

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P644140

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 900LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644140
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-132)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692H WW - 900LM - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

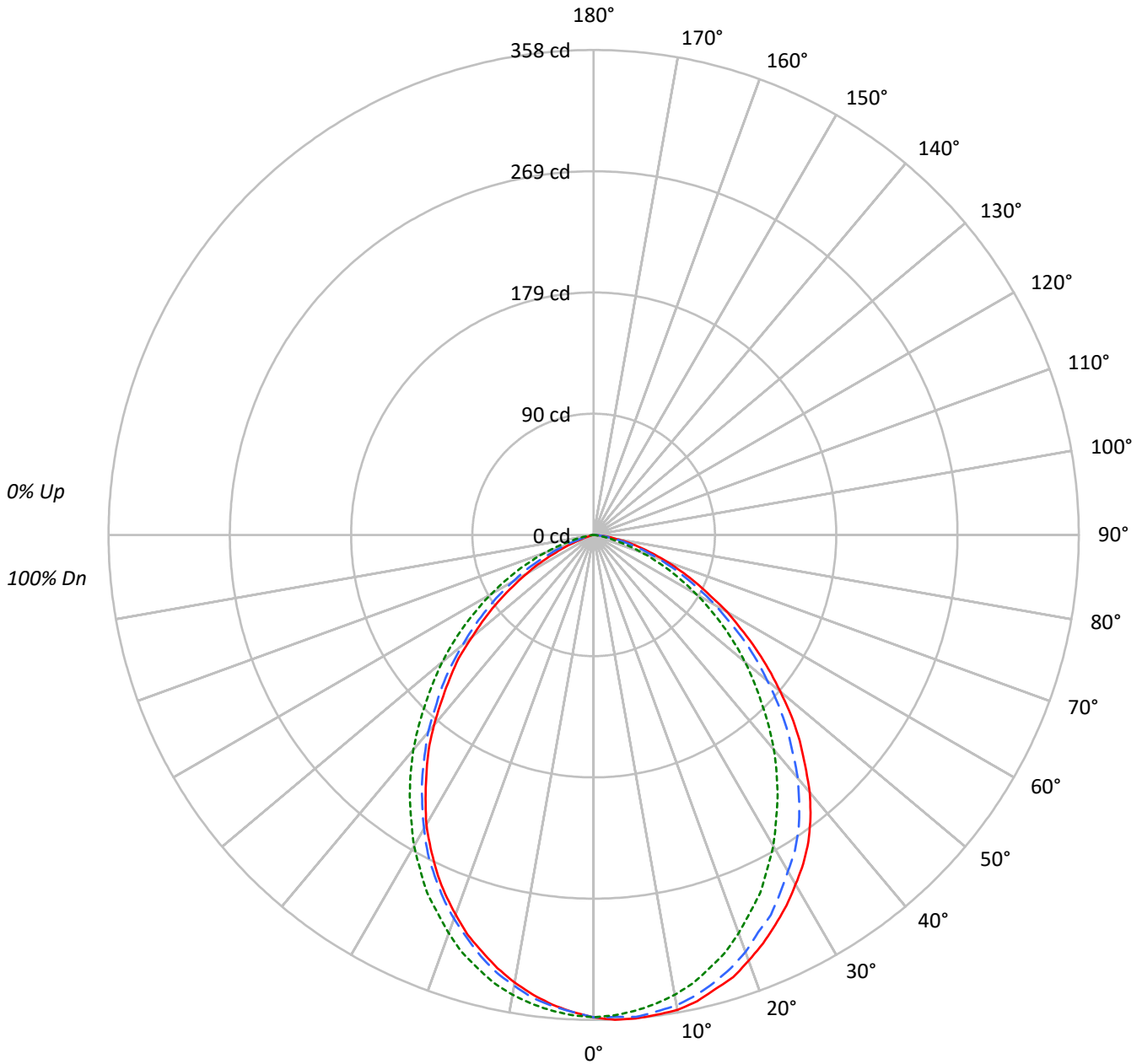
Lumens per Lamp: N/A
Luminaire Lumens: 736.7 lumens
Efficiency: N/A
Efficacy: 70.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 10.5
Input Voltage (V): NR
Input Current (A_{in}): 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: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88				88															
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76				76															
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66				66															
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57				57															
5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51				51															
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45				45															
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40				40															
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36				36															
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33				33															
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30				30															

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	19521	19521	19521	19521	19521
5°	19717	19657	19403	19216	19156
10°	19823	19628	19188	18809	18681
15°	19694	19433	18786	18269	18076
20°	19508	19112	18248	17589	17385
25°	19199	18715	17614	16791	16586
30°	18864	18148	16781	15844	15629
35°	18498	17661	15834	14770	14388
40°	17748	16767	14813	13597	13103
45°	16668	15606	13583	12257	11645
50°	15326	14260	12418	10772	9995
55°	13916	12941	11087	9242	8267
60°	12477	11348	9604	7488	6239
65°	10766	9742	7965	5604	3982
70°	9120	8030	6011	3462	1827
75°	7477	6270	3855	1207	720
80°	5398	4325	1799	347	347
85°	2893	2139	692	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16668 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.5	4.5
10°-20°	93.5	12.7
20°-30°	134.7	18.3
30°-40°	150.6	20.4
40°-50°	138.1	18.7
50°-60°	103.7	14.1
60°-70°	59.2	8.0
70°-80°	20.7	2.8
80°-90°	2.7	0.4
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°	261.7	35.5
