

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: P644112

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 1200LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644112
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-116)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592W WW - 1200LM - 3000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 817.3 lumens
Efficiency: N/A
Efficacy: 61.0 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.23
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

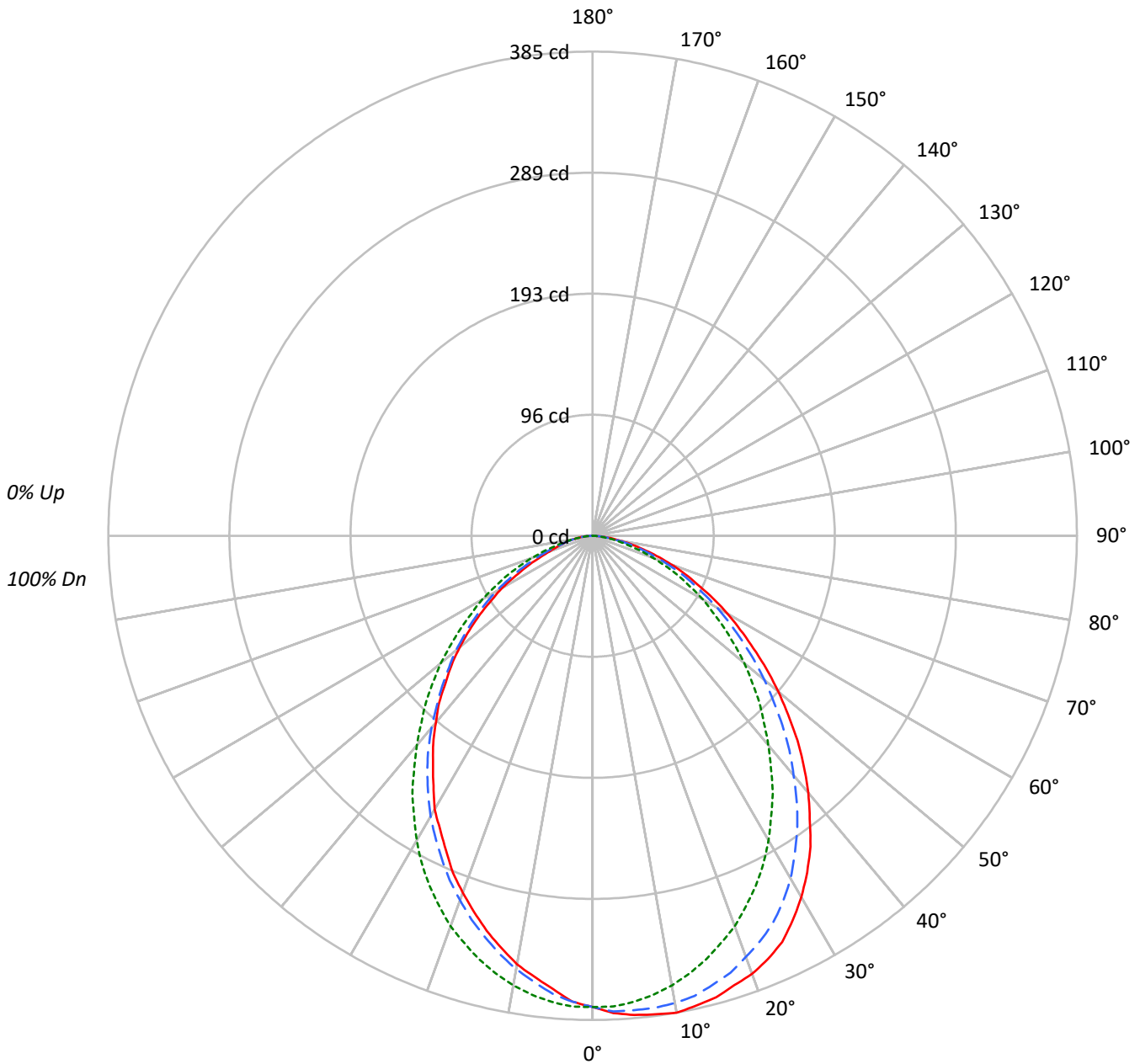
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86				86				
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74				74				
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64				64				
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55				55				
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49				49				
6	73	61	53	46	72	60	52	46	58	51	46	57	50	46	55	49	45	43				43				
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39				39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35				35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32				32				
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29				29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	29579	29579	29579	29579	29579
5°	30310	30001	29486	28971	28662
10°	30869	30244	29098	28048	27735
15°	31048	30198	28490	27002	26577
20°	31150	29940	27756	25899	25353
25°	31043	29571	26740	24702	24023
30°	30235	28695	25496	23481	22889
35°	29084	27330	24073	22069	21317
40°	27483	25608	22393	20507	19971
45°	25711	23813	20910	18878	18443
50°	23641	21885	19330	17414	16936
55°	21484	19874	17548	15759	15043
60°	19514	18077	16025	13973	13152
65°	17259	16045	14103	11899	10684
70°	15303	13802	11702	9602	8401
75°	12688	11499	9120	7534	7534
80°	10047	8865	7092	6501	6501
85°	5887	5887	4710	5887	5887

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 25711 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.3	4.3
10°-20°	98.7	12.1
20°-30°	143.1	17.5
30°-40°	159.7	19.5
40°-50°	148.1	18.1
50°-60°	116.4	14.2
60°-70°	74.5	9.1
70°-80°	34.1	4.2
80°-90°	7.4	0.9
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°	277.1	33.9
0°-40°	436.8	53.4
0°-60°	701.3	85.8
0°-90°	817.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	817.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	375	375	375	375	375	
