

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: P130028

Luminaire Tested: **HL618TAT - HLM6935 - HL6FL - 455H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130028  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33448)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6935 - HL6FL - 455H  
Description: HALO ALLSLOPE 6" 30W, Semi-Specular Haze Reflector, White Metal Trim Ring using 40 Degree Optic at a 6-12 Pitch  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2156.0 lumens  
Efficiency: N/A  
Efficacy: 78.1 lumens/watt  
Spacing Criteria (0/90/45): 1.6 / 0.65 / 1.06  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

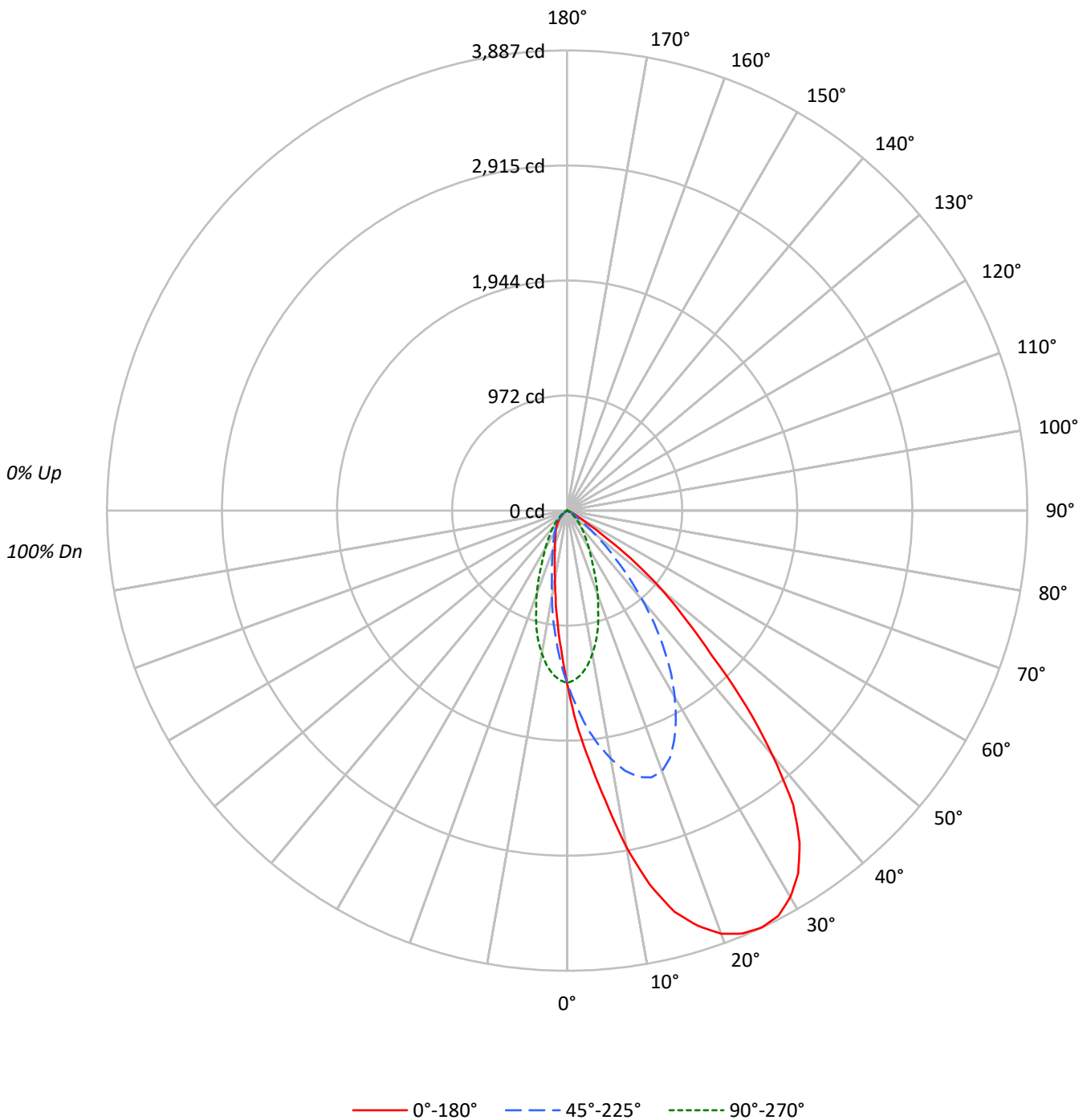
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### 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	110	107	104	110	107	105	103	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	91	85	81	88	83	80	85	82	78	83	80	77	75					75			
4	93	85	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	69					69			
5	88	78	71	66	86	77	71	66	75	69	65	73	68	65	72	67	64	62					62			
6	82	72	65	60	81	71	65	60	69	64	59	68	63	59	67	62	59	57					57			
7	77	67	60	55	76	66	59	55	65	59	54	63	58	54	62	57	54	52					52			
8	73	62	55	50	71	61	55	50	60	54	50	59	54	50	58	53	49	48					48			
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	53	47	43	52	47	43	52	46	42	51	46	42	41					41			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	86963	86963	86963
5°	123474	81348	55290
10°	167269	71082	34068
15°	202500	58185	23260
20°	220316	43631	17399
25°	227803	30378	13701
30°	225285	21937	11408
35°	210314	16029	9228
40°	172055	11946	7053
45°	115020	8510	4669
50°	74400	5734	2708
55°	31270	3923	1192
60°	8862	2494	556
65°	5083	1224	207
70°	2623	454	0
75°	648	266	0
80°	151	315	0
85°	0	390	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	139.2	6.5
10°-20°	408.0	18.9
20°-30°	580.1	26.9
30°-40°	561.5	26.0
40°-50°	337.1	15.6
50°-60°	103.8	4.8
60°-70°	21.6	1.0
70°-80°	3.5	0.2
80°-90°	1.2	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°	1127.3	52.3
0°-40°	1688.8	78.3
