

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: P644103

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1500LM - 3500K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644103
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-129)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592SC WW - 1500LM - 3500K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1065.1 lumens
Efficiency: N/A
Efficacy: 62.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

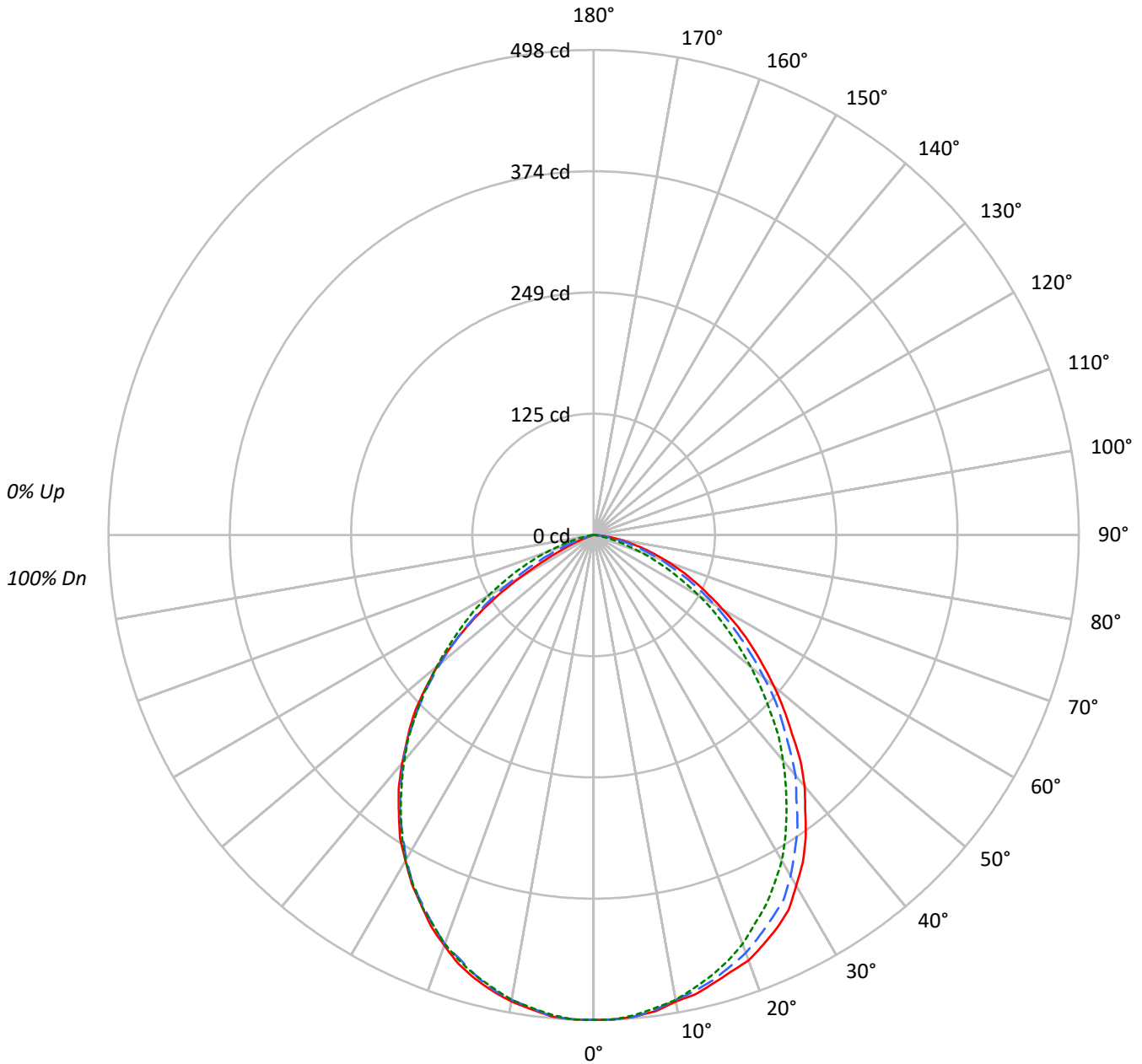
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	97	94	93	93	91	90	88		
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76		
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66		
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58		
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51		
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45		
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40		
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36		
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33		
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	39305	39305	39305	39305	39305
5°	39328	39328	39193	39328	39328
10°	38989	38861	38861	38861	38989
15°	38942	38681	38272	38272	38542
20°	39063	38374	37551	37551	37686
25°	38786	37785	36496	36356	36496
30°	37892	36844	35203	35048	35203
35°	36582	35155	33257	33411	33575
40°	34718	33192	31162	31327	31492
45°	32107	30634	28613	28613	29171
50°	29671	28050	25827	25225	25631
55°	27140	25324	22846	21030	20576
60°	24124	22577	19719	16341	13483
65°	21481	19650	15952	10740	6444
70°	18972	16687	11748	5309	1893
75°	15525	13024	7015	1495	488
80°	11956	8956	3000	0	0
85°	5978	4438	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 32286 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.0	4.4
10°-20°	132.8	12.5
20°-30°	195.8	18.4
30°-40°	221.7	20.8
40°-50°	204.7	19.2
50°-60°	151.2	14.2
60°-70°	81.3	7.6
70°-80°	27.2	2.6
80°-90°	3.4	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°	375.5	35.3
0°-40°	597.2	56.1
0°-60°	953.1	89.5
0°-90°	1065.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1065.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	498	498	498	498	498	
5°	496	496	495	496	496	47
