8	0.8	0.8	1.6	0.8	1.6	1.6	1.6	1.6
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
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: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7
2.5°	550.6	542.0	531.9	528.0	516.3	509.4	500.8	497.7	489.9	475.1	469.7
5°	616.7	591.0	570.8	561.5	533.5	516.3	498.5	485.2	468.1	445.6	431.6
7.5°	670.3	633.0	600.3	580.9	541.2	513.2	486.0	464.2	440.1	410.6	391.2
10°	720.9	664.9	619.8	590.2	538.1	496.1	465.0	436.3	407.5	370.9	348.4
12.5°	758.2	685.1	628.3	586.3	524.9	480.6	438.6	402.8	370.9	332.0	307.2
15°	780.0	692.9	622.9	570.8	503.1	452.6	405.1	366.3	329.7	291.6	265.2
17.5°	783.9	683.5	604.2	545.1	473.6	417.6	360.0	328.2	290.1	253.5	226.3
20°	770.6	663.3	577.0	513.2	437.0	378.7	330.5	288.5	251.2	215.4	191.3
22.5°	741.1	629.9	540.5	473.6	395.8	339.0	290.1	248.8	213.8	182.0	160.2
25°	699.1	587.1	497.7	429.3	353.8	297.8	251.2	213.8	182.7	154.0	135.3
27.5°	643.1	537.3	447.1	383.4	311.1	259.7	214.6	181.2	154.7	129.9	114.3
30°	589.4	484.5	398.1	335.2	269.8	223.2	183.5	154.0	130.6	111.2	98.0
32.5°	526.5	430.8	348.4	291.6	231.0	189.0	154.7	130.6	111.2	94.9	84.0
35°	459.6	372.5	297.8	247.3	195.2	157.9	129.9	109.6	94.1	80.9	72.3
37.5°	395.0	316.5	251.2	206.1	161.0	132.2	108.1	93.3	79.3	69.2	61.4
40°	329.7	262.1	205.3	168.0	132.2	108.9	89.4	77.0	66.1	57.5	51.3
42.5°	270.6	212.3	167.2	135.3	105.8	87.1	71.5	61.4	52.1	45.1	40.4
45°	214.6	167.2	128.3	101.9	77.8	63.8	52.9	45.9	39.7	35.0	31.9
47.5°	153.2	114.3	84.8	66.1	52.9	42.8	36.5	34.2	31.1	28.0	25.7
50°	84.0	63.8	49.8	42.0	35.8	32.7	29.6	27.2	24.9	21.8	18.7
52.5°	45.1	38.1	33.4	31.9	28.8	26.4	23.3	21.0	18.7	16.3	14.8
55°	31.9	29.6	27.2	25.7	22.6	20.2	17.9	16.3	14.8	13.2	11.7
57.5°	25.7	23.3	21.8	20.2	17.9	15.6	14.0	12.4	11.7	10.1	8.6
60°	20.2	18.7	17.1	15.6	14.0	12.4	10.9	9.3	8.6	7.0	6.2
62.5°	15.6	14.0	12.4	11.7	10.1	9.3	7.8	7.0	5.4	4.7	3.9
65°	10.9	10.1	9.3	7.8	7.0	6.2	4.7	3.9	3.9	3.1	2.3
67.5°	7.8	6.2	6.2	5.4	4.7	3.9	3.1	2.3	2.3	2.3	1.6
70°	4.7	3.9	3.1	3.1	2.3	2.3	1.6	1.6	1.6	1.6	1.6
72.5°	2.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7	497.7
2.5°	460.4	450.3	441.7	444.8	438.6	426.9	428.5	413.7	416.0	414.5	409.0
5°	415.3	400.5	385.7	381.8	363.9	356.9	353.8	333.6	336.7	325.8	324.3
7.5°	369.4	349.2	332.8	322.7	312.6	294.7	288.5	272.9	269.1	263.6	254.3
10°	323.5	300.2	288.5	268.3	254.3	238.7	227.8	216.2	211.5	205.3	197.5
12.5°	279.2	255.8	236.4	221.6	209.2	192.9	184.3	173.4	168.7	162.5	156.3
15°	237.2	214.6	196.7	182.0	169.5	156.3	147.0	136.9	133.0	128.3	123.6
