

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: P644083

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 1200LM - 3500K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644083
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-130)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592H WW - 1200LM - 3500K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 846.9 lumens
Efficiency: N/A
Efficacy: 63.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

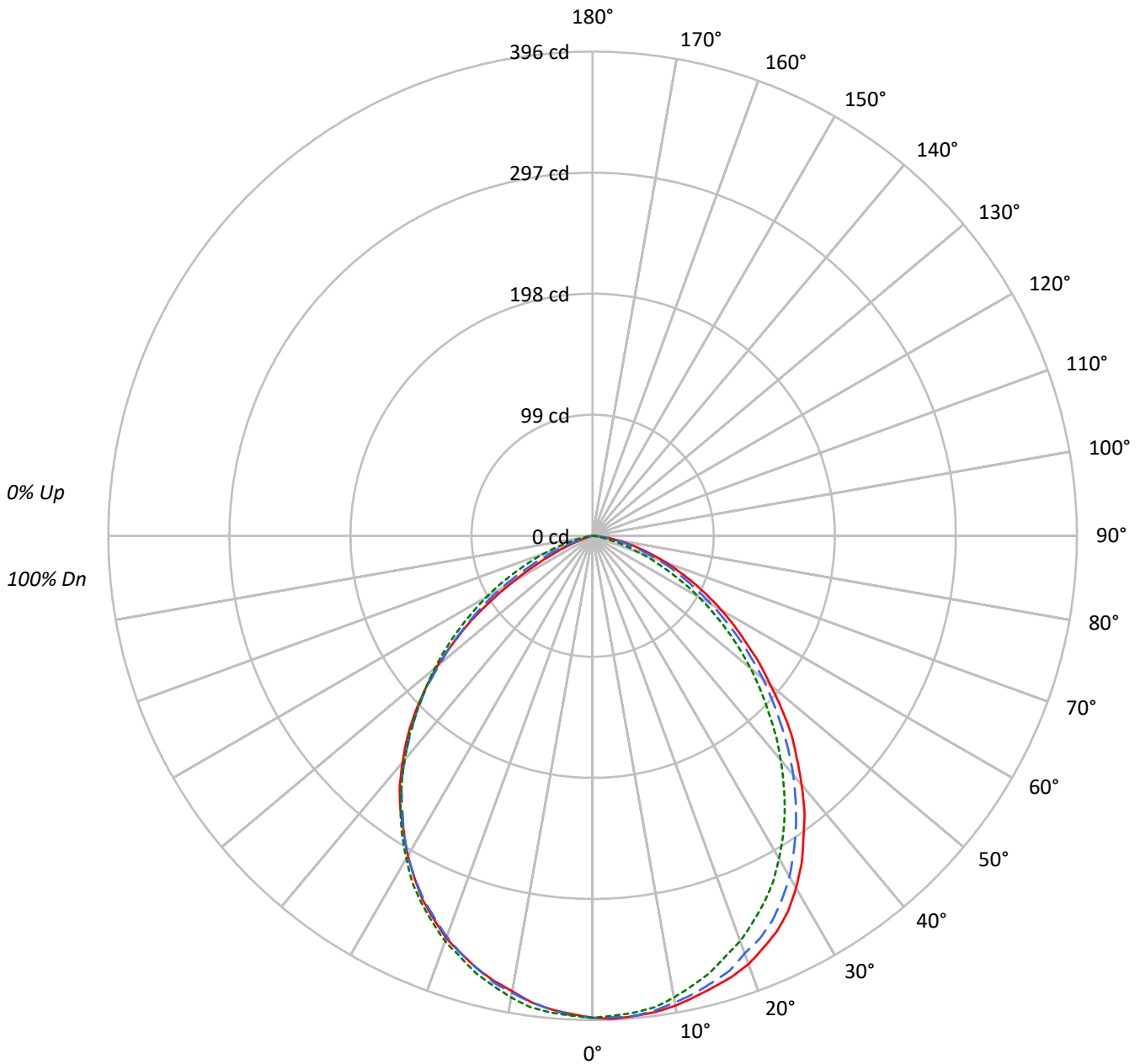
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					70					50					30				
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	111	107	103	100	108	105	101	98	100	98	95	96	94	92	93	91	90	88		
2	102	95	89	84	100	93	88	83	90	85	81	87	83	79	84	81	78	76		
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66		
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57		
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50		
6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45		
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40		
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36		
9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33		
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	31119	31119	31119	31119	31119
5°	31237	31237	31023	30817	30817
10°	31278	31061	30741	30420	30316
15°	31236	30909	30247	29920	29920
20°	31318	30537	29638	29302	29411
25°	31078	30259	28865	28517	28630
30°	30327	29351	27774	27528	27528
35°	28978	27947	26395	26145	26395
40°	27401	26298	24650	24650	24928
45°	25655	24315	22674	22674	22975
50°	23309	22315	20681	20018	20350
55°	21154	20053	18387	17107	16736
60°	19198	17714	15820	13720	11810
65°	16979	15466	12720	9489	6986
70°	14795	12948	9555	5239	2770
75°	11834	10187	6100	1617	824
80°	9092	6683	2409	591	591
85°	4800	3623	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 25655 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.1	4.4
10°-20°	104.9	12.4
20°-30°	154.7	18.3
30°-40°	175.2	20.7
40°-50°	161.9	19.1
50°-60°	120.9	14.3
60°-70°	66.8	7.9
70°-80°	22.5	2.7
80°-90°	2.8	0.3
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°	296.8	35.0
0°-40°	472.0	55.7
0°-60°	754.8	89.1
0°-90°	846.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	846.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	394	394	394	394	394	
