

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: P130221

Luminaire Tested: **HL612ICAT - HLM6940 - HL6NFL - 70PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130221
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33474)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6940 - HL6NFL - 70PS
Description: HALO ALLSLOPE 6" 21W, Albalite 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 866.1 lumens
Efficiency: N/A
Efficacy: 45.3 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.04 / 1.23
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

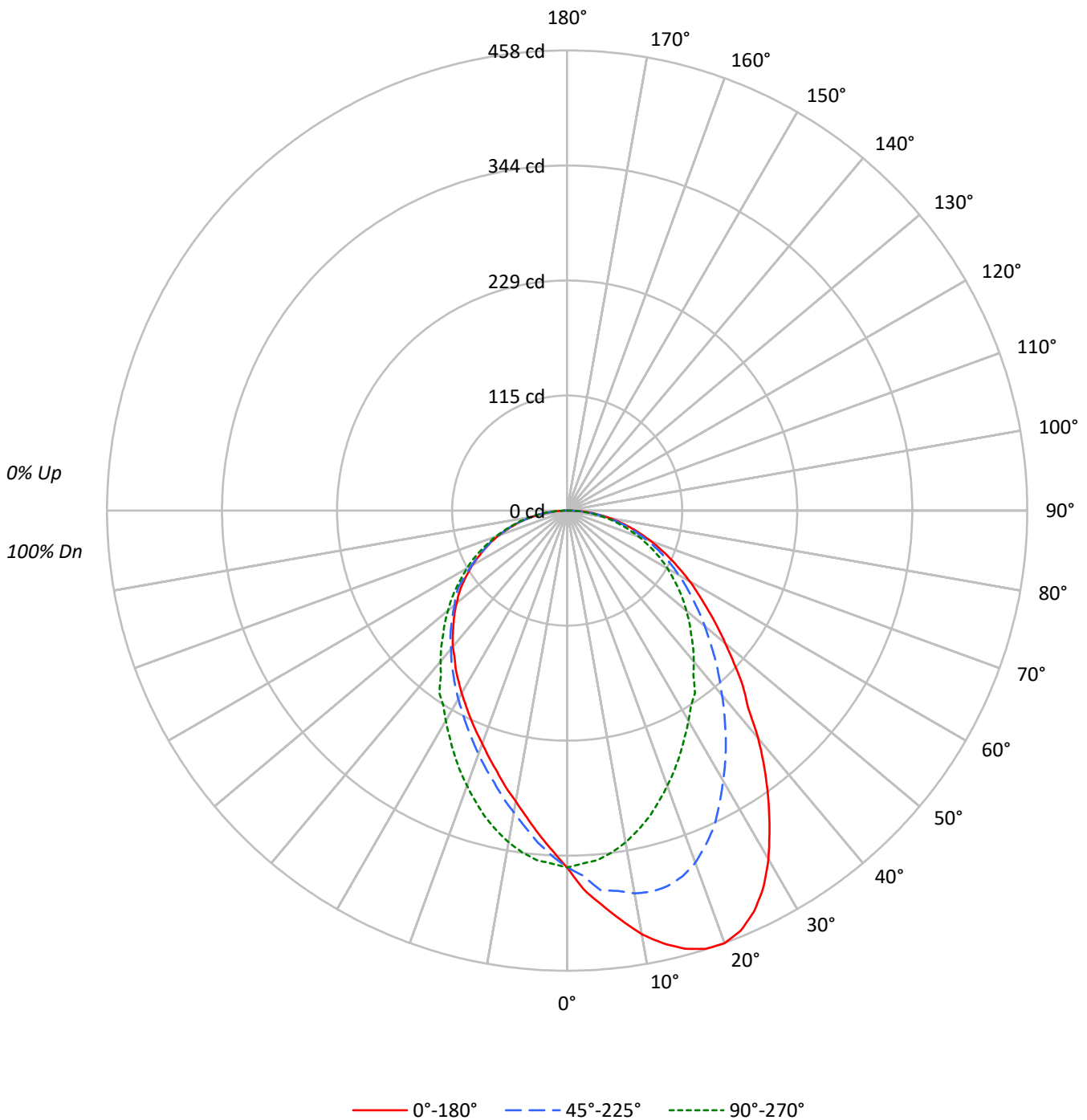
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	60
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51
5	77	64	55	49	75	63	55	48	61	53	48	59	52	47	57	51	47	45
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39
7	66	53	44	38	64	52	44	38	50	43	38	49	42	37	48	42	37	35
8	62	48	40	34	60	48	40	34	46	39	34	45	38	34	44	38	33	31
9	58	44	36	31	56	44	36	31	43	36	31	42	35	30	41	35	30	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	21196	21196	21196
5°	23060	20442	18932
10°	24792	19413	17022
15°	26041	18201	15524
20°	26545	16884	14295
25°	25796	15617	13349
30°	23939	14437	12537
35°	21448	13627	11882
40°	18847	12488	11284
45°	16513	11638	10664
50°	14494	10918	10128
55°	12840	10184	9596
60°	11527	9418	8928
65°	10212	8583	8124
70°	8938	7636	7283
75°	7561	6473	6172
80°	5896	5073	4717
85°	3800	3071	2765



TEST NUMBER: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.6	3.9
10°-20°	94.6	10.9
20°-30°	136.0	15.7
30°-40°	150.7	17.4
40°-50°	145.1	16.7
50°-60°	126.6	14.6
60°-70°	97.7	11.3
70°-80°	60.9	7.0
80°-90°	20.9	2.4
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°	264.2	30.5
0°-40°	414.9	47.9
0°-60°	686.6	79.3
0°-90°	866.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	866.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	355	355	355	355	355	
5°	394	379	349	332	323	39
15°	451	387	316	280	269	128
25°	440	346	266	236	228	201
35°	349	275	222	198	193	218
45°	248	208	174	163	160	191
55°	170	152	135	132	127	153
65°	114	106	95	91	90	113
75°	65	62	56	54	53	69
85°	22	22	18	17	16	24
90°	0	0	0	0	0	