5°	382	379	372	366	362	37
15°	380	370	349	330	325	107
25°	356	340	307	284	276	163
35°	302	284	250	229	221	188
45°	230	213	187	169	165	177
55°	156	144	128	114	109	140
65°	92	86	76	64	57	93
75°	42	38	30	25	25	45
85°	6	6	5	6	6	9
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°	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7
2.5°	379.9	379.9	379.9	379.9	379.9	379.9	378.6	378.6	378.6	378.6	378.6
5°	382.5	382.5	382.5	382.5	381.2	381.2	381.2	381.2	379.9	379.9	378.6
7.5°	383.8	383.8	383.8	382.5	382.5	382.5	381.2	381.2	381.2	379.9	378.6
10°	385.1	383.8	383.8	382.5	382.5	382.5	381.2	381.2	379.9	378.6	377.3
12.5°	382.5	382.5	382.5	382.5	381.2	381.2	379.9	378.6	377.3	376.0	374.7
15°	379.9	379.9	379.9	378.6	377.3	377.3	376.0	374.7	373.4	372.1	369.5
17.5°	374.7	376.0	374.7	374.7	373.4	373.4	372.1	370.8	368.2	366.9	364.3
20°	370.8	369.5	369.5	369.5	368.2	366.9	365.6	364.3	361.7	360.4	356.4
22.5°	364.3	364.3	363.0	361.7	360.4	360.4	359.0	356.4	355.1	352.5	348.6
25°	356.4	355.1	355.1	353.8	352.5	352.5	349.9	348.6	346.0	342.1	339.5
27.5°	344.7	344.7	344.7	343.4	342.1	340.8	339.5	336.9	335.6	330.4	327.8
30°	331.7	331.7	330.4	330.4	327.8	327.8	326.5	323.9	321.3	317.4	314.8
32.5°	317.4	317.4	317.4	314.8	313.5	312.2	310.9	309.6	305.7	301.8	299.2
35°	301.8	301.8	300.5	299.2	297.9	296.6	295.3	292.7	290.1	287.5	283.6
37.5°	283.6	284.9	283.6	282.3	281.0	279.7	278.4	277.1	273.2	270.6	266.7
40°	266.7	266.7	265.4	264.1	262.8	262.8	261.5	258.9	256.3	252.4	248.5
42.5°	248.5	248.5	247.2	245.9	245.9	244.6	242.0	240.7	238.1	235.5	231.6
45°	230.3	229.0	227.7	227.7	226.4	225.1	225.1	222.5	219.9	215.9	213.3
47.5°	210.7	210.7	209.4	209.4	208.1	206.8	206.8	204.2	200.3	197.7	195.1
50°	192.5	192.5	191.2	191.2	189.9	188.6	187.3	186.0	183.4	180.8	178.2
52.5°	174.3	174.3	174.3	171.7	170.4	170.4	170.4	167.8	166.5	163.9	161.3
55°	156.1	156.1	156.1	154.8	153.5	153.5	153.5	150.9	149.6	147.0	144.4
57.5°	139.2	139.2	139.2	137.9	137.9	136.6	135.3	134.0	132.7	131.4	128.8
60°	123.6	123.6	122.3	121.0	122.3	121.0	119.7	118.4	117.1	115.8	114.5
62.5°	108.0	108.0	108.0	106.7	105.4	105.4	105.4	104.1	101.5	100.2	98.9
65°	92.4	92.4	92.4	92.4	91.1	91.1	89.8	88.5	88.5	87.2	85.9
67.5°	79.4	79.4	78.1	78.1	76.8	76.8	76.8	75.5	74.2	74.2	72.9
70°	66.3	65.0	65.0	65.0	63.7	63.7	63.7	62.4	62.4	61.1	59.8
72.5°	53.3	53.3	53.3	53.3	52.0	52.0	50.7	50.7	49.4	49.4	48.1
