

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: P130227

Luminaire Tested: **HL612ICAT - HLM6930 - HL6NFL - 73PS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130227  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33478)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL612ICAT - HLM6930 - HL6NFL - 73PS  
Description: HALO ALLSLOPE 6" 21W, Fresnel Glass Lens, White Polymer Trim Ring  
"Dead Front", Wet Location - Showerlight 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: 1119.9 lumens  
Efficiency: N/A  
Efficacy: 58.6 lumens/watt  
Spacing Criteria (0/90/45): 1.67 / 0.76 / 1.09  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

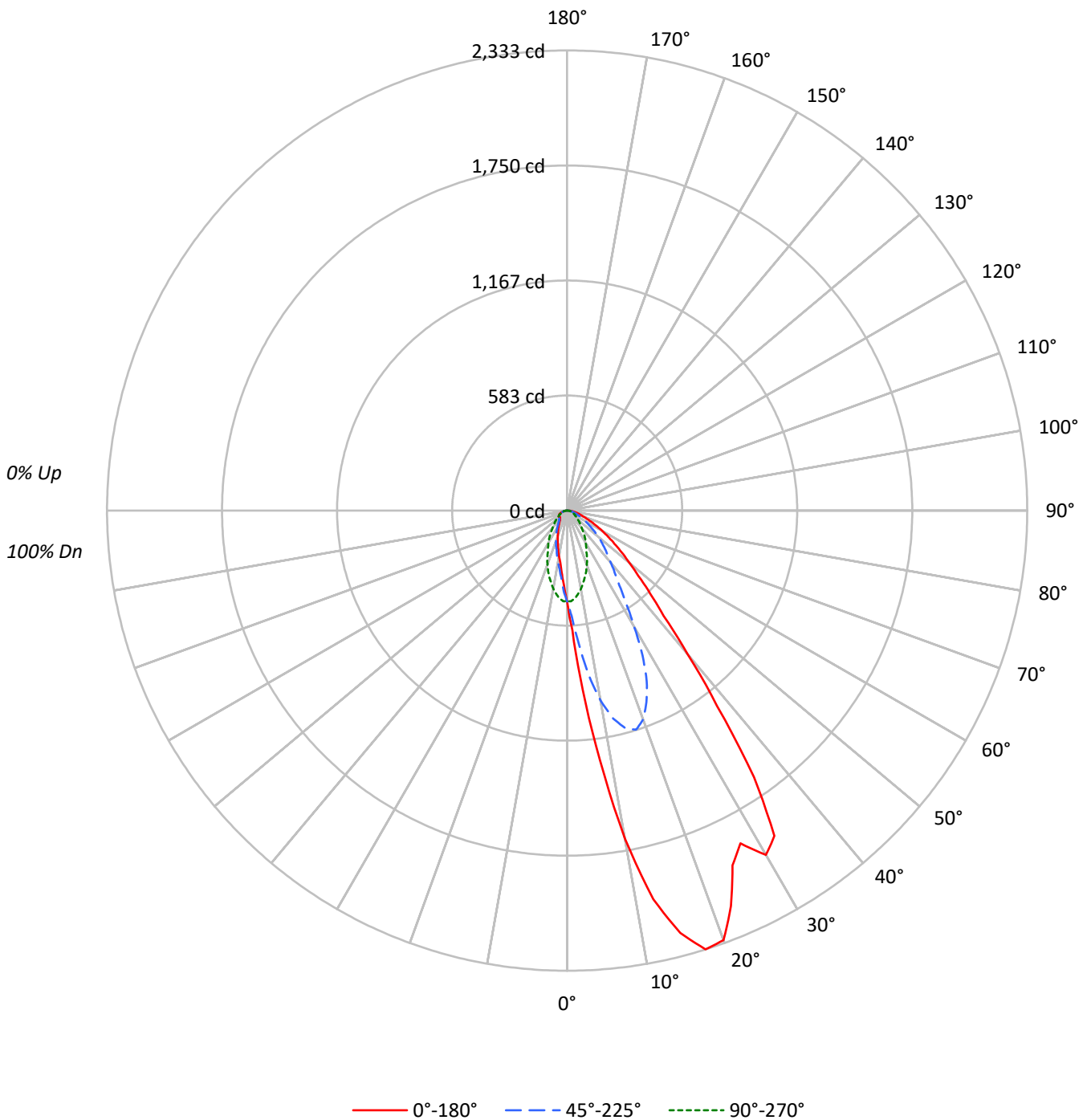
Input Watts (W): 19.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