5°	394	394	392	389	389	38
15°	382	378	370	366	366	108
25°	357	347	331	327	329	164
35°	301	290	274	271	274	188
45°	230	218	203	203	206	176
55°	154	146	134	124	122	138
65°	91	83	68	51	37	90
75°	39	33	20	5	3	42
85°	5	4	0	0	0	8
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°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2
2.5°	395.5	395.5	395.5	395.5	394.2	394.2	395.5	394.2	394.2	394.2	394.2
5°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2
7.5°	392.9	392.9	392.9	392.9	392.9	392.9	392.9	392.9	391.5	391.5	391.5
10°	390.2	390.2	390.2	390.2	390.2	390.2	390.2	388.9	388.9	388.9	387.5
12.5°	386.2	387.5	386.2	387.5	386.2	386.2	384.8	384.8	384.8	383.5	383.5
15°	382.2	382.2	382.2	382.2	382.2	380.8	380.8	379.5	379.5	379.5	378.2
17.5°	378.2	376.8	376.8	376.8	375.5	375.5	375.5	375.5	374.2	372.8	372.8
20°	372.8	371.5	371.5	371.5	370.1	370.1	368.8	368.8	366.1	366.1	363.5
22.5°	364.8	364.8	364.8	363.5	363.5	362.1	362.1	360.8	359.5	358.1	356.8
25°	356.8	356.8	355.4	355.4	354.1	354.1	354.1	351.4	350.1	348.8	347.4
27.5°	346.1	346.1	344.8	344.8	343.4	342.1	342.1	339.4	339.4	336.7	335.4
30°	332.7	332.7	332.7	330.1	330.1	330.1	328.7	327.4	324.7	323.4	322.0
32.5°	318.0	316.7	316.7	316.7	315.4	314.0	314.0	311.4	310.0	308.7	306.0
35°	300.7	300.7	300.7	300.7	299.3	298.0	298.0	295.3	294.0	291.3	290.0
37.5°	284.6	284.6	283.3	283.3	280.6	282.0	280.6	279.3	277.9	273.9	272.6
40°	265.9	265.9	265.9	264.6	263.2	263.2	261.9	260.6	257.9	256.6	255.2
42.5°	247.2	247.2	247.2	245.9	244.5	244.5	244.5	241.9	240.5	239.2	236.5
45°	229.8	228.5	228.5	227.2	227.2	225.8	224.5	223.2	221.8	220.5	217.8
47.5°	209.8	209.8	208.5	208.5	207.1	207.1	205.8	204.4	203.1	201.8	199.1
50°	189.8	191.1	191.1	189.8	189.8	188.4	187.1	187.1	185.7	184.4	181.7
52.5°	172.4	172.4	172.4	171.0	171.0	169.7	169.7	168.4	167.0	164.4	163.0
55°	153.7	155.0	153.7	153.7	153.7	152.3	152.3	151.0	149.7	147.0	145.7
57.5°	137.6	137.6	136.3	136.3	135.0	135.0	135.0	133.6	132.3	131.0	128.3
60°	121.6	120.3	120.3	120.3	118.9	118.9	118.9	116.3	114.9	113.6	112.2
62.5°	105.6	105.6	105.6	104.2	104.2	102.9	101.6	101.6	100.2	98.9	96.2
65°	90.9	90.9	89.5	89.5	89.5	88.2	88.2	86.9	85.5	84.2	82.8
67.5°	76.2	76.2	76.2	74.8	74.8	74.8	73.5	72.2	72.2	70.8	69.5
70°	64.1	62.8	62.8	62.8	61.5	61.5	61.5	60.1	58.8	57.5	56.1