0°-60°	2129.7	98.8
0°-90°	2156.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2156.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1457	1457	1457	1457	1457	
5°	2109	1824	1389	1084	944	225
15°	3510	2329	1009	495	403	989
25°	3887	2140	518	268	234	1782
35°	3423	1426	261	167	150	2096
45°	1725	586	128	86	70	1376
55°	414	102	52	28	16	425
65°	56	35	14	4	2	60
75°	6	2	2	1	0	9
85°	0	1	2	1	0	0
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°	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9
2.5°	1798.0	1763.0	1746.1	1723.5	1738.2	1714.4	1713.3	1709.9	1674.9	1636.5	1644.4
5°	2108.6	2075.8	2049.9	2013.7	2009.2	1970.8	1911.0	1949.4	1886.1	1824.0	1808.2
7.5°	2467.7	2421.4	2394.3	2324.3	2308.5	2200.1	2201.2	2162.8	2080.4	1987.8	1940.3
10°	2889.0	2830.3	2804.3	2701.5	2657.5	2542.3	2477.9	2394.3	2265.6	2127.8	2043.1
12.5°	3239.1	3186.1	3152.2	3034.7	2982.8	2843.8	2738.8	2619.1	2433.9	2249.8	2127.8
15°	3510.2	3453.7	3369.0	3285.4	3230.1	3073.1	3004.2	2789.6	2599.9	2328.8	2165.1
17.5°	3677.3	3633.3	3581.3	3457.1	3397.2	3247.0	3090.1	2901.4	2641.7	2363.8	2157.2
20°	3803.8	3753.0	3692.0	3564.4	3496.6	3322.7	3163.5	2953.4	2654.1	2342.4	2107.5
22.5°	3867.1	3817.4	3756.4	3616.4	3538.4	3348.7	3172.5	2930.8	2596.5	2264.5	2017.1
25°	3887.4	3834.3	3768.8	3618.6	3526.0	3321.6	3121.7	2845.0	2481.3	2140.2	1891.8
27.5°	3860.3	3801.6	3730.4	3574.6	3466.1	3239.1	3006.5	2688.0	2322.1	1988.9	1742.7
30°	3770.0	3714.6	3638.9	3477.4	3348.7	3081.0	2815.6	2468.9	2119.9	1816.1	1569.9
32.5°	3632.2	3572.3	3498.9	3317.1	3161.2	2864.2	2554.7	2224.9	1918.9	1632.0	1391.4
35°	3423.2	3362.2	3283.2	3068.6	2890.1	2564.9	2258.8	1983.2	1726.9	1426.4	1196.0
37.5°	3137.5	3065.2	2945.5	2749.0	2531.0	2222.7	1967.4	1734.8	1464.8	1216.4	1005.2
40°	2700.4	2648.5	2524.2	2335.6	2139.1	1897.4	1697.5	1472.7	1220.9	993.9	817.7
42.5°	2241.9	2182.0	2082.6	1920.0	1769.8	1558.6	1371.1	1163.3	966.8	778.2	632.5
45°	1724.6	1685.1	1620.7	1498.7	1368.8	1215.2	1071.8	913.7	766.9	586.2	474.3
47.5°	1356.4	1327.1	1281.9	1173.5	1100.0	954.3	844.8	710.4	577.1	433.7	342.2