### Luminous Intensity Polar Plot





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CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89				89
2	103	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	80	78				78
3	96	88	81	76	94	86	80	75	84	78	74	81	77	73	79	75	72	70				70
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	63				63
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	67	62	58	56				56
6	79	67	60	54	77	66	59	54	65	58	54	63	58	53	62	57	53	51				51
7	74	62	55	49	72	61	54	49	60	54	49	59	53	49	57	52	48	47				47
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	53	48	44	43				43
9	65	54	46	42	64	53	46	41	52	46	41	51	45	41	50	45	41	39				39
10	62	50	43	38	60	49	43	38	49	42	38	48	42	38	47	42	38	36				36

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

	0°	90°	180°
0°	27440	27440	27440
5°	53381	26187	18399
10°	97722	23327	13693
15°	127885	20105	10367
20°	134252	16895	8016
25°	116275	13490	6288
30°	120477	11294	4972
35°	101452	9271	4061
40°	60656	7334	3568
45°	39789	6122	3375
50°	28909	5050	3569
55°	22066	4225	3870
60°	16662	3753	3818
65°	12038	3293	4058
70°	8786	2825	3450
75°	6936	2432	2976
80°	4799	2029	2660
85°	3953	1459	1459



TEST NUMBER: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	53.9	4.8
10°-20°	202.9	18.1
20°-30°	279.7	25.0
30°-40°	240.4	21.5
40°-50°	143.9	12.9
50°-60°	95.8	8.6
60°-70°	59.3	5.3
70°-80°	32.0	2.9
80°-90°	12.0	1.1
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°	536.5	47.9
0°-40°	776.9	69.4
0°-60°	1016.6	90.8
0°-90°	1119.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1119.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	460	460	460	460	460	
5°	912	678	447	342	314	111
15°	2217	1143	348	206	180	616
25°	1984	955	230	131	107	946
35°	1651	460	151	77	66	981
45°	597	268	92	56	51	477
55°	292	148	56	47	51	266
65°	134	72	37	39	45	137
75°	60	33	21	23	26	62
85°	23	13	9	9	9	24
90°	0	0	0	0	0	