15°	476	473	468	468	472	135
25°	445	434	419	417	419	205
35°	380	365	345	347	348	236
45°	288	274	256	256	261	223
55°	197	184	166	153	150	176
65°	115	105	85	58	34	115
75°	51	43	23	5	2	55
85°	7	5	0	0	0	10
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°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
2.5°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
5°	496.3	496.3	494.6	496.3	496.3	496.3	496.3	494.6	496.3	496.3	496.3
7.5°	493.0	491.3	491.3	491.3	491.3	491.3	491.3	491.3	491.3	491.3	491.3
10°	486.4	486.4	486.4	486.4	486.4	486.4	486.4	486.4	486.4	486.4	484.8
12.5°	483.1	481.5	481.5	481.5	481.5	481.5	481.5	479.8	481.5	479.8	479.8
15°	476.5	476.5	476.5	476.5	476.5	476.5	474.9	474.9	474.9	474.9	473.3
17.5°	470.0	470.0	471.6	471.6	470.0	470.0	470.0	468.3	466.7	466.7	465.0
20°	465.0	465.0	463.4	463.4	461.7	463.4	461.7	460.1	460.1	458.5	456.8
22.5°	455.2	455.2	455.2	455.2	455.2	453.5	453.5	451.9	450.2	448.6	445.3
25°	445.3	445.3	445.3	445.3	443.7	443.7	443.7	440.4	438.7	437.1	433.8
27.5°	433.8	432.2	432.2	432.2	430.5	430.5	428.9	427.2	425.6	424.0	422.3
30°	415.7	415.7	415.7	415.7	414.1	412.5	412.5	410.8	409.2	405.9	404.2
32.5°	399.3	399.3	397.7	396.0	396.0	396.0	394.4	392.7	389.4	387.8	384.5
35°	379.6	377.9	377.9	376.3	376.3	376.3	374.7	371.4	369.7	368.1	364.8
37.5°	356.6	358.2	356.6	356.6	354.9	353.3	351.7	350.0	348.4	345.1	341.8
40°	336.9	336.9	335.2	333.6	331.9	331.9	330.3	328.6	327.0	325.4	322.1
42.5°	313.9	313.9	312.2	312.2	310.6	310.6	307.3	305.6	304.0	302.4	297.4
45°	287.6	287.6	289.2	287.6	285.9	284.3	284.3	282.6	279.3	277.7	274.4
47.5°	264.6	266.2	264.6	262.9	262.9	261.3	261.3	258.0	258.0	254.7	253.1
50°	241.6	241.6	241.6	241.6	239.9	238.3	238.3	236.6	233.3	231.7	228.4
52.5°	218.6	218.6	218.6	218.6	216.9	216.9	215.3	213.6	212.0	208.7	205.4
55°	197.2	195.5	195.5	195.5	193.9	193.9	192.3	190.6	189.0	187.3	184.0
57.5°	175.8	174.2	174.2	172.5	172.5	170.9	170.9	169.3	167.6	164.3	162.7
60°	152.8	154.5	152.8	152.8	151.2	151.2	151.2	149.5	146.2	144.6	143.0
62.5°	133.1	134.7	133.1	131.5	131.5	131.5	131.5	128.2	126.5	124.9	123.2
65°	115.0	115.0	115.0	113.4	113.4	113.4	110.1	110.1	108.5	106.8	105.2
67.5°	98.6	97.0	97.0	97.0	95.3	95.3	93.7	93.7	90.4	90.4	87.1
70°	82.2	80.5	80.5	80.5	78.9	77.2	78.9	75.6	73.9	72.3	72.3
