

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: P130072

Luminaire Tested: **HL618TAT - HLM6930 - HL6NFL - 455TBZ**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130072  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33470)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6930 - HL6NFL - 455TBZ  
Description: HALO ALLSLOPE 6" 30W, Tuscan Bronze Reflector, Tuscan Bronze 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: 1973.7 lumens  
Efficiency: N/A  
Efficacy: 71.5 lumens/watt  
Spacing Criteria (0/90/45): 1.88 / 0.71 / 1.15  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

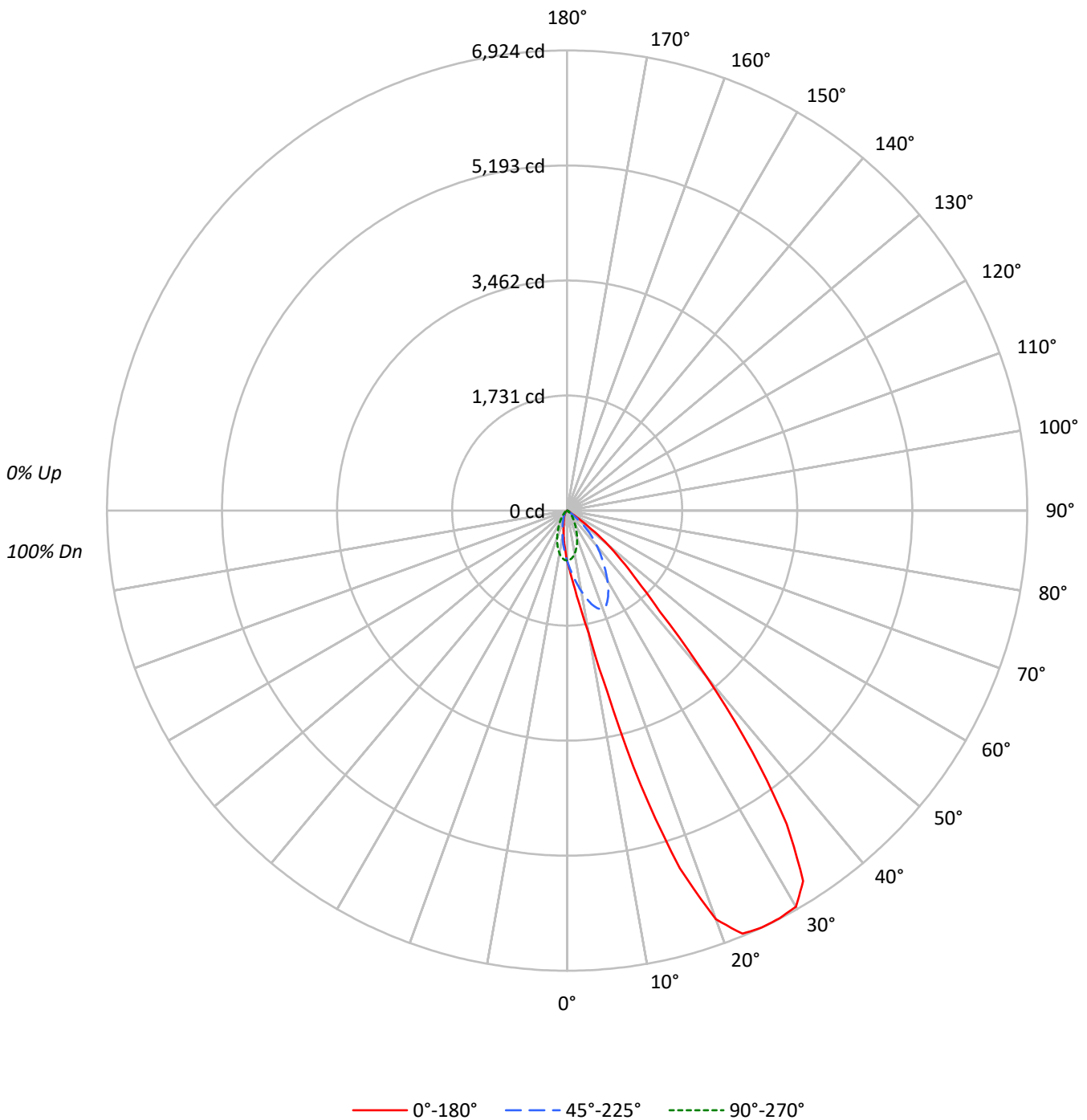
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	100	98	96	96	95	94	92					92			
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	90	87	85	83					83			
3	100	92	86	82	97	91	85	81	88	84	80	85	82	79	83	80	77	76					76			
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	80	71	64	60	69	63	59	68	63	59	66	62	58	57					57			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52					52			
8	72	61	54	50	71	61	54	50	60	54	49	58	53	49	57	52	49	47					47			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43					43			
10	64	53	46	42	63	52	46	42	52	46	42	51	45	41	50	45	41	40					40			