0°-40°	412.3	56.0
0°-60°	654.1	88.8
0°-90°	736.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	736.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	356	356	356	356	356	
5°	358	357	353	349	348	34
15°	347	342	331	322	318	98
25°	317	309	291	278	274	146
35°	276	264	237	221	215	172
45°	215	201	175	158	150	165
55°	146	135	116	97	86	130
65°	83	75	61	43	31	83
75°	35	30	18	6	3	38
85°	5	3	1	0	0	7
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1
2.5°	358.3	357.2	357.2	357.2	357.2	357.2	357.2	357.2	357.2	357.2	356.1
5°	358.3	358.3	358.3	358.3	358.3	358.3	358.3	357.2	357.2	357.2	357.2
7.5°	357.2	357.2	357.2	357.2	357.2	357.2	357.2	356.1	356.1	354.9	354.9
10°	356.1	356.1	356.1	354.9	354.9	354.9	354.9	354.9	353.8	353.8	352.6
12.5°	352.6	352.6	352.6	352.6	351.5	351.5	351.5	350.4	349.2	349.2	348.1
15°	347.0	348.1	348.1	347.0	347.0	347.0	347.0	345.8	344.7	343.5	342.4
17.5°	342.4	342.4	342.4	341.3	340.1	341.3	340.1	339.0	337.9	336.7	335.6
20°	334.4	334.4	333.3	333.3	333.3	333.3	332.2	331.0	329.9	328.8	327.6
22.5°	326.5	326.5	326.5	324.2	324.2	324.2	323.1	323.1	320.8	319.7	317.4
25°	317.4	317.4	317.4	316.2	315.1	314.0	315.1	312.8	311.7	309.4	309.4
27.5°	308.3	308.3	307.1	307.1	306.0	306.0	304.9	302.6	301.5	300.3	298.0
30°	298.0	298.0	296.9	296.9	295.8	294.6	294.6	292.4	291.2	288.9	286.7
32.5°	287.8	287.8	286.7	286.7	285.5	284.4	284.4	282.1	279.8	277.6	276.4
35°	276.4	276.4	275.3	275.3	274.2	273.0	271.9	269.6	268.5	265.1	263.9
37.5°	262.8	263.9	261.6	261.6	260.5	259.4	258.2	257.1	254.8	252.5	249.1
40°	248.0	246.9	246.9	245.7	244.6	244.6	243.4	241.2	240.0	236.6	234.3
42.5°	230.9	230.9	230.9	229.8	228.7	228.7	226.4	225.2	223.0	220.7	217.3
45°	215.0	215.0	213.9	213.9	211.6	211.6	210.4	208.2	207.0	203.6	201.3
47.5°	197.9	196.8	196.8	195.7	194.5	194.5	193.4	192.2	190.0	186.6	184.3
50°	179.7	179.7	179.7	178.6	177.5	177.5	176.3	174.0	172.9	170.6	167.2
52.5°	162.7	162.7	162.7	161.5	160.4	160.4	159.3	158.1	155.8	153.6	151.3
55°	145.6	145.6	145.6	144.5	144.5	142.2	142.2	141.1	138.8	136.5	135.4
57.5°	128.5	128.5	128.5	128.5	127.4	127.4	126.3	125.1	122.9	121.7	118.3
60°	113.8	112.6	112.6	111.5	111.5	110.3	109.2	108.1	106.9	104.7	103.5
62.5°	96.7	97.8	96.7	96.7	95.6	95.6	95.6	93.3	92.1	89.9	88.7
65°	83.0	83.0	83.0	83.0	80.8	80.8	80.8	78.5	77.4	77.4	75.1
67.5°	69.4	69.4	69.4	68.3	68.3	68.3	67.1	66.0	64.8	63.7	62.6