72.5°	50.8	50.8	50.8	50.8	49.4	49.4	48.1	48.1	46.8	45.4	44.1
75°	38.8	38.8	38.8	38.8	37.4	37.4	37.4	36.1	36.1	34.7	33.4
77.5°	29.4	29.4	29.4	28.1	28.1	26.7	26.7	26.7	25.4	25.4	24.1
80°	20.0	20.0	18.7	18.7	18.7	18.7	18.7	17.4	16.0	16.0	14.7
82.5°	12.0	12.0	12.0	10.7	10.7	10.7	10.7	10.7	9.4	9.4	8.0
85°	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0	4.0	4.0	4.0
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2
2.5°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	392.9	392.9	392.9	392.9
5°	392.9	392.9	392.9	392.9	392.9	391.5	392.9	391.5	391.5	391.5	391.5
7.5°	390.2	390.2	390.2	390.2	388.9	390.2	388.9	388.9	388.9	388.9	387.5
10°	387.5	386.2	386.2	386.2	386.2	384.8	384.8	383.5	383.5	383.5	382.2
12.5°	383.5	382.2	382.2	380.8	380.8	380.8	379.5	379.5	378.2	376.8	376.8
15°	376.8	376.8	375.5	374.2	374.2	372.8	372.8	371.5	371.5	370.1	368.8
17.5°	371.5	370.1	368.8	367.5	366.1	366.1	364.8	363.5	363.5	360.8	360.8
20°	362.1	360.8	359.5	358.1	358.1	358.1	355.4	355.4	354.1	352.8	351.4
22.5°	354.1	352.8	350.1	348.8	348.8	347.4	346.1	344.8	343.4	342.1	340.7
25°	344.8	343.4	340.7	339.4	338.1	336.7	335.4	334.1	332.7	331.4	330.1
27.5°	332.7	330.1	330.1	327.4	326.1	324.7	323.4	322.0	320.7	319.4	318.0
30°	319.4	318.0	315.4	312.7	311.4	311.4	308.7	307.3	307.3	304.7	303.3
32.5°	304.7	302.0	299.3	298.0	296.7	295.3	294.0	292.6	291.3	290.0	288.6
35°	288.6	284.6	283.3	280.6	280.6	279.3	277.9	275.3	275.3	273.9	271.3
37.5°	271.3	268.6	267.3	264.6	263.2	261.9	260.6	259.2	257.9	256.6	255.2
40°	252.6	249.9	248.5	247.2	245.9	244.5	243.2	241.9	240.5	239.2	237.9
42.5°	233.8	232.5	229.8	227.2	227.2	225.8	224.5	223.2	221.8	221.8	220.5
45°	215.1	213.8	211.1	209.8	208.5	208.5	205.8	205.8	204.4	203.1	203.1
47.5°	197.8	195.1	192.4	192.4	189.8	191.1	188.4	188.4	185.7	185.7	184.4
50°	179.1	177.7	175.1	173.7	173.7	172.4	171.0	171.0	169.7	168.4	167.0
52.5°	161.7	159.0	157.7	156.3	155.0	155.0	153.7	153.7	151.0	151.0	149.7
55°	144.3	143.0	140.3	139.0	139.0	139.0	136.3	135.0	135.0	133.6	132.3
57.5°	126.9	125.6	124.3	122.9	121.6	121.6	120.3	118.9	117.6	116.3	113.6
60°	110.9	109.6	108.2	106.9	105.6	105.6	104.2	102.9	101.6	100.2	98.9
62.5°	94.9	94.9	92.2	90.9	89.5	89.5	88.2	86.9	85.5	84.2	82.8
65°	81.5	80.2	77.5	76.2	76.2	76.2	73.5	72.2	70.8	68.1	66.8
67.5°	68.1	65.5	64.1	64.1	62.8	61.5	60.1	58.8	56.1	54.8	52.1