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

	0°	90°	180°
0°	44834	44834	44834
5°	64975	42548	28863
10°	108786	37929	17850
15°	246568	32006	11757
20°	378935	25519	8219
25°	405773	19004	6188
30°	411232	14025	4912
35°	353839	10291	3735
40°	207474	7544	2854
45°	98907	4982	1707
50°	56888	3237	825
55°	15774	2090	158
60°	4186	1398	0
65°	2690	675	0
70°	1402	212	0
75°	498	243	0
80°	0	288	0
85°	0	356	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	75.2	3.8
10°-20°	323.7	16.4
20°-30°	649.5	32.9
30°-40°	585.7	29.7
40°-50°	262.1	13.3
50°-60°	61.7	3.1
60°-70°	11.9	0.6
70°-80°	2.6	0.1
80°-90°	1.3	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°	1048.4	53.1
0°-40°	1634.1	82.8
0°-60°	1957.9	99.2
0°-90°	1973.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1973.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	751	751	751	751	751	
5°	1110	975	727	563	493	129
15°	4274	1470	555	267	204	1272
25°	6924	1452	324	134	106	3179
35°	5759	941	168	79	61	3411
45°	1483	470	75	36	26	1271
55°	209	60	28	10	2	257
65°	30	21	8	2	0	30
75°	4	2	2	1	0	5
85°	0	2	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°	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1
2.5°	899.4	901.6	896.2	882.4	890.9	879.2	868.5	869.6	853.5	861.0	839.7
5°	1109.6	1104.3	1103.2	1076.5	1075.5	1052.0	1042.4	1014.7	984.8	975.2	938.9
7.5°	1419.0	1398.7	1376.3	1347.5	1328.3	1280.3	1244.0	1189.6	1134.1	1102.1	1037.1
10°	1878.9	1853.3	1814.9	1745.5	1690.0	1594.0	1496.9	1398.7	1304.9	1234.4	1132.0
12.5°	2785.8	2702.5	2542.5	2373.9	2239.5	2013.3	1802.0	1640.9	1483.0	1360.3	1215.2
15°	4274.1	4149.3	3925.2	3555.0	3156.0	2632.1	2228.8	1901.3	1658.0	1470.2	1275.0
17.5°	5640.9	5528.8	5250.4	4741.5	4258.1	3464.3	2711.1	2182.9	1798.8	1546.0	1304.9
20°	6542.4	6515.8	6234.1	5675.0	5063.7	4216.5	3223.2	2395.3	1884.2	1570.5	1297.4
22.5°	6890.3	6899.9	6705.7	6221.3	5568.3	4604.9	3500.6	2478.5	1887.4	1538.5	1251.5
25°	6924.4	6971.3	6855.0	6411.2	5734.8	4703.0	3473.9	2388.9	1781.8	1452.1	1171.5
27.5°	6916.9	6962.8	6839.0	6346.1	5580.1	4483.3	3151.7	2185.1	1664.4	1341.1	1055.2
30°	6881.7	6906.3	6676.9	6051.6	5131.9	3965.8	2691.9	1932.2	1500.1	1211.0	982.6
32.5°	6608.6	6611.8	6179.7	5408.3	4409.6	3188.0	2208.6	1656.9	1313.4	1073.3	882.4
35°	5759.3	5687.8	5183.2	4468.3	3417.4	2443.3	1792.4	1410.5	1138.4	941.0	774.6
37.5°	4578.2	4501.4	4042.6	3285.1	2426.2	1891.7	1488.4	1195.0	985.8	822.6	669.0
40°	3256.3	3112.2	2768.7	2244.8	1824.5	1489.4	1224.8	999.7	842.9	699.9	568.7
42.5°	2063.4	2067.7	1888.5	1624.9	1419.0	1188.6	990.1	830.1	697.8	577.2	467.3
45°	1483.0	1472.4	1377.4	1229.1	1103.2	947.4	810.9	682.8	569.7	470.5	377.7
47.5°	1111.7	1103.2	1053.1	956.0	864.2	768.2	655.1	546.3	454.5	361.7	284.9
50°	806.6	819.4	778.9	706.3	633.8	555.9	469.5	372.4	303.0	233.7	176.0
52.5°	460.9	479.1	450.2	400.1	358.5	304.1	250.7	195.2	153.6	115.2	92.8
55°	209.1	197.4	189.9	170.7	148.3	123.8	103.5	84.3	70.4	59.7	54.4
57.5°	76.8	75.8	75.8	69.4	64.0	59.7	54.4	50.1	48.0	44.8	43.7
60°	51.2	51.2	50.1	48.0	46.9	45.9	43.7	41.6	39.5	36.3	34.1
62.5°	38.4	39.5	38.4	37.3	37.3	36.3	34.1	33.1	30.9	28.8	27.7
65°	29.9	29.9	29.9	28.8	28.8	27.7	26.7	25.6	23.5	21.3	20.3
67.5°	21.3	21.3	21.3	21.3	20.3	20.3	19.2	17.1	17.1	14.9	13.9
70°	13.9	13.9	13.9	13.9	12.8	12.8	11.7	11.7	10.7	9.6	8.5
72.5°	8.5	8.5	8.5	7.5	7.5	7.5	6.4	6.4	6.4	5.3	4.3
75°	4.3	4.3	3.2	3.2	3.2	3.2	3.2	2.1	2.1	2.1	2.1
77.5°	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
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°	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1
2.5°	832.2	814.1	802.3	791.7	779.9	766.1	754.3	745.8	730.8	729.8	709.5
5°	915.4	883.4	853.5	826.9	802.3	774.6	749.0	726.6	701.0	687.1	658.3
7.5°	995.4	941.0	894.1	851.4	810.9	768.2	729.8	696.7	658.3	637.0	596.4