72.5°	65.7	65.7	64.1	64.1	64.1	62.4	62.4	60.8	59.2	57.5	55.9
75°	50.9	50.9	50.9	49.3	49.3	47.7	47.7	46.0	46.0	42.7	42.7
77.5°	37.8	37.8	37.8	36.2	36.2	36.2	34.5	34.5	32.9	31.2	29.6
80°	26.3	24.6	24.6	24.6	24.6	23.0	23.0	23.0	21.4	21.4	19.7
82.5°	14.8	14.8	14.8	14.8	14.8	14.8	13.1	13.1	13.1	11.5	11.5
85°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	4.9	4.9	4.9
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
2.5°	497.9	497.9	497.9	497.9	496.3	497.9	496.3	497.9	497.9	497.9	497.9
5°	496.3	494.6	494.6	494.6	496.3	496.3	494.6	494.6	494.6	494.6	494.6
7.5°	491.3	491.3	491.3	489.7	491.3	491.3	489.7	491.3	491.3	489.7	491.3
10°	486.4	486.4	484.8	484.8	484.8	484.8	484.8	484.8	483.1	484.8	484.8
12.5°	479.8	479.8	479.8	478.2	478.2	478.2	478.2	478.2	476.5	476.5	478.2
15°	473.3	473.3	471.6	471.6	471.6	470.0	470.0	470.0	470.0	468.3	468.3
17.5°	465.0	463.4	463.4	461.7	461.7	460.1	460.1	458.5	458.5	458.5	456.8
20°	455.2	453.5	451.9	451.9	450.2	450.2	448.6	448.6	447.0	447.0	445.3
22.5°	443.7	442.0	440.4	438.7	438.7	437.1	437.1	435.5	433.8	432.2	432.2
25°	433.8	430.5	428.9	427.2	424.0	424.0	422.3	422.3	420.7	419.0	417.4
27.5°	419.0	415.7	414.1	412.5	410.8	409.2	405.9	405.9	404.2	402.6	400.9
30°	400.9	399.3	396.0	394.4	392.7	392.7	389.4	386.2	386.2	386.2	384.5
32.5°	382.9	379.6	377.9	374.7	373.0	373.0	371.4	368.1	366.4	366.4	364.8
35°	363.2	359.9	356.6	354.9	353.3	351.7	350.0	348.4	346.7	345.1	343.4
37.5°	340.1	336.9	335.2	333.6	331.9	330.3	328.6	327.0	325.4	323.7	325.4
40°	318.8	315.5	312.2	310.6	308.9	308.9	307.3	305.6	304.0	302.4	302.4
42.5°	295.8	292.5	290.9	289.2	287.6	285.9	284.3	282.6	281.0	281.0	279.3
45°	271.1	269.5	266.2	264.6	262.9	262.9	259.6	258.0	258.0	256.3	256.3
47.5°	249.8	246.5	243.2	241.6	239.9	238.3	236.6	235.0	233.3	233.3	233.3
50°	225.1	223.5	220.2	218.6	216.9	216.9	215.3	213.6	212.0	210.3	210.3
52.5°	202.1	200.5	200.5	197.2	195.5	195.5	192.3	192.3	189.0	187.3	185.7
55°	182.4	179.1	177.5	174.2	174.2	172.5	170.9	169.3	167.6	166.0	164.3
57.5°	159.4	157.8	156.1	154.5	154.5	152.8	151.2	149.5	146.2	146.2	143.0
60°	141.3	138.0	136.4	134.7	133.1	133.1	131.5	129.8	126.5	124.9	123.2
62.5°	121.6	118.3	118.3	116.7	113.4	113.4	111.7	108.5	106.8	103.5	101.9