70°	56.9	56.9	56.9	55.7	55.7	54.6	54.6	53.5	52.3	52.3	50.1
72.5°	45.5	45.5	45.5	45.5	44.4	44.4	43.2	43.2	42.1	41.0	39.8
75°	35.3	35.3	35.3	34.1	34.1	34.1	33.0	33.0	31.9	30.7	29.6
77.5°	26.2	25.0	25.0	25.0	25.0	23.9	23.9	23.9	22.8	21.6	21.6
80°	17.1	17.1	17.1	17.1	17.1	15.9	15.9	15.9	14.8	14.8	13.7
82.5°	10.2	10.2	10.2	10.2	10.2	9.1	9.1	9.1	8.0	8.0	8.0
85°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	3.4	3.4	3.4
87.5°	1.1	1.1	1.1	1.1	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1
2.5°	357.2	357.2	356.1	356.1	356.1	356.1	356.1	354.9	354.9	354.9	354.9
5°	357.2	356.1	354.9	354.9	354.9	354.9	353.8	353.8	353.8	352.6	352.6
7.5°	353.8	353.8	353.8	352.6	352.6	351.5	351.5	350.4	350.4	349.2	349.2
10°	351.5	350.4	350.4	349.2	349.2	348.1	348.1	345.8	344.7	344.7	343.5
12.5°	347.0	345.8	345.8	343.5	343.5	343.5	342.4	340.1	339.0	339.0	337.9
15°	341.3	340.1	339.0	336.7	336.7	335.6	334.4	333.3	332.2	331.0	329.9
17.5°	334.4	332.2	331.0	329.9	328.8	327.6	326.5	325.3	323.1	323.1	320.8
20°	326.5	324.2	323.1	320.8	319.7	319.7	317.4	315.1	314.0	312.8	310.6
22.5°	316.2	315.1	312.8	310.6	309.4	309.4	307.1	304.9	303.7	301.5	300.3
25°	307.1	303.7	302.6	300.3	299.2	299.2	296.9	294.6	292.4	291.2	288.9
27.5°	295.8	293.5	292.4	288.9	287.8	286.7	284.4	282.1	279.8	277.6	275.3
30°	284.4	282.1	279.8	276.4	276.4	274.2	271.9	268.5	267.3	265.1	261.6
32.5°	273.0	270.7	267.3	265.1	262.8	261.6	258.2	256.0	253.7	250.3	249.1
35°	260.5	257.1	254.8	251.4	250.3	248.0	245.7	242.3	240.0	236.6	233.2
37.5°	246.9	242.3	240.0	236.6	235.5	233.2	230.9	228.7	225.2	221.8	219.5
40°	232.1	227.5	224.1	221.8	219.5	217.3	216.1	211.6	209.3	207.0	204.8
42.5°	215.0	211.6	208.2	205.9	203.6	202.5	199.1	196.8	193.4	191.1	188.8
45°	199.1	195.7	192.2	188.8	187.7	186.6	184.3	180.9	177.5	175.2	172.9
47.5°	182.0	179.7	175.2	174.0	171.8	170.6	167.2	164.9	163.8	160.4	158.1
50°	164.9	162.7	160.4	157.0	155.8	154.7	152.4	150.2	147.9	145.6	143.3
52.5°	147.9	146.7	144.5	141.1	141.1	139.9	137.6	135.4	133.1	130.8	128.5
55°	133.1	130.8	128.5	126.3	125.1	124.0	121.7	120.6	118.3	116.0	113.8
57.5°	117.2	114.9	113.8	111.5	110.3	109.2	106.9	105.8	103.5	101.2	99.0
60°	102.4	100.1	99.0	96.7	95.6	95.6	93.3	91.0	89.9	87.6	85.3
62.5°	87.6	85.3	84.2	81.9	81.9	80.8	79.6	77.4	76.2	73.9	72.8
65°	73.9	72.8	70.5	69.4	68.3	67.1	66.0	64.8	62.6	61.4	59.2