75°	41.6	41.6	41.6	41.6	40.3	40.3	40.3	40.3	39.0	39.0	37.7
77.5°	31.2	31.2	31.2	31.2	31.2	31.2	29.9	29.9	29.9	28.6	28.6
80°	22.1	22.1	22.1	22.1	20.8	20.8	20.8	20.8	20.8	19.5	19.5
82.5°	14.3	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	11.7
85°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7
2.5°	377.3	377.3	377.3	377.3	376.0	376.0	376.0	374.7	374.7	374.7	374.7
5°	378.6	378.6	376.0	376.0	376.0	376.0	374.7	374.7	373.4	372.1	370.8
7.5°	377.3	377.3	376.0	374.7	373.4	373.4	372.1	370.8	369.5	368.2	366.9
10°	376.0	374.7	373.4	372.1	370.8	369.5	368.2	366.9	364.3	363.0	361.7
12.5°	373.4	370.8	369.5	366.9	366.9	365.6	363.0	361.7	359.0	356.4	355.1
15°	368.2	365.6	363.0	360.4	360.4	357.7	355.1	353.8	351.2	348.6	346.0
17.5°	361.7	359.0	356.4	353.8	352.5	349.9	347.3	344.7	342.1	339.5	336.9
20°	355.1	351.2	348.6	344.7	343.4	342.1	338.2	335.6	333.0	330.4	326.5
22.5°	346.0	343.4	338.2	335.6	334.3	331.7	329.1	325.2	321.3	318.7	316.1
25°	335.6	333.0	329.1	325.2	322.6	321.3	317.4	313.5	310.9	307.0	304.4
27.5°	323.9	320.0	317.4	312.2	310.9	308.3	304.4	300.5	297.9	294.0	290.1
30°	310.9	307.0	303.1	299.2	296.6	295.3	291.4	287.5	283.6	279.7	277.1
32.5°	295.3	291.4	287.5	284.9	281.0	278.4	275.8	271.9	268.0	264.1	261.5
35°	279.7	275.8	271.9	268.0	265.4	265.4	260.2	256.3	252.4	249.8	245.9
37.5°	262.8	258.9	255.0	251.1	249.8	247.2	243.3	239.4	236.8	232.9	230.3
40°	245.9	240.7	238.1	234.2	232.9	230.3	227.7	223.8	221.2	217.3	214.6
42.5°	227.7	225.1	221.2	218.6	215.9	214.6	210.7	206.8	204.2	201.6	200.3
45°	210.7	206.8	202.9	200.3	199.0	196.4	195.1	191.2	188.6	187.3	184.7
47.5°	192.5	189.9	187.3	183.4	182.1	180.8	178.2	176.9	174.3	171.7	169.1
50°	175.6	173.0	170.4	167.8	166.5	166.5	162.6	160.0	158.7	157.4	154.8
52.5°	158.7	156.1	153.5	150.9	150.9	149.6	147.0	145.7	144.4	141.8	139.2
55°	143.1	140.5	137.9	136.6	135.3	135.3	132.7	131.4	128.8	127.5	126.2
57.5°	127.5	124.9	123.6	122.3	121.0	121.0	118.4	117.1	115.8	113.2	113.2
60°	113.2	110.6	109.3	108.0	106.7	105.4	105.4	102.8	101.5	101.5	98.9
62.5°	97.6	96.3	95.0	93.7	92.4	92.4	91.1	89.8	88.5	87.2	85.9
65°	84.6	83.3	82.0	80.7	79.4	79.4	78.1	76.8	75.5	75.5	72.9
67.5°	71.5	70.2	68.9	67.6	67.6	66.3	65.0	65.0	63.7	62.4	61.1
70°	58.5	58.5	57.2	55.9	55.9	54.6	53.3	53.3	52.0	50.7	49.4
72.5°	48.1	46.8	45.5	45.5	44.2	44.2	42.9	42.9	41.6	40.3	39.0
75°	36.4	35.1	35.1	35.1	33.8	33.8	33.8	32.5	31.2	29.9	29.9