65°	103.5	101.9	98.6	97.0	97.0	95.3	92.0	90.4	88.7	85.4	82.2
67.5°	85.4	83.8	82.2	78.9	78.9	77.2	73.9	72.3	69.0	67.4	64.1
70°	69.0	67.4	65.7	62.4	62.4	60.8	59.2	55.9	52.6	50.9	47.7
72.5°	54.2	52.6	50.9	47.7	47.7	46.0	42.7	41.1	37.8	34.5	32.9
75°	41.1	39.4	36.2	34.5	32.9	32.9	29.6	27.9	26.3	23.0	21.4
77.5°	27.9	26.3	24.6	23.0	23.0	21.4	19.7	18.1	16.4	14.8	11.5
80°	18.1	16.4	14.8	14.8	13.1	13.1	11.5	9.9	8.2	6.6	4.9
82.5°	9.9	9.9	8.2	6.6	6.6	6.6	4.9	4.9	3.3	1.6	1.6
85°	3.3	3.3	3.3	3.3	1.6	1.6	1.6	1.6	1.6	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°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
2.5°	497.9	497.9	497.9	497.9	497.9	497.9	496.3	497.9	497.9	497.9	496.3
5°	496.3	494.6	494.6	496.3	494.6	494.6	496.3	496.3	496.3	494.6	494.6
7.5°	489.7	491.3	489.7	489.7	491.3	491.3	491.3	491.3	489.7	489.7	491.3
10°	484.8	484.8	483.1	484.8	483.1	484.8	484.8	484.8	484.8	484.8	484.8
12.5°	476.5	476.5	476.5	478.2	476.5	476.5	478.2	478.2	478.2	478.2	478.2
15°	466.7	466.7	468.3	466.7	468.3	468.3	468.3	468.3	468.3	468.3	470.0
17.5°	456.8	456.8	456.8	456.8	456.8	456.8	456.8	456.8	456.8	458.5	458.5
20°	445.3	445.3	445.3	445.3	445.3	443.7	445.3	445.3	447.0	447.0	447.0
22.5°	430.5	430.5	430.5	430.5	430.5	430.5	430.5	430.5	432.2	433.8	432.2
25°	415.7	415.7	415.7	415.7	415.7	415.7	415.7	417.4	417.4	417.4	419.0
27.5°	400.9	400.9	400.9	399.3	400.9	399.3	400.9	400.9	402.6	400.9	402.6
30°	384.5	382.9	382.9	382.9	382.9	384.5	382.9	382.9	384.5	386.2	384.5
32.5°	363.2	363.2	363.2	364.8	364.8	364.8	366.4	364.8	364.8	366.4	366.4
35°	343.4	343.4	343.4	345.1	345.1	345.1	345.1	346.7	346.7	346.7	348.4
37.5°	322.1	323.7	322.1	323.7	323.7	325.4	325.4	325.4	325.4	327.0	327.0
40°	302.4	300.7	302.4	302.4	302.4	302.4	302.4	302.4	304.0	305.6	305.6
42.5°	279.3	279.3	279.3	279.3	279.3	279.3	281.0	281.0	281.0	282.6	282.6
45°	256.3	254.7	254.7	254.7	254.7	256.3	254.7	256.3	256.3	258.0	258.0
47.5°	231.7	231.7	231.7	231.7	231.7	231.7	231.7	231.7	231.7	233.3	231.7
50°	210.3	208.7	207.0	207.0	205.4	207.0	205.4	205.4	205.4	207.0	205.4
52.5°	185.7	184.0	182.4	182.4	182.4	180.8	179.1	179.1	179.1	177.5	177.5
55°	164.3	162.7	159.4	161.0	157.8	156.1	156.1	154.5	152.8	152.8	151.2
57.5°	141.3	139.7	138.0	136.4	136.4	133.1	131.5	129.8	128.2	126.5	123.2