TEST NUMBER: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1
2.5°	377.4	368.8	370.6	371.4	370.6	365.4	365.4	367.1	366.3	363.7	366.3
5°	393.8	385.2	386.9	386.0	385.2	380.0	378.3	379.2	378.3	379.2	375.7
7.5°	411.0	402.4	403.2	402.4	399.8	392.9	390.3	389.5	387.8	381.7	380.9
10°	428.2	417.0	417.0	417.0	413.5	404.1	400.6	398.1	394.6	386.9	384.3
12.5°	441.1	430.7	429.9	429.0	423.9	420.4	407.5	403.2	398.1	388.6	384.3
15°	451.4	440.2	440.2	436.8	430.7	417.8	411.8	404.9	398.1	386.9	380.9
17.5°	457.4	447.1	445.4	441.1	433.3	419.6	411.0	402.4	393.8	381.7	374.9
20°	458.3	447.9	454.0	440.2	430.7	415.3	404.9	395.5	386.0	373.1	363.7
22.5°	452.2	441.9	447.9	432.5	423.0	406.7	395.5	384.3	374.0	360.2	351.6
25°	440.2	430.7	426.4	420.4	410.1	393.8	381.7	369.7	359.4	346.5	337.0
27.5°	423.0	413.5	408.4	402.4	392.9	376.6	364.5	352.5	342.2	328.4	319.8
30°	400.6	391.2	386.9	381.7	372.3	355.9	344.8	333.6	324.1	310.4	303.5
32.5°	374.9	368.8	362.8	358.5	350.8	335.3	324.1	313.8	305.2	293.2	286.3
35°	349.1	343.0	330.1	333.6	325.8	313.0	300.9	293.2	285.4	275.1	268.2
37.5°	322.4	316.4	311.2	307.8	295.8	289.7	279.4	272.5	265.7	257.1	251.1
40°	295.8	290.6	286.3	283.7	278.6	267.4	259.6	253.6	246.8	239.9	234.7
42.5°	266.5	265.7	263.1	260.5	256.2	246.8	239.9	234.7	229.6	223.5	219.2
45°	247.6	243.3	240.7	238.2	234.7	226.1	221.8	217.5	213.2	208.1	203.8
47.5°	225.3	221.8	220.1	218.4	214.9	207.2	203.8	200.3	196.9	192.6	190.0
50°	205.5	202.9	200.3	198.6	196.9	190.9	188.3	189.1	182.3	178.8	177.1
52.5°	187.4	184.8	183.1	181.4	179.7	175.4	172.8	170.2	168.5	165.1	163.4
55°	170.2	167.7	165.9	165.1	166.8	159.9	158.2	156.5	154.8	152.2	152.2
57.5°	154.8	152.2	151.3	151.3	149.6	146.2	144.4	143.6	141.9	140.1	139.3
60°	141.0	138.4	136.7	137.6	135.8	132.4	135.0	129.8	129.8	128.1	127.2
62.5°	126.4	124.7	123.8	123.8	122.1	120.4	119.5	118.6	117.8	116.9	116.1
65°	113.5	111.8	110.9	110.9	110.0	107.5	106.6	106.6	105.8	105.8	104.9
67.5°	100.6	98.9	98.9	98.9	98.0	96.3	95.4	95.4	94.6	94.6	93.7
70°	88.6	86.8	86.0	86.8	86.0	85.1	83.4	83.4	83.4	83.4	82.5
72.5°	76.5	75.7	74.8	75.7	74.8	73.1	72.2	73.9	72.2	72.2	71.4
75°	65.3	64.5	63.6	64.5	62.8	62.8	61.9	61.9	61.0	61.9	61.0