TEST NUMBER: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7
2.5°	607.5	585.7	590.4	584.1	582.6	563.9	565.5	556.1	544.5	535.1	535.1
5°	911.6	903.0	903.8	878.9	853.3	814.4	780.1	766.9	718.7	678.2	651.0
7.5°	1275.6	1260.0	1251.5	1200.2	1169.8	1104.5	1050.0	995.6	915.5	841.6	780.9
10°	1687.8	1684.0	1664.5	1593.7	1529.9	1407.8	1309.1	1218.8	1081.9	978.5	880.5
12.5°	2018.4	2006.7	1999.0	1937.5	1841.1	1697.2	1549.4	1400.8	1223.5	1080.4	953.6
15°	2216.8	2217.5	2213.6	2147.5	2044.9	1881.5	1700.3	1519.8	1313.7	1142.6	995.6
17.5°	2332.6	2320.2	2317.1	2235.4	2112.5	1931.3	1744.6	1561.1	1325.4	1164.4	994.0
20°	2317.9	2307.8	2290.6	2200.4	2058.1	1876.8	1699.5	1526.1	1315.3	1127.0	945.0
22.5°	2170.1	2168.5	2150.6	2073.6	1933.6	1767.2	1610.8	1451.4	1245.3	1050.8	876.6
25°	1984.2	1992.7	1996.6	1934.4	1829.4	1694.1	1546.3	1372.8	1155.8	955.1	783.3
27.5°	1901.7	1914.2	1936.0	1894.7	1802.2	1649.0	1487.2	1279.5	1029.8	827.6	669.7
30°	2016.1	2009.1	1986.5	1897.9	1764.1	1554.1	1333.9	1099.8	849.4	679.8	560.0
32.5°	1955.4	1926.6	1877.6	1735.3	1558.7	1320.7	1089.7	872.7	679.0	553.8	470.6
35°	1651.3	1636.5	1580.5	1407.8	1235.9	1010.4	834.6	677.5	549.1	460.5	406.0
37.5°	1249.2	1217.3	1163.6	1048.5	924.0	767.7	644.0	544.5	456.6	395.9	346.9
40°	952.0	925.6	888.3	799.6	705.5	605.9	522.7	452.7	391.2	343.0	304.1
42.5°	724.1	716.4	692.2	637.0	574.8	500.1	444.9	392.0	342.2	302.6	272.2
45°	596.6	587.2	574.8	536.7	487.7	427.8	382.7	339.1	299.5	267.6	241.9
47.5°	490.8	483.8	471.4	441.8	408.3	364.0	329.8	295.6	262.9	236.5	212.3
50°	409.9	410.7	397.5	378.0	348.5	312.7	285.5	258.2	230.2	203.0	185.1
52.5°	348.5	345.3	335.2	319.7	295.6	269.1	246.6	223.2	197.6	176.6	157.9
55°	292.5	288.6	282.3	269.1	251.2	230.2	210.8	189.8	167.2	147.8	133.8
57.5°	245.0	241.9	236.5	226.3	210.8	192.9	176.6	159.5	140.8	125.2	113.6
60°	203.8	201.5	196.8	189.0	175.8	161.0	147.8	133.0	117.4	105.8	96.4
62.5°	167.2	164.1	161.8	156.3	143.9	133.8	122.1	109.7	98.8	87.9	80.1
65°	133.8	133.0	131.4	126.8	120.6	108.9	100.3	90.2	80.9	72.3	66.9
67.5°	108.1	107.3	107.3	102.7	95.7	87.1	80.9	73.9	66.1	59.9	55.2
70°	87.1	86.3	85.6	81.7	77.8	70.8	66.1	59.9	54.4	49.0	45.9
72.5°	69.2	69.2	69.2	66.9	63.0	58.3	53.7	49.0	44.3	40.4	37.3
75°	59.9	59.9	56.8	56.0	52.9	49.0	44.3	40.4	36.6	32.7	31.1
77.5°	45.9	47.4	45.9	45.1	42.8	38.9	35.8	32.7	28.8	26.4	24.9
80°	35.0	35.0	35.0	33.4	31.9	29.6	27.2	24.9	22.6	20.2	19.4
82.5°	28.8	28.8	27.2	25.7	24.1	22.6	21.8	20.2	17.9	15.6	14.8
85°	23.3	23.3	24.1	23.3	21.0	18.7	16.3	15.6	14.0	13.2	12.4
87.5°	17.1	16.3	15.6	15.6	14.0	12.4	11.7	10.9	9.3	8.6	8.6
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: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7
2.5°	518.8	507.9	494.7	491.6	486.1	467.5	464.4	459.7	450.4	438.7	438.7
5°	615.2	578.7	544.5	523.5	504.8	474.5	460.5	447.2	430.9	410.7	406.0
7.5°	704.7	640.9	584.9	545.2	511.8	469.8	447.2	426.2	404.5	380.3	370.2
10°	773.1	682.1	609.0	552.2	505.6	455.0	426.2	402.9	375.7	350.8	338.3
12.5°	815.9	701.6	611.4	543.7	490.0	434.0	402.1	374.9	347.7	320.5	306.5
15°	829.9	697.7	598.1	525.0	466.7	409.9	377.2	348.5	319.7	294.0	282.3
17.5°	809.7	669.7	568.6	492.4	436.4	381.9	350.8	321.2	295.6	269.1	256.7
20°	764.6	623.0	526.6	456.6	401.3	349.2	318.1	291.7	267.6	243.5	229.5
22.5°	698.5	567.0	478.4	415.3	364.8	315.8	287.0	263.7	238.8	217.8	206.1
25°	619.9	506.4	430.1	371.0	325.9	283.9	257.5	230.2	213.9	194.5	183.6
27.5°	535.1	444.9	376.5	332.1	290.9	252.8	230.2	209.2	192.9	175.0	164.1
30°	455.8	387.3	333.7	291.7	258.2	224.8	207.7	189.0	172.7	155.6	146.2
32.5°	396.7	337.6	293.2	261.3	232.6	204.6	187.5	170.3	154.0	138.4	129.9
35°	339.1	294.0	261.3	232.6	207.7	182.8	167.2	150.9	135.3	122.1	113.6