70°	54.8	53.5	52.1	50.8	49.4	48.1	46.8	45.4	42.8	41.4	40.1
72.5°	42.8	41.4	40.1	38.8	37.4	37.4	34.7	33.4	32.1	29.4	28.1
75°	32.1	30.7	29.4	28.1	26.7	25.4	25.4	22.7	21.4	20.0	17.4
77.5°	22.7	21.4	20.0	18.7	18.7	17.4	16.0	14.7	13.4	12.0	10.7
80°	14.7	13.4	12.0	12.0	10.7	10.7	9.4	8.0	6.7	5.3	5.3
82.5°	8.0	6.7	6.7	5.3	5.3	5.3	4.0	2.7	2.7	2.7	1.3
85°	2.7	2.7	2.7	1.3	1.3	1.3	1.3	1.3	1.3	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2
2.5°	392.9	392.9	392.9	392.9	392.9	392.9	392.9	392.9	392.9	391.5	391.5
5°	390.2	390.2	390.2	390.2	390.2	390.2	388.9	388.9	388.9	388.9	388.9
7.5°	387.5	387.5	387.5	386.2	386.2	386.2	386.2	384.8	384.8	384.8	384.8
10°	382.2	382.2	382.2	380.8	380.8	380.8	380.8	380.8	379.5	379.5	379.5
12.5°	375.5	375.5	375.5	375.5	375.5	374.2	374.2	374.2	374.2	372.8	374.2
15°	368.8	368.8	367.5	367.5	367.5	366.1	366.1	366.1	366.1	366.1	366.1
17.5°	360.8	359.5	359.5	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1
20°	351.4	350.1	350.1	350.1	350.1	348.8	348.8	347.4	348.8	348.8	348.8
22.5°	340.7	339.4	339.4	339.4	338.1	338.1	338.1	338.1	338.1	338.1	338.1
25°	330.1	328.7	327.4	327.4	327.4	326.1	326.1	327.4	327.4	327.4	327.4
27.5°	316.7	316.7	315.4	315.4	315.4	314.0	314.0	314.0	315.4	315.4	315.4
30°	302.0	302.0	302.0	302.0	300.7	300.7	302.0	300.7	302.0	300.7	302.0
32.5°	288.6	288.6	287.3	286.0	286.0	287.3	286.0	286.0	287.3	287.3	287.3
35°	271.3	271.3	271.3	271.3	271.3	271.3	271.3	271.3	271.3	272.6	273.9
37.5°	255.2	255.2	255.2	255.2	255.2	255.2	255.2	256.6	256.6	256.6	256.6
40°	237.9	237.9	237.9	237.9	237.9	237.9	237.9	237.9	239.2	239.2	240.5
42.5°	219.1	220.5	220.5	220.5	219.1	219.1	220.5	220.5	220.5	221.8	221.8
45°	201.8	201.8	201.8	201.8	203.1	201.8	201.8	201.8	203.1	203.1	203.1
47.5°	184.4	183.1	183.1	184.4	183.1	183.1	183.1	183.1	184.4	184.4	183.1
50°	167.0	165.7	165.7	165.7	164.4	164.4	165.7	163.0	163.0	163.0	164.4
52.5°	149.7	148.3	147.0	147.0	147.0	145.7	144.3	144.3	144.3	143.0	143.0
55°	131.0	129.6	128.3	128.3	128.3	126.9	126.9	124.3	124.3	122.9	122.9
57.5°	113.6	112.2	110.9	110.9	109.6	108.2	108.2	105.6	105.6	104.2	101.6
60°	96.2	94.9	93.5	93.5	93.5	90.9	89.5	86.9	86.9	84.2	82.8
62.5°	80.2	78.8	77.5	76.2	76.2	73.5	72.2	69.5	68.1	66.8	64.1
65°	65.5	62.8	61.5	60.1	60.1	57.5	56.1	53.5	50.8	49.4	46.8
67.5°	50.8	49.4	46.8	45.4	45.4	42.8	40.1	38.8	36.1	33.4	32.1