50°	1054.9	1036.8	995.0	903.5	834.6	727.3	626.8	511.6	390.8	291.4	231.5
52.5°	736.4	751.1	687.8	630.2	564.7	478.9	381.7	297.0	224.8	172.8	144.6
55°	414.5	411.1	389.6	340.0	285.7	227.0	179.6	151.3	123.1	101.6	91.5
57.5°	198.8	192.0	179.6	153.6	131.0	114.1	100.5	92.6	83.6	75.7	71.2
60°	108.4	107.3	101.6	93.7	89.2	82.4	76.8	72.3	65.5	59.9	55.3
62.5°	77.9	76.8	74.5	70.0	67.8	63.2	58.7	55.3	52.0	47.4	44.0
65°	56.5	56.5	55.3	52.0	50.8	47.4	45.2	41.8	38.4	35.0	32.8
67.5°	41.8	40.7	39.5	38.4	36.1	33.9	31.6	29.4	27.1	23.7	21.5
70°	26.0	24.8	24.8	23.7	22.6	20.3	18.1	16.9	15.8	13.6	12.4
72.5°	13.6	13.6	12.4	12.4	11.3	10.2	9.0	9.0	7.9	6.8	5.6
75°	5.6	4.5	4.5	4.5	4.5	4.5	3.4	3.4	3.4	2.3	2.3
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	2.3
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	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



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9
2.5°	1615.0	1589.1	1587.9	1549.5	1510.0	1498.7	1450.2	1432.1	1414.0	1367.7	1364.3
5°	1750.6	1704.3	1673.8	1607.1	1540.5	1501.0	1428.7	1389.2	1348.5	1309.0	1261.5
7.5°	1859.0	1784.5	1725.7	1625.2	1536.0	1471.6	1403.9	1316.9	1257.0	1208.5	1140.7
10°	1941.4	1830.8	1743.8	1618.4	1504.4	1414.0	1310.1	1227.7	1154.3	1092.1	1021.0
12.5°	1986.6	1842.1	1731.4	1593.6	1444.5	1339.5	1213.0	1124.9	1019.9	965.6	882.1
15°	1993.4	1822.9	1686.2	1514.5	1362.1	1242.3	1111.3	1008.6	917.1	836.9	754.4
17.5°	1960.6	1768.6	1610.5	1419.7	1266.1	1126.0	993.9	869.6	790.6	704.7	625.7
20°	1853.4	1683.9	1502.1	1305.6	1143.0	1005.2	862.9	753.3	661.8	577.1	517.3
22.5°	1785.6	1567.6	1374.5	1175.7	1010.8	873.0	733.0	631.3	542.1	483.4	436.0
25°	1652.3	1424.2	1233.3	1039.1	875.3	737.5	607.6	518.4	454.0	400.9	369.3
27.5°	1498.7	1272.8	1085.4	900.1	743.1	613.3	502.6	433.7	381.7	346.7	314.0
30°	1312.4	1118.1	934.0	765.7	609.9	500.3	417.9	367.1	325.3	293.6	271.1
32.5°	1165.5	961.1	792.8	624.6	500.3	419.0	352.4	309.5	276.7	255.2	233.8
35°	992.7	807.5	644.9	501.5	408.8	345.6	294.8	260.9	236.0	218.0	202.2
37.5°	819.9	642.6	508.2	405.5	333.2	285.7	245.1	221.4	199.9	187.5	175.1
40°	647.1	496.9	397.6	325.3	271.1	233.8	206.7	187.5	170.5	161.5	151.3