77.5°	27.3	27.3	26.0	24.7	24.7	24.7	23.4	23.4	23.4	22.1	22.1
80°	19.5	18.2	18.2	16.9	16.9	16.9	16.9	15.6	15.6	15.6	14.3
82.5°	11.7	11.7	11.7	10.4	10.4	10.4	10.4	10.4	9.1	9.1	9.1
85°	6.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6
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°	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7
2.5°	373.4	373.4	372.1	372.1	372.1	372.1	372.1	370.8	370.8	370.8	370.8
5°	370.8	369.5	368.2	368.2	368.2	366.9	366.9	365.6	365.6	364.3	364.3
7.5°	365.6	364.3	363.0	363.0	361.7	361.7	359.0	359.0	357.7	356.4	356.4
10°	359.0	357.7	356.4	355.1	355.1	352.5	352.5	351.2	349.9	348.6	348.6
12.5°	352.5	351.2	348.6	347.3	347.3	346.0	343.4	342.1	340.8	339.5	338.2
15°	343.4	342.1	339.5	338.2	336.9	335.6	334.3	333.0	330.4	329.1	329.1
17.5°	334.3	333.0	329.1	327.8	327.8	325.2	323.9	321.3	320.0	318.7	317.4
20°	323.9	321.3	318.7	317.4	316.1	313.5	312.2	310.9	308.3	307.0	305.7
22.5°	312.2	309.6	307.0	305.7	304.4	301.8	300.5	297.9	296.6	295.3	294.0
25°	300.5	297.9	295.3	294.0	291.4	290.1	287.5	284.9	283.6	282.3	281.0
27.5°	287.5	284.9	281.0	279.7	278.4	277.1	274.5	271.9	270.6	268.0	268.0
30°	273.2	270.6	268.0	266.7	265.4	262.8	261.5	258.9	257.6	255.0	255.0
32.5°	258.9	255.0	252.4	251.1	249.8	248.5	245.9	244.6	243.3	242.0	240.7
35°	243.3	240.7	238.1	236.8	235.5	232.9	231.6	230.3	229.0	226.4	226.4
37.5°	227.7	225.1	222.5	221.2	221.2	218.6	217.3	214.6	214.6	212.0	212.0
40°	212.0	209.4	206.8	206.8	205.5	202.9	201.6	200.3	199.0	197.7	197.7
42.5°	197.7	193.8	192.5	192.5	189.9	188.6	187.3	186.0	183.4	183.4	183.4
45°	182.1	179.5	178.2	176.9	175.6	174.3	173.0	170.4	169.1	167.8	167.8
47.5°	167.8	165.2	163.9	162.6	161.3	160.0	158.7	157.4	154.8	154.8	153.5
50°	153.5	150.9	149.6	148.3	147.0	145.7	144.4	143.1	141.8	140.5	139.2
52.5°	137.9	136.6	135.3	134.0	134.0	131.4	130.1	128.8	127.5	127.5	124.9
55°	124.9	123.6	122.3	121.0	119.7	118.4	117.1	115.8	114.5	113.2	111.9
57.5°	110.6	109.3	108.0	108.0	106.7	105.4	104.1	102.8	101.5	100.2	98.9
60°	97.6	96.3	95.0	95.0	93.7	92.4	91.1	91.1	88.5	87.2	85.9
62.5°	84.6	83.3	82.0	82.0	80.7	80.7	79.4	78.1	75.5	75.5	74.2
65°	72.9	71.5	70.2	68.9	68.9	67.6	66.3	65.0	63.7	63.7	62.4
67.5°	61.1	59.8	58.5	58.5	57.2	55.9	54.6	53.3	52.0	52.0	50.7
70°	49.4	48.1	46.8	46.8	45.5	44.2	44.2	42.9	41.6	40.3	40.3
72.5°	37.7	37.7	36.4	36.4	35.1	35.1	33.8	32.5	32.5	31.2	29.9