67.5°	61.4	59.2	58.0	56.9	55.7	54.6	53.5	52.3	50.1	48.9	46.6
70°	48.9	47.8	46.6	45.5	44.4	44.4	42.1	41.0	38.7	37.5	35.3
72.5°	38.7	37.5	36.4	34.1	34.1	33.0	31.9	30.7	28.4	27.3	25.0
75°	28.4	28.4	26.2	25.0	25.0	23.9	22.8	21.6	20.5	18.2	17.1
77.5°	20.5	19.3	18.2	17.1	15.9	15.9	14.8	13.7	12.5	11.4	9.1
80°	13.7	12.5	11.4	10.2	10.2	9.1	8.0	8.0	6.8	5.7	4.6
82.5°	6.8	6.8	5.7	5.7	4.6	4.6	4.6	3.4	3.4	2.3	2.3
85°	3.4	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	0.0
87.5°	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1
2.5°	354.9	353.8	354.9	354.9	353.8	353.8	353.8	353.8	352.6	353.8	352.6
5°	352.6	351.5	351.5	351.5	351.5	350.4	350.4	349.2	349.2	349.2	349.2
7.5°	348.1	347.0	347.0	345.8	345.8	345.8	345.8	344.7	344.7	343.5	343.5
10°	343.5	342.4	341.3	341.3	340.1	340.1	340.1	339.0	337.9	337.9	336.7
12.5°	335.6	335.6	334.4	334.4	333.3	333.3	332.2	331.0	331.0	329.9	329.9
15°	328.8	327.6	326.5	326.5	325.3	324.2	323.1	323.1	321.9	321.9	320.8
17.5°	319.7	317.4	317.4	316.2	315.1	315.1	314.0	312.8	311.7	311.7	311.7
20°	309.4	308.3	307.1	306.0	304.9	304.9	303.7	302.6	301.5	300.3	300.3
22.5°	298.0	296.9	295.8	294.6	294.6	293.5	292.4	291.2	290.1	288.9	288.9
25°	286.7	285.5	284.4	283.3	282.1	281.0	279.8	278.7	277.6	276.4	276.4
27.5°	274.2	271.9	270.7	269.6	268.5	267.3	267.3	265.1	265.1	263.9	262.8
30°	260.5	258.2	256.0	256.0	254.8	253.7	251.4	251.4	250.3	249.1	248.0
32.5°	245.7	244.6	242.3	242.3	240.0	238.9	237.8	236.6	235.5	234.3	234.3
35°	232.1	228.7	227.5	227.5	225.2	224.1	223.0	220.7	220.7	218.4	218.4
37.5°	217.3	215.0	213.9	211.6	210.4	209.3	208.2	205.9	204.8	203.6	202.5
40°	202.5	200.2	197.9	196.8	195.7	193.4	192.2	190.0	190.0	187.7	186.6
42.5°	186.6	184.3	182.0	180.9	179.7	177.5	176.3	174.0	172.9	171.8	170.6
45°	170.6	168.4	167.2	166.1	164.9	163.8	160.4	159.3	158.1	155.8	154.7
47.5°	155.8	153.6	151.3	151.3	149.0	147.9	145.6	143.3	142.2	139.9	138.8
50°	141.1	138.8	136.5	135.4	135.4	132.0	130.8	128.5	126.3	124.0	122.9
52.5°	126.3	124.0	121.7	120.6	119.4	117.2	114.9	113.8	111.5	109.2	108.1
55°	111.5	109.2	106.9	105.8	104.7	102.4	101.2	97.8	96.7	94.4	92.1
57.5°	97.8	95.6	93.3	92.1	91.0	88.7	86.5	84.2	83.0	80.8	78.5
60°	83.0	81.9	79.6	78.5	77.4	76.2	72.8	70.5	68.3	67.1	64.8
62.5°	70.5	68.3	66.0	64.8	63.7	62.6	60.3	58.0	56.9	53.5	51.2
65°	58.0	55.7	53.5	52.3	51.2	50.1	47.8	45.5	43.2	41.0	39.8
67.5°	44.4	43.2	41.0	41.0	39.8	37.5	35.3	34.1	31.9	30.7	28.4