42.5°	489.0	380.6	315.1	260.9	221.4	194.3	171.7	158.1	144.6	133.3	127.6
45°	370.4	298.2	249.6	210.1	179.6	159.2	137.8	127.6	117.5	110.7	106.2
47.5°	282.4	230.4	189.7	157.0	137.8	120.8	108.4	99.4	94.9	93.7	88.1
50°	190.9	154.7	132.1	111.8	100.5	91.5	85.8	81.3	77.9	74.5	70.0
52.5°	119.7	102.8	92.6	83.6	79.1	74.5	70.0	66.6	62.1	59.9	54.2
55°	83.6	77.9	73.4	67.8	64.4	59.9	55.3	52.0	49.7	47.4	44.0
57.5°	66.6	62.1	58.7	54.2	50.8	47.4	44.0	41.8	38.4	37.3	32.8
60°	53.1	49.7	46.3	42.9	39.5	36.1	33.9	30.5	28.2	26.0	22.6
62.5°	41.8	38.4	35.0	32.8	29.4	27.1	23.7	21.5	19.2	16.9	14.7
65°	30.5	27.1	24.8	22.6	20.3	18.1	15.8	13.6	11.3	10.2	9.0
67.5°	20.3	16.9	15.8	14.7	12.4	10.2	9.0	6.8	6.8	5.6	5.6
70°	11.3	10.2	9.0	7.9	6.8	5.6	4.5	4.5	3.4	3.4	3.4
72.5°	5.6	4.5	4.5	3.4	3.4	3.4	3.4	3.4	3.4	2.3	2.3
75°	3.4	2.3	2.3	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9	1456.9
2.5°	1372.2	1335.0	1321.4	1283.0	1262.7	1276.2	1249.1	1233.3	1224.3	1225.4	1202.8
5°	1250.3	1199.4	1168.9	1174.6	1069.5	1084.2	1056.0	1028.9	1019.9	1004.0	990.5
7.5°	1112.5	1059.4	1017.6	960.0	925.0	908.0	885.5	839.1	827.9	805.3	789.5
10°	974.7	912.6	866.3	796.2	759.0	737.5	701.4	667.5	655.1	640.4	616.7
12.5°	834.6	768.0	712.7	651.7	615.5	597.5	567.0	544.4	531.9	518.4	508.2
15°	691.2	621.2	581.6	535.3	506.0	494.7	471.0	455.2	442.7	433.7	425.8
17.5°	572.6	519.5	485.6	449.5	425.8	416.8	398.7	382.9	373.8	367.1	362.5
20°	478.9	436.0	411.1	381.7	365.9	353.5	337.7	329.8	324.1	319.6	315.1
22.5°	406.6	369.3	349.0	325.3	311.7	306.1	295.9	285.7	282.4	279.0	274.4
25°	346.7	317.4	300.4	283.5	272.2	267.7	258.6	251.9	249.6	246.2	244.0
27.5°	295.9	274.4	262.0	247.3	239.4	236.0	228.1	223.6	223.6	220.2	221.4
30°	256.4	239.4	229.3	218.0	212.3	210.1	204.4	201.0	199.9	197.6	196.5
32.5°	223.6	208.9	203.3	193.1	189.7	187.5	183.0	179.6	180.7	178.4	177.3
35°	194.3	184.1	179.6	171.7	169.4	167.2	163.8	160.4	160.4	158.1	155.9
37.5°	169.4	162.6	158.1	151.3	149.1	146.8	143.4	138.9	138.9	136.7	136.7
40°	149.1	140.0	137.8	129.9	126.5	124.2	122.0	119.7	117.5	115.2	115.2