17.5°	200.6	179.6	161.7	150.1	138.4	128.3	121.3	112.0	107.3	104.2	100.3
20°	168.0	148.5	133.8	124.4	115.1	105.8	100.3	92.5	89.4	86.3	82.4
22.5°	140.0	124.4	112.0	105.8	96.4	88.7	84.0	78.5	74.7	72.3	69.2
25°	118.2	105.8	95.6	89.4	81.7	75.4	70.8	66.1	63.8	61.4	59.9
27.5°	100.3	90.2	81.7	76.2	70.0	65.3	61.4	57.5	56.0	53.7	52.1
30°	87.1	77.8	70.8	66.1	61.4	57.5	54.4	51.3	49.8	47.4	45.9
32.5°	75.4	67.7	62.2	59.1	54.4	51.3	48.2	45.1	43.5	41.2	39.7
35°	64.5	58.3	54.4	52.1	47.4	44.3	42.0	38.9	37.3	35.0	34.2
37.5°	56.0	50.5	46.7	43.5	39.7	37.3	34.2	31.9	31.1	29.6	28.8
40°	46.7	41.2	38.1	35.0	31.9	30.3	28.8	26.4	25.7	24.9	23.3
42.5°	35.8	32.7	30.3	28.8	26.4	24.1	22.6	20.2	19.4	18.7	17.1
45°	28.8	27.2	24.1	21.8	19.4	17.9	16.3	14.8	14.0	13.2	12.4
47.5°	22.6	20.2	17.9	16.3	14.8	14.0	12.4	11.7	10.9	10.1	9.3
50°	17.1	15.6	14.0	13.2	11.7	10.1	9.3	7.8	7.0	7.0	6.2
52.5°	13.2	12.4	10.9	9.3	8.6	7.8	6.2	5.4	4.7	3.9	3.1
55°	10.1	9.3	7.8	7.0	5.4	4.7	3.9	3.1	2.3	1.6	0.8
57.5°	7.8	6.2	5.4	4.7	3.9	2.3	2.3	1.6	0.8	0.8	0.8
60°	4.7	3.9	3.1	2.3	2.3	1.6	1.6	1.6	1.6	0.8	0.8
62.5°	3.1	2.3	2.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
65°	2.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	2.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
80°	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8
82.5°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
85°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.0
87.5°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	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: P130215

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	497.7	497.7	497.7	497.7
2.5°	407.5	408.3	404.4	410.6
5°	323.5	321.2	321.2	317.3
7.5°	252.7	249.6	247.3	247.3
10°	196.0	195.2	190.5	192.1
12.5°	153.2	152.4	148.5	150.1
15°	121.3	120.5	117.4	118.2
17.5°	98.0	96.4	95.6	95.6
20°	80.9	79.3	78.5	79.3
22.5°	68.4	67.7	66.9	66.9
25°	58.3	58.3	57.5	57.5
27.5°	51.3	50.5	49.8	49.8
30°	45.1	44.3	44.3	44.3
32.5°	38.9	38.1	38.1	38.1
35°	32.7	32.7	32.7	32.7
37.5°	28.0	28.0	28.0	28.0
40°	23.3	22.6	22.6	22.6
42.5°	16.3	16.3	15.6	15.6
45°	12.4	11.7	11.7	11.7
47.5°	8.6	7.8	7.8	7.8
50°	5.4	4.7	4.7	4.7
52.5°	2.3	2.3	2.3	2.3
55°	0.8	0.8	0.8	0.8
57.5°	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	0.8
62.5°	1.6	1.6	1.6	1.6
65°	1.6	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6
72.5°	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8
77.5°	0.8	0.8	0.8	0.8
80°	0.8	0.0	0.0	0.0
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)