70°	37.4	36.1	33.4	32.1	30.7	29.4	26.7	25.4	22.7	21.4	18.7
72.5°	25.4	24.1	21.4	21.4	20.0	17.4	16.0	14.7	12.0	10.7	9.4
75°	16.0	14.7	13.4	12.0	10.7	9.4	8.0	6.7	5.3	4.0	4.0
77.5°	9.4	8.0	6.7	5.3	5.3	4.0	2.7	2.7	2.7	1.3	1.3
80°	4.0	2.7	2.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0	0.0	1.3	1.3
85°	0.0	0.0	0.0	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	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: P644083

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 1200LM - 3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	394.2	394.2	394.2	394.2	394.2	394.2	394.2	394.2
2.5°	392.9	391.5	392.9	392.9	391.5	391.5	391.5	391.5
5°	388.9	388.9	388.9	388.9	388.9	388.9	388.9	388.9
7.5°	386.2	384.8	384.8	384.8	384.8	384.8	384.8	384.8
10°	379.5	379.5	379.5	379.5	379.5	379.5	379.5	378.2
12.5°	372.8	372.8	372.8	372.8	372.8	372.8	372.8	372.8
15°	366.1	366.1	366.1	366.1	366.1	366.1	366.1	366.1
17.5°	358.1	358.1	358.1	358.1	358.1	356.8	358.1	358.1
20°	348.8	348.8	348.8	348.8	348.8	348.8	348.8	350.1
22.5°	338.1	338.1	338.1	338.1	338.1	338.1	338.1	339.4
25°	327.4	327.4	327.4	327.4	327.4	327.4	327.4	328.7
27.5°	315.4	315.4	315.4	315.4	315.4	315.4	315.4	315.4
30°	302.0	302.0	303.3	302.0	302.0	302.0	303.3	302.0
32.5°	288.6	288.6	288.6	288.6	288.6	288.6	288.6	287.3
35°	273.9	272.6	273.9	273.9	273.9	273.9	273.9	273.9
37.5°	257.9	257.9	257.9	257.9	257.9	257.9	259.2	259.2
40°	241.9	240.5	240.5	241.9	241.9	241.9	240.5	241.9
42.5°	221.8	223.2	223.2	223.2	224.5	223.2	224.5	224.5
45°	203.1	204.4	204.4	204.4	204.4	204.4	205.8	205.8
47.5°	184.4	184.4	184.4	184.4	185.7	185.7	185.7	185.7
50°	164.4	164.4	164.4	164.4	165.7	164.4	165.7	165.7
52.5°	143.0	143.0	143.0	143.0	143.0	143.0	144.3	143.0
55°	121.6	121.6	121.6	121.6	120.3	120.3	120.3	121.6
57.5°	101.6	100.2	98.9	100.2	97.5	97.5	97.5	97.5
60°	80.2	78.8	78.8	77.5	76.2	74.8	76.2	74.8
62.5°	61.5	60.1	60.1	57.5	56.1	56.1	54.8	54.8
65°	45.4	42.8	41.4	41.4	40.1	38.8	37.4	37.4
67.5°	29.4	28.1	26.7	26.7	25.4	24.1	24.1	22.7
70°	17.4	16.0	14.7	16.0	13.4	12.0	12.0	12.0
72.5°	8.0	6.7	6.7	6.7	5.3	5.3	5.3	5.3
75°	4.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	1.3	1.3	2.7	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	0.0	0.0	0.0	1.3	1.3	0.0	1.3
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)