37.5°	299.5	262.1	231.0	206.9	183.6	161.8	146.2	131.4	119.0	106.6	99.6
40°	264.5	232.6	205.3	182.8	161.8	140.0	127.6	115.1	104.2	94.1	87.9
42.5°	237.2	207.7	183.6	161.0	142.3	123.7	112.0	101.9	93.3	84.8	79.3
45°	210.0	182.8	160.2	141.6	125.2	109.7	100.3	91.8	83.2	76.2	71.6
47.5°	185.1	160.2	140.0	125.2	111.2	97.2	87.9	81.7	74.7	67.7	64.6
50°	161.0	138.4	122.1	108.9	96.4	85.6	78.6	71.6	66.1	60.7	58.3
52.5°	137.7	118.2	104.2	93.3	82.4	73.1	68.4	63.0	59.1	55.2	53.7
55°	116.7	101.9	89.4	79.3	71.6	63.8	59.9	56.0	53.7	51.3	49.8
57.5°	98.8	87.1	76.2	69.2	63.8	56.8	53.7	50.6	49.0	46.7	45.9
60°	83.2	73.1	64.6	59.1	53.7	49.8	48.2	45.9	44.3	42.8	42.8
62.5°	69.2	61.4	55.2	52.1	46.7	44.3	42.8	41.2	40.4	38.9	39.7
65°	57.6	51.3	46.7	43.6	41.2	38.9	38.1	36.6	35.8	35.0	35.8
67.5°	49.0	43.6	39.7	37.3	35.8	34.2	33.4	31.9	31.9	31.9	32.7
70°	40.4	36.6	34.2	31.9	30.3	28.8	28.8	28.0	28.0	28.0	28.0
72.5°	33.4	30.3	28.0	27.2	25.7	24.9	24.9	24.9	24.9	24.1	24.9
75°	28.0	24.9	23.3	22.6	21.8	21.0	21.0	21.0	21.0	20.2	21.0
77.5°	22.6	21.0	20.2	19.4	18.7	18.7	18.7	17.9	17.9	17.9	17.9
80°	17.9	17.1	15.6	15.6	14.8	14.8	14.8	14.8	14.8	14.8	14.8
82.5°	14.0	12.4	12.4	12.4	11.7	11.7	11.7	11.7	10.9	11.7	11.7
85°	10.9	10.1	9.3	9.3	8.6	8.6	8.6	8.6	8.6	8.6	8.6
87.5°	7.0	7.0	6.2	6.2	5.4	5.4	5.4	5.4	4.7	4.7	4.7
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: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7	459.7
2.5°	426.2	427.0	415.3	409.9	407.6	407.6	392.8	393.6	388.1	393.6	385.0
5°	388.9	380.3	369.5	360.1	353.9	341.5	334.5	332.9	328.2	329.0	322.0
7.5°	350.8	343.0	326.7	318.1	308.8	297.9	288.6	287.0	281.6	280.0	274.6
10°	317.3	305.7	288.6	280.8	273.0	264.5	255.9	253.6	248.1	248.1	243.5
12.5°	287.0	276.1	262.9	252.8	245.0	235.7	227.1	225.6	219.3	218.6	212.3
15°	260.6	251.2	237.2	227.9	219.3	206.1	201.5	199.1	192.9	191.3	186.7
17.5°	236.5	226.3	212.3	203.0	196.8	186.7	178.9	175.8	171.1	168.8	164.1
20°	212.3	203.0	189.8	179.7	173.5	164.1	157.1	154.8	149.3	148.6	144.7
22.5°	190.6	180.5	168.0	161.0	154.0	145.5	139.2	136.9	132.2	130.7	126.8
25°	169.6	161.0	150.1	144.7	137.7	130.7	124.4	122.1	117.4	115.9	112.8
27.5°	150.9	143.1	134.6	128.3	123.7	115.1	109.7	108.1	103.4	101.1	98.0
30°	134.6	127.6	119.0	112.8	108.1	99.6	95.7	94.1	90.2	88.7	86.3
32.5°	119.0	112.0	104.2	98.8	93.3	87.9	83.2	81.7	79.3	78.6	76.2
35°	104.2	98.0	91.0	86.3	81.7	77.0	73.9	73.1	70.8	70.0	67.7
37.5°	91.0	85.6	80.1	76.2	73.1	69.2	66.9	65.3	63.8	63.0	61.4
40°	80.9	76.2	72.3	69.2	66.9	63.0	60.7	60.7	59.1	58.3	56.8
42.5°	72.3	69.2	66.1	63.8	61.4	59.1	56.8	56.8	55.2	55.2	52.9
45°	66.9	64.6	61.4	59.1	57.6	56.0	54.4	54.4	53.7	52.9	52.1
47.5°	60.7	59.1	56.8	55.2	53.7	52.9	51.3	52.9	52.1	52.1	52.1
50°	55.2	54.4	52.9	52.1	51.3	50.6	50.6	51.3	51.3	51.3	51.3
52.5°	51.3	50.6	49.8	49.0	49.8	49.0	48.2	49.0	49.0	49.8	50.6
55°	48.2	47.4	47.4	47.4	48.2	46.7	46.7	48.2	48.2	49.0	49.0
57.5°	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.9	46.7	48.2	48.2
60°	42.0	42.0	42.0	42.8	42.8	42.8	42.8	44.3	44.3	45.1	45.9
62.5°	38.1	38.9	38.9	39.7	40.4	41.2	42.0	43.6	43.6	44.3	45.1
65°	35.0	35.8	36.6	37.3	38.1	38.9	38.9	40.4	40.4	41.2	42.0
67.5°	31.9	32.7	32.7	33.4	34.2	34.2	34.2	36.6	36.6	37.3	38.1
70°	28.0	28.8	28.8	29.6	30.3	30.3	31.1	31.9	31.1	31.9	32.7
72.5°	24.1	25.7	26.4	26.4	27.2	27.2	27.2	28.0	28.0	28.0	28.8
75°	21.0	21.8	21.8	22.6	23.3	23.3	23.3	24.1	24.9	24.9	24.9
77.5°	18.7	18.7	19.4	19.4	19.4	20.2	20.2	21.0	21.0	21.0	21.0
80°	14.8	15.6	15.6	16.3	16.3	17.1	17.1	18.7	17.9	17.9	17.9
82.5°	11.7	11.7	12.4	12.4	12.4	13.2	13.2	14.0	13.2	13.2	13.2
85°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	9.3	8.6	9.3	8.6
87.5°	4.7	4.7	4.7	3.9	3.9	3.9	3.9	4.7	3.9	3.9	3.9
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: P130227