75°	28.6	28.6	27.3	27.3	26.0	26.0	24.7	24.7	24.7	23.4	24.7
77.5°	20.8	20.8	19.5	19.5	19.5	18.2	18.2	18.2	19.5	19.5	19.5
80°	14.3	14.3	14.3	14.3	13.0	13.0	14.3	14.3	14.3	14.3	14.3
82.5°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4
85°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.5	6.5	6.5	6.5
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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: P644112

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	374.7	374.7	374.7	374.7	374.7	374.7	374.7	374.7
2.5°	369.5	369.5	369.5	369.5	369.5	369.5	369.5	370.8
5°	363.0	363.0	363.0	363.0	363.0	363.0	363.0	361.7
7.5°	356.4	355.1	355.1	355.1	355.1	353.8	353.8	353.8
10°	347.3	347.3	346.0	346.0	346.0	346.0	344.7	346.0
12.5°	338.2	336.9	336.9	336.9	335.6	335.6	335.6	335.6
15°	327.8	326.5	326.5	326.5	325.2	325.2	325.2	325.2
17.5°	316.1	316.1	314.8	314.8	313.5	313.5	313.5	313.5
20°	304.4	304.4	304.4	303.1	303.1	303.1	301.8	301.8
22.5°	292.7	291.4	290.1	291.4	290.1	288.8	290.1	290.1
25°	279.7	278.4	277.1	277.1	277.1	277.1	275.8	275.8
27.5°	266.7	264.1	264.1	264.1	264.1	262.8	262.8	262.8
30°	253.7	252.4	252.4	251.1	249.8	249.8	249.8	251.1
32.5°	239.4	238.1	236.8	236.8	236.8	236.8	235.5	235.5
35°	225.1	225.1	223.8	223.8	223.8	222.5	222.5	221.2
37.5°	210.7	210.7	209.4	209.4	209.4	208.1	208.1	208.1
40°	196.4	195.1	195.1	196.4	195.1	195.1	193.8	193.8
42.5°	182.1	182.1	180.8	180.8	180.8	180.8	179.5	180.8
45°	166.5	166.5	166.5	166.5	166.5	166.5	165.2	165.2
47.5°	153.5	152.2	152.2	152.2	152.2	152.2	152.2	152.2
50°	139.2	137.9	137.9	137.9	137.9	137.9	137.9	137.9
52.5°	124.9	123.6	123.6	123.6	123.6	123.6	123.6	123.6
55°	111.9	110.6	110.6	109.3	110.6	109.3	109.3	109.3
57.5°	98.9	97.6	96.3	97.6	96.3	96.3	96.3	95.0
60°	85.9	84.6	84.6	84.6	83.3	82.0	82.0	83.3
62.5°	72.9	72.9	71.5	71.5	70.2	68.9	68.9	68.9
65°	61.1	59.8	59.8	58.5	58.5	57.2	57.2	57.2
67.5°	49.4	49.4	48.1	48.1	46.8	46.8	46.8	45.5
70°	39.0	39.0	37.7	37.7	37.7	36.4	36.4	36.4
72.5°	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
75°	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7
77.5°	19.5	19.5	19.5	19.5	19.5	19.5	19.5	20.8
80°	14.3	14.3	15.6	14.3	15.6	14.3	14.3	14.3
82.5°	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
85°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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)