77.5°	54.2	53.3	53.3	53.3	52.4	51.6	50.7	51.6	50.7	50.7	50.7
80°	43.0	42.1	42.1	43.0	42.1	41.3	40.4	41.3	40.4	40.4	40.4
82.5°	32.7	31.8	31.8	32.7	31.8	31.0	30.1	31.0	31.0	30.1	31.0
85°	22.4	22.4	22.4	22.4	22.4	20.6	20.6	20.6	20.6	21.5	21.5
87.5°	12.9	12.9	12.9	12.9	12.9	12.0	11.2	12.0	12.0	12.0	12.0
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: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1
2.5°	368.8	362.8	362.0	358.5	356.8	358.5	358.5	351.6	355.1	349.9	351.6
5°	376.6	368.0	366.3	361.1	357.7	357.7	356.8	349.1	350.8	343.9	343.9
7.5°	380.9	372.3	367.1	361.1	355.9	355.9	351.6	343.0	343.9	336.2	335.3
10°	381.7	371.4	365.4	358.5	351.6	349.1	345.6	335.3	334.4	326.7	325.8
12.5°	380.9	368.0	361.1	352.5	345.6	341.3	336.2	325.8	325.0	316.4	313.8
15°	375.7	362.0	354.2	343.9	335.3	331.0	325.8	315.5	313.8	304.4	302.6
17.5°	368.0	352.5	344.8	334.4	325.0	319.8	314.7	303.5	301.8	300.1	290.6
20°	355.9	341.3	331.9	321.6	313.0	306.9	301.8	291.5	288.9	280.3	278.6
22.5°	343.0	329.3	319.8	309.5	300.9	293.2	288.9	279.4	276.8	268.2	266.5
25°	328.4	314.7	305.2	294.9	287.2	281.1	276.0	266.5	264.8	256.2	254.5
27.5°	312.1	299.2	290.6	281.1	273.4	268.2	263.1	253.6	252.8	245.0	243.3
30°	296.6	283.7	276.8	266.5	258.8	255.3	250.2	241.6	240.7	233.9	232.1
32.5°	279.4	268.2	260.5	252.8	245.9	242.5	238.2	229.6	228.7	222.7	221.0
35°	262.2	251.9	245.9	239.0	232.1	229.6	226.1	221.8	216.7	211.5	210.6
37.5°	246.8	237.3	232.1	225.3	219.2	216.7	213.2	206.3	205.5	201.2	201.2
40°	231.3	222.7	218.4	212.4	207.2	204.6	202.0	196.0	195.2	190.9	190.9
42.5°	215.8	208.9	204.6	203.8	195.2	192.6	190.9	185.7	184.8	180.5	181.4
45°	202.0	195.2	191.7	188.3	183.1	181.4	179.7	174.5	175.4	171.1	172.0
47.5°	188.3	182.3	179.7	176.3	172.0	170.2	169.4	165.1	165.1	160.8	161.6
50°	175.4	170.2	167.7	164.2	160.8	160.8	159.1	154.8	155.6	152.2	152.2
52.5°	163.4	158.2	156.5	153.0	150.5	150.5	149.6	145.3	145.3	142.7	142.7
55°	151.3	147.0	145.3	142.7	140.1	139.3	138.4	135.0	135.8	133.3	133.3
57.5°	138.4	135.0	134.1	131.5	129.8	129.0	128.1	124.7	125.5	123.8	123.8
60°	126.4	123.8	122.9	121.2	118.6	118.6	117.8	115.2	116.1	113.5	114.3
62.5°	115.2	110.9	111.8	112.6	109.2	109.2	108.3	105.8	105.8	104.0	104.9