10°	1059.5	986.9	919.7	861.0	805.5	750.1	699.9	655.1	610.3	578.3	534.5
12.5°	1089.3	1011.5	925.0	852.5	783.1	717.0	657.2	607.1	558.0	523.9	474.8
15°	1137.4	1013.6	913.3	826.9	746.9	674.3	606.0	554.8	502.5	460.9	410.8
17.5°	1135.2	997.6	884.5	787.4	699.9	622.0	553.7	497.2	441.7	400.1	352.1
20°	1107.5	961.3	839.7	738.3	646.6	563.3	496.1	440.6	382.0	342.5	306.2
22.5°	1054.1	908.0	785.3	679.6	585.7	503.6	434.2	379.8	326.5	290.2	250.7
25°	984.8	842.9	717.0	615.6	526.0	442.8	375.6	324.3	278.5	245.4	220.9
27.5°	909.0	768.2	645.5	547.3	463.0	380.9	322.2	276.3	236.9	208.1	181.4
30°	823.7	688.2	572.9	482.3	395.8	324.3	274.2	234.7	200.6	178.2	156.8
32.5°	734.0	603.9	499.3	414.0	337.2	275.3	231.5	198.4	170.7	152.6	134.4
35°	635.9	522.8	426.8	348.9	283.8	231.5	194.2	167.5	145.1	131.2	115.2
37.5°	545.2	443.8	358.5	290.2	235.8	192.0	163.2	140.8	122.7	112.0	99.2
40°	455.6	363.8	294.5	237.9	193.1	159.0	135.5	118.4	103.5	95.0	87.5
42.5°	371.3	299.8	239.0	192.0	156.8	131.2	111.0	96.0	84.3	77.9	69.4
45°	295.5	236.9	187.8	152.6	121.6	100.3	85.4	74.7	66.1	61.9	54.4
47.5°	216.6	168.6	135.5	105.6	87.5	72.6	62.9	56.5	51.2	49.1	45.9
50°	132.3	102.4	84.3	68.3	59.7	53.3	49.1	45.9	41.6	38.4	34.1
52.5°	72.6	60.8	55.5	50.1	46.9	42.7	39.5	36.3	32.0	29.9	26.7
55°	49.1	46.9	44.8	40.5	37.3	33.1	29.9	27.7	25.6	23.5	21.3
57.5°	40.5	38.4	35.2	32.0	28.8	25.6	23.5	22.4	19.2	18.1	16.0
60°	32.0	29.9	27.7	25.6	23.5	20.3	19.2	17.1	14.9	12.8	11.7
62.5°	24.5	22.4	21.3	19.2	17.1	14.9	13.9	11.7	10.7	8.5	7.5
65°	18.1	17.1	14.9	13.9	11.7	10.7	9.6	7.5	6.4	5.3	4.3
67.5°	12.8	11.7	10.7	8.5	7.5	6.4	5.3	4.3	3.2	3.2	2.1
70°	7.5	6.4	6.4	5.3	4.3	3.2	3.2	2.1	2.1	2.1	2.1
72.5°	4.3	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1	751.1
2.5°	694.6	689.2	697.8	666.8	661.5	662.6	657.2	644.4	634.8	633.8	625.2
5°	631.6	617.8	606.0	580.4	569.7	563.3	552.7	535.6	524.9	521.7	510.0
7.5°	565.5	546.3	530.3	497.2	485.5	476.9	459.8	443.8	427.8	423.6	406.5
10°	503.6	475.9	458.8	419.3	404.4	394.8	372.4	359.6	345.7	337.2	328.6
12.5°	436.4	409.7	385.2	354.2	336.1	324.3	305.1	290.2	281.7	274.2	263.5
15°	372.4	346.8	324.3	294.5	278.5	266.7	250.7	237.9	229.4	223.0	215.5
17.5°	315.8	291.3	269.9	245.4	230.5	220.9	209.1	191.0	188.8	185.6	181.4
20°	266.7	244.3	226.2	204.9	193.1	185.6	175.0	166.4	159.0	155.8	149.4
22.5°	224.1	204.9	189.9	172.8	164.3	156.8	148.3	143.0	134.4	132.3	128.0
25°	189.9	175.0	163.2	148.3	141.9	134.4	127.0	121.6	116.3	114.2	111.0
27.5°	160.0	150.4	140.8	128.0	121.6	117.4	109.9	105.6	101.4	99.2	97.1
30°	139.8	129.1	121.6	111.0	106.7	102.4	97.1	92.8	89.6	86.4	85.4
32.5°	121.6	113.1	107.8	98.2	95.0	90.7	86.4	82.2	79.0	76.8	73.6
35°	105.6	98.2	93.9	86.4	84.3	79.0	74.7	71.5	68.3	66.1	64.0
37.5°	90.7	85.4	82.2	74.7	72.6	68.3	64.0	61.9	58.7	56.5	54.4
40°	76.8	72.6	68.3	62.9	59.7	56.5	53.3	51.2	49.1	48.0	45.9
42.5°	62.9	58.7	55.5	51.2	49.1	46.9	43.7	41.6	40.5	38.4	36.3
45°	50.1	48.0	44.8	40.5	39.5	36.3	33.1	32.0	29.9	27.7	26.7
47.5°	40.5	37.3	35.2	30.9	28.8	26.7	25.6	23.5	22.4	21.3	20.3
50°	30.9	28.8	26.7	24.5	22.4	21.3	19.2	17.1	16.0	14.9	13.9
52.5°	24.5	22.4	21.3	18.1	17.1	14.9	13.9	11.7	10.7	9.6	8.5
55°	19.2	17.1	16.0	12.8	11.7	9.6	8.5	7.5	6.4	5.3	4.3
57.5°	13.9	11.7	10.7	8.5	7.5	6.4	4.3	3.2	2.1	2.1	1.1
60°	9.6	8.5	6.4	5.3	4.3	3.2	2.1	1.1	1.1	1.1	1.1
62.5°	6.4	5.3	4.3	3.2	2.1	2.1	2.1	1.1	1.1	1.1	1.1
65°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
72.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
77.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
80°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
82.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
85°	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
87.5°	2.1	2.1	2.1	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: P130072