70°	34.1	33.0	30.7	29.6	28.4	26.2	25.0	22.8	21.6	20.5	18.2
72.5°	23.9	22.8	20.5	19.3	18.2	17.1	14.8	13.7	12.5	11.4	10.2
75°	15.9	13.7	12.5	11.4	11.4	9.1	8.0	6.8	5.7	4.6	4.6
77.5°	9.1	8.0	5.7	5.7	5.7	4.6	3.4	3.4	2.3	2.3	2.3
80°	4.6	3.4	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	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	0.0	1.1	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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: P644140

CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 900LM - 5000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	356.1	356.1	356.1	356.1	356.1	356.1	356.1	356.1
2.5°	352.6	352.6	352.6	352.6	352.6	352.6	352.6	352.6
5°	349.2	348.1	348.1	348.1	348.1	348.1	348.1	348.1
7.5°	343.5	343.5	342.4	343.5	342.4	342.4	342.4	342.4
10°	336.7	336.7	336.7	336.7	335.6	335.6	335.6	335.6
12.5°	329.9	328.8	328.8	328.8	327.6	328.8	327.6	327.6
15°	320.8	319.7	319.7	319.7	319.7	318.5	319.7	318.5
17.5°	310.6	310.6	309.4	310.6	309.4	309.4	309.4	309.4
20°	299.2	299.2	299.2	298.0	299.2	298.0	298.0	298.0
22.5°	287.8	287.8	286.7	286.7	286.7	286.7	286.7	286.7
25°	275.3	275.3	275.3	275.3	274.2	274.2	274.2	274.2
27.5°	262.8	261.6	261.6	261.6	260.5	261.6	260.5	260.5
30°	248.0	248.0	246.9	246.9	246.9	245.7	245.7	246.9
32.5°	232.1	232.1	232.1	232.1	230.9	230.9	230.9	230.9
35°	217.3	217.3	216.1	216.1	216.1	215.0	215.0	215.0
37.5°	201.3	201.3	200.2	200.2	200.2	199.1	199.1	200.2
40°	185.4	185.4	184.3	184.3	184.3	183.1	183.1	183.1
42.5°	169.5	168.4	168.4	167.2	167.2	167.2	166.1	166.1
45°	153.6	152.4	152.4	152.4	151.3	150.2	150.2	150.2
47.5°	137.6	136.5	135.4	135.4	134.2	134.2	134.2	135.4
50°	121.7	120.6	120.6	119.4	118.3	118.3	118.3	117.2
52.5°	105.8	104.7	104.7	103.5	103.5	102.4	101.2	101.2
55°	91.0	89.9	88.7	87.6	87.6	86.5	86.5	86.5
57.5°	76.2	75.1	73.9	73.9	72.8	72.8	71.7	70.5
60°	62.6	61.4	60.3	60.3	59.2	58.0	56.9	56.9
62.5°	50.1	48.9	47.8	46.6	45.5	44.4	43.2	44.4
65°	38.7	36.4	35.3	34.1	34.1	33.0	31.9	30.7
67.5°	27.3	26.2	25.0	23.9	22.8	21.6	20.5	20.5
70°	17.1	14.8	14.8	14.8	13.7	12.5	11.4	11.4
72.5°	9.1	8.0	6.8	6.8	5.7	5.7	5.7	5.7
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	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	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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(END OF REPORT)