65°	104.0	100.6	101.5	100.6	98.9	98.9	98.0	95.4	96.3	94.6	94.6
67.5°	92.9	92.0	91.1	90.3	90.3	88.6	87.7	85.1	86.0	84.3	85.1
70°	82.5	80.8	80.8	79.1	77.4	78.2	77.4	75.7	76.5	74.8	75.7
72.5°	72.2	70.5	70.5	68.8	67.9	67.9	67.1	65.3	66.2	65.3	65.3
75°	61.9	60.2	59.3	59.3	58.5	57.6	57.6	55.9	56.7	55.0	55.9
77.5°	50.7	49.9	49.9	49.0	48.1	48.1	47.3	46.4	46.4	45.6	45.6
80°	40.4	40.4	39.5	38.7	38.7	38.7	37.8	37.0	37.0	36.1	36.1
82.5°	31.0	30.1	30.1	30.1	29.2	28.4	28.4	27.5	27.5	27.5	26.7
85°	21.5	20.6	20.6	19.8	19.8	19.8	18.9	18.1	18.1	18.1	18.1
87.5°	12.0	11.2	11.2	11.2	10.3	11.2	10.3	9.5	9.5	9.5	9.5
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: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1	355.1
2.5°	349.9	350.8	349.1	346.5	346.5	343.9	345.6	343.9	344.8	341.3	339.6
5°	342.2	342.2	338.7	335.3	334.4	331.9	331.9	330.1	330.1	326.7	324.1
7.5°	331.9	331.9	327.6	324.1	322.4	318.1	318.1	316.4	316.4	312.1	310.4
10°	321.6	320.7	314.7	312.1	309.5	305.2	305.2	303.5	302.6	298.3	297.5
12.5°	310.4	308.7	303.5	299.2	296.6	293.2	292.3	289.7	289.7	285.4	283.7
15°	298.3	296.6	291.5	287.2	284.6	280.3	279.4	277.7	276.8	272.5	271.7
17.5°	286.3	283.7	279.4	275.1	272.5	269.1	268.2	265.7	264.8	261.4	260.5
20°	274.3	272.5	267.4	263.1	261.4	257.9	256.2	253.6	253.6	250.2	248.5
22.5°	263.1	260.5	255.3	252.8	250.2	246.8	245.9	244.2	243.3	239.9	239.0
25°	251.9	249.3	245.0	241.6	244.2	236.4	234.7	233.9	233.0	229.6	228.7
27.5°	240.7	239.0	233.9	231.3	228.7	226.1	225.3	223.5	223.5	221.0	220.1
30°	228.7	228.7	223.5	221.8	219.2	216.7	216.7	214.1	214.1	211.5	210.6
32.5°	219.2	218.4	214.1	211.5	209.8	207.2	207.2	205.5	205.5	202.9	202.0
35°	208.9	208.1	203.8	202.0	200.3	197.7	198.6	196.9	196.0	194.3	194.3
37.5°	199.5	198.6	194.3	192.6	190.9	189.1	189.1	188.3	187.4	184.8	184.8
40°	189.1	190.9	184.8	184.0	181.4	179.7	180.5	178.8	178.8	177.1	177.1
42.5°	178.8	178.8	176.3	174.5	172.8	172.0	172.0	170.2	170.2	168.5	168.5
45°	170.2	170.2	166.8	169.4	164.2	163.4	163.4	161.6	161.6	159.9	159.9
47.5°	160.8	160.8	158.2	156.5	155.6	154.8	154.8	153.0	153.0	151.3	151.3
50°	152.2	152.2	149.6	147.9	147.0	146.2	146.2	144.4	144.4	142.7	143.6