CATALOG NUMBER: HL618TAT - HLM6930 - HL6NFL - 455TBZ

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	751.1	751.1	751.1	751.1
2.5°	638.0	629.5	614.6	610.3
5°	516.4	510.0	500.4	492.9
7.5°	409.7	402.2	398.0	390.5
10°	326.5	320.1	315.8	308.3
12.5°	264.6	258.2	251.8	249.7
15°	215.5	212.3	204.9	203.8
17.5°	177.1	173.9	171.8	168.6
20°	151.5	147.2	144.0	141.9
22.5°	129.1	125.9	122.7	122.7
25°	109.9	108.8	106.7	105.6
27.5°	97.1	96.0	93.9	92.8
30°	86.4	84.3	83.2	82.2
32.5°	74.7	72.6	71.5	71.5
35°	64.0	61.9	60.8	60.8
37.5°	55.5	53.3	52.3	52.3
40°	45.9	44.8	44.8	44.8
42.5°	37.3	35.2	35.2	35.2
45°	26.7	25.6	25.6	25.6
47.5°	20.3	19.2	18.1	18.1
50°	13.9	12.8	12.8	11.7
52.5°	8.5	7.5	6.4	6.4
55°	3.2	3.2	2.1	2.1
57.5°	1.1	0.0	0.0	0.0
60°	1.1	0.0	0.0	0.0
62.5°	1.1	1.1	0.0	0.0
65°	1.1	0.0	0.0	0.0
67.5°	1.1	0.0	0.0	0.0
70°	0.0	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)