42.5°	125.4	117.5	115.2	109.6	107.3	105.0	102.8	97.1	97.1	94.9	94.9
45°	102.8	98.3	96.0	91.5	88.1	85.8	82.4	79.1	77.9	75.7	74.5
47.5°	84.7	80.2	77.9	73.4	71.2	68.9	66.6	63.2	62.1	59.9	57.6
50°	68.9	64.4	62.1	58.7	56.5	54.2	52.0	48.6	47.4	44.0	42.9
52.5°	54.2	52.0	48.6	45.2	42.9	39.5	38.4	35.0	32.8	30.5	29.4
55°	41.8	39.5	36.1	32.8	30.5	28.2	26.0	23.7	21.5	20.3	18.1
57.5°	31.6	28.2	24.8	22.6	20.3	18.1	16.9	14.7	13.6	12.4	11.3
60°	21.5	18.1	16.9	14.7	12.4	11.3	10.2	9.0	9.0	7.9	7.9
62.5°	13.6	11.3	10.2	9.0	7.9	7.9	6.8	5.6	5.6	4.5	4.5
65°	7.9	6.8	6.8	5.6	5.6	4.5	4.5	3.4	3.4	3.4	2.3
67.5°	4.5	4.5	4.5	3.4	3.4	2.3	2.3	2.3	2.3	1.1	1.1
70°	3.4	3.4	3.4	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1
72.5°	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1
75°	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
80°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
82.5°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
85°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
87.5°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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: P130028

CATALOG NUMBER: HL618TAT - HLM6935 - HL6FL - 455H

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1456.9	1456.9	1456.9	1456.9
2.5°	1192.7	1187.0	1200.6	1167.8
5°	984.8	966.8	983.7	944.2
7.5°	783.8	769.1	777.0	744.3
10°	615.5	596.3	606.5	588.4
12.5°	501.5	492.4	493.5	482.3
15°	420.1	411.1	414.5	403.2
17.5°	355.8	349.0	355.8	343.3
20°	309.5	302.7	308.3	300.4
22.5°	272.2	267.7	274.4	265.4
25°	236.0	238.3	240.6	233.8
27.5°	216.8	213.5	216.8	211.2
30°	195.4	192.0	195.4	190.9
32.5°	176.2	172.8	175.1	170.5
35°	154.7	152.5	154.7	150.2
37.5°	134.4	131.0	133.3	132.1
40°	112.9	111.8	112.9	110.7
42.5°	91.5	90.4	91.5	90.4
45°	72.3	71.2	73.4	70.0
47.5°	56.5	54.2	55.3	54.2
50°	40.7	39.5	39.5	38.4
52.5°	28.2	26.0	27.1	26.0
55°	18.1	16.9	16.9	15.8
57.5°	11.3	10.2	10.2	10.2
60°	6.8	6.8	6.8	6.8
62.5°	4.5	3.4	3.4	3.4
65°	2.3	2.3	2.3	2.3
67.5°	1.1	1.1	1.1	1.1
70°	1.1	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0
80°	0.0	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)