52.5°	142.7	141.9	140.1	139.3	138.4	140.1	137.6	136.7	135.8	135.0	135.0
55°	132.4	133.3	131.5	130.7	129.0	131.5	128.1	128.1	127.2	125.5	126.4
57.5°	125.5	123.8	122.1	121.2	120.4	119.5	119.5	118.6	118.6	116.9	117.8
60°	113.5	114.3	112.6	111.8	110.9	110.0	110.0	109.2	109.2	108.3	108.3
62.5°	104.0	104.9	103.2	102.3	101.5	100.6	100.6	99.7	99.7	98.9	98.9
65°	94.6	94.6	93.7	92.9	92.0	91.1	91.1	91.1	90.3	90.3	90.3
67.5°	85.1	85.1	84.3	83.4	82.5	82.5	81.7	80.8	80.8	80.8	80.8
70°	74.8	74.8	74.8	73.9	73.1	73.1	72.2	71.4	71.4	71.4	71.4
72.5°	65.3	65.3	65.3	64.5	63.6	63.6	62.8	61.9	61.9	61.9	61.9
75°	55.9	55.9	55.0	55.0	54.2	54.2	53.3	52.4	52.4	52.4	52.4
77.5°	46.4	46.4	46.4	45.6	44.7	44.7	43.8	43.0	43.0	43.8	43.0
80°	36.1	37.0	37.0	36.1	35.3	35.3	34.4	34.4	33.5	34.4	34.4
82.5°	27.5	27.5	27.5	26.7	26.7	25.8	26.7	24.9	24.9	24.9	24.9
85°	18.9	18.9	18.9	18.1	17.2	17.2	17.2	16.3	15.5	16.3	16.3
87.5°	10.3	9.5	9.5	9.5	9.5	8.6	8.6	8.6	7.7	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: P130221

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 70PS

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	355.1	355.1	355.1	355.1
2.5°	342.2	342.2	343.9	338.7
5°	325.8	326.7	328.4	323.3
7.5°	311.2	312.1	313.0	307.8
10°	296.6	298.3	299.2	294.0
12.5°	282.0	284.6	286.3	282.0
15°	271.7	271.7	273.4	269.1
17.5°	259.6	260.5	261.4	257.9
20°	248.5	249.3	250.2	246.8
22.5°	238.2	239.9	239.9	237.3
25°	228.7	229.6	230.4	227.8
27.5°	219.2	220.1	221.0	218.4
30°	210.6	213.2	211.5	209.8
32.5°	202.0	202.9	202.9	201.2
35°	197.7	193.4	195.2	193.4
37.5°	184.0	184.8	185.7	184.0
40°	176.3	177.1	177.1	177.1
42.5°	168.5	167.7	169.4	168.5
45°	163.4	159.9	160.8	159.9
47.5°	151.3	151.3	152.2	152.2
50°	142.7	143.6	143.6	143.6
52.5°	134.1	135.0	135.8	135.8
55°	126.4	126.4	127.2	127.2
57.5°	116.9	116.9	117.8	117.8
60°	108.3	108.3	109.2	109.2
62.5°	98.9	98.9	99.7	99.7
65°	89.4	89.4	90.3	90.3
67.5°	80.8	80.8	80.8	81.7
70°	71.4	71.4	71.4	72.2
72.5°	61.9	61.9	62.8	62.8
75°	52.4	52.4	53.3	53.3
77.5°	43.0	43.0	43.8	44.7
80°	34.4	34.4	34.4	34.4
82.5°	24.9	24.9	25.8	26.7
85°	16.3	16.3	16.3	16.3
87.5°	8.6	8.6	8.6	9.5
90°	0.0	0.0	0.0	0.0

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