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6NFL - 73PS

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	459.7	459.7	459.7	459.7
2.5°	382.7	379.6	381.9	378.0
5°	318.9	315.0	316.6	314.2
7.5°	271.5	269.1	268.3	266.8
10°	239.6	238.0	238.0	236.5
12.5°	210.8	206.9	207.7	207.7
15°	183.6	181.2	181.2	179.7
17.5°	161.0	157.9	158.7	156.3
20°	141.6	138.4	139.2	138.4
22.5°	125.2	122.1	122.1	120.6
25°	110.4	108.9	108.1	107.3
27.5°	96.4	94.9	94.9	94.1
30°	85.6	83.2	84.0	83.2
32.5°	76.2	74.7	74.7	73.9
35°	67.7	66.1	66.1	66.1
37.5°	61.4	59.9	59.9	59.9
40°	56.0	55.2	56.0	56.0
42.5°	53.7	52.1	52.9	52.9
45°	51.3	50.6	50.6	50.6
47.5°	51.3	49.8	49.8	49.0
50°	52.1	51.3	51.3	50.6
52.5°	51.3	52.1	53.7	52.9
55°	50.6	50.6	51.3	51.3
57.5°	48.2	48.2	48.2	48.2
60°	46.7	46.7	46.7	46.7
62.5°	45.9	45.9	46.7	45.9
65°	43.6	44.3	45.1	45.1
67.5°	38.9	38.9	39.7	38.9
70°	34.2	34.2	34.2	34.2
72.5°	28.8	28.8	29.6	30.3
75°	25.7	24.9	25.7	25.7
77.5°	21.8	21.0	21.0	21.0
80°	18.7	17.9	18.7	19.4
82.5°	13.2	12.4	13.2	12.4
85°	9.3	8.6	8.6	8.6
87.5°	3.9	3.9	3.9	3.9
90°	0.0	0.0	0.0	0.0

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