60°	121.6	118.3	115.0	115.0	113.4	111.7	108.5	105.2	103.5	100.2	98.6
62.5°	100.2	97.0	93.7	92.0	90.4	88.7	85.4	82.2	78.9	77.2	73.9
65°	80.5	77.2	73.9	72.3	70.7	67.4	64.1	60.8	57.5	54.2	52.6
67.5°	60.8	57.5	55.9	52.6	50.9	47.7	44.4	42.7	39.4	36.2	31.2
70°	44.4	41.1	37.8	36.2	34.5	31.2	29.6	26.3	23.0	21.4	18.1
72.5°	29.6	26.3	24.6	23.0	21.4	19.7	16.4	14.8	11.5	9.9	8.2
75°	18.1	16.4	14.8	13.1	11.5	9.9	8.2	6.6	4.9	3.3	1.6
77.5°	9.9	8.2	6.6	6.6	4.9	3.3	3.3	1.6	1.6	1.6	1.6
80°	4.9	3.3	1.6	1.6	1.6	1.6	0.0	0.0	0.0	0.0	1.6
82.5°	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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: P644103

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
2.5°	497.9	497.9	497.9	497.9	497.9	497.9	497.9	497.9
5°	496.3	496.3	494.6	496.3	494.6	494.6	494.6	496.3
7.5°	491.3	491.3	491.3	491.3	491.3	491.3	491.3	491.3
10°	484.8	484.8	484.8	486.4	486.4	486.4	484.8	486.4
12.5°	478.2	478.2	478.2	479.8	478.2	479.8	478.2	479.8
15°	470.0	470.0	471.6	471.6	470.0	470.0	471.6	471.6
17.5°	458.5	460.1	460.1	460.1	460.1	460.1	460.1	461.7
20°	448.6	448.6	447.0	448.6	448.6	450.2	450.2	448.6
22.5°	432.2	435.5	435.5	435.5	435.5	435.5	435.5	435.5
25°	419.0	419.0	419.0	420.7	419.0	419.0	420.7	419.0
27.5°	402.6	404.2	402.6	404.2	404.2	404.2	404.2	404.2
30°	386.2	386.2	386.2	386.2	386.2	387.8	386.2	386.2
32.5°	366.4	368.1	368.1	368.1	369.7	368.1	368.1	369.7
35°	348.4	348.4	348.4	350.0	348.4	350.0	350.0	348.4
37.5°	327.0	328.6	327.0	328.6	328.6	328.6	328.6	328.6
40°	307.3	305.6	307.3	305.6	307.3	307.3	307.3	305.6
42.5°	282.6	284.3	284.3	284.3	284.3	284.3	284.3	282.6
45°	258.0	259.6	259.6	259.6	259.6	259.6	261.3	261.3
47.5°	231.7	235.0	235.0	235.0	233.3	236.6	235.0	235.0
50°	205.4	205.4	207.0	207.0	208.7	208.7	208.7	208.7
52.5°	179.1	177.5	179.1	179.1	180.8	179.1	180.8	179.1
55°	149.5	149.5	149.5	147.9	149.5	149.5	149.5	149.5
57.5°	123.2	121.6	120.0	118.3	118.3	118.3	116.7	118.3
60°	95.3	92.0	93.7	90.4	88.7	87.1	87.1	85.4
62.5°	70.7	67.4	65.7	64.1	60.8	57.5	57.5	55.9
65°	47.7	44.4	42.7	39.4	37.8	36.2	34.5	34.5
67.5°	29.6	26.3	26.3	24.6	23.0	21.4	19.7	19.7
70°	16.4	14.8	13.1	11.5	11.5	9.9	8.2	8.2
72.5°	6.6	4.9	4.9	3.3	3.3	3.3	3.3	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)