

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: P644086

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 1500LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644086
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 - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 985.5 lumens
Efficiency: N/A
Efficacy: 57.6 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

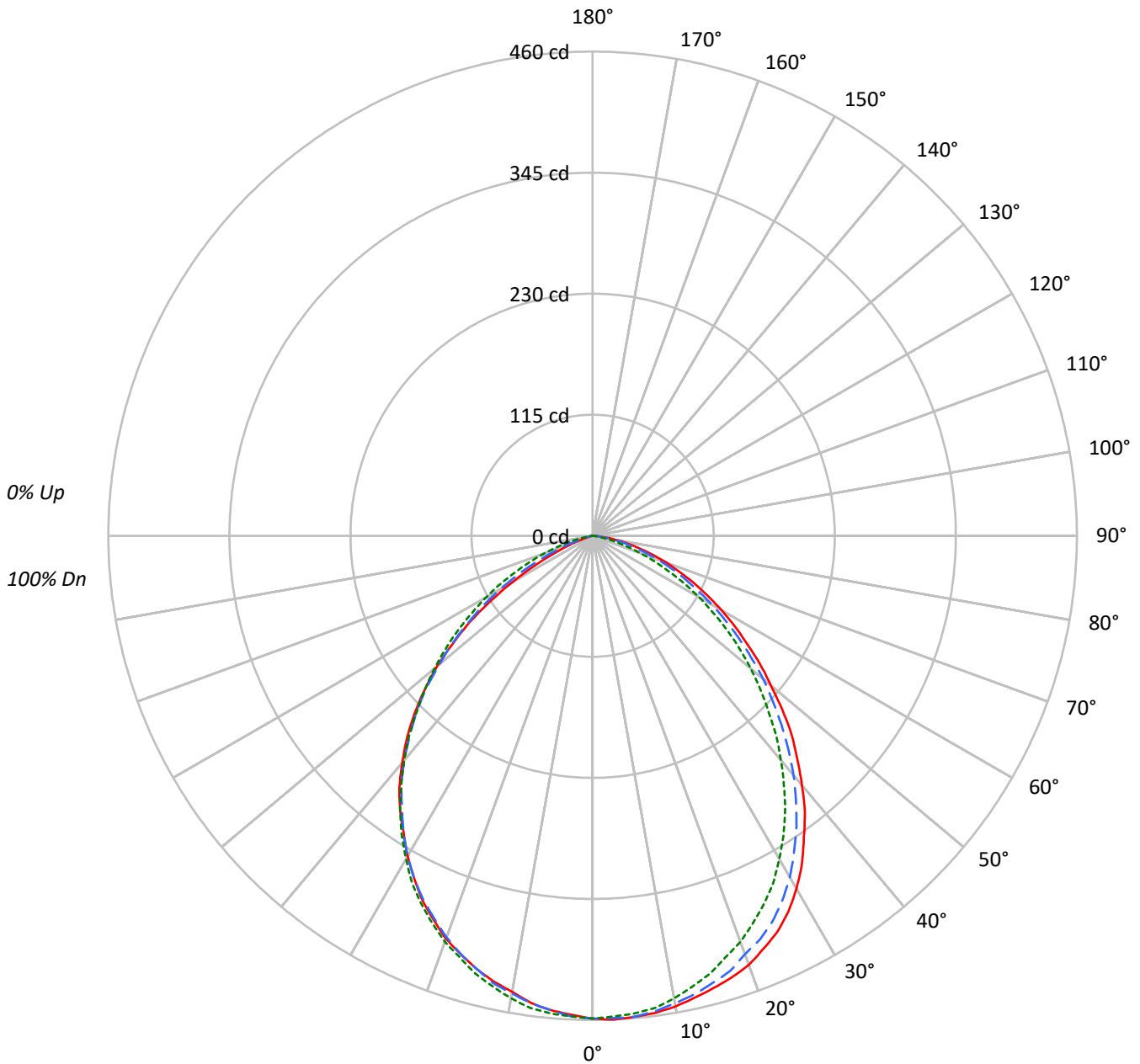
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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	105	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	87	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	67	60	54	65	59	54	64	58	53	62	57	52	50					50			
6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45					45			
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40					40			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36					36			
9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33					33			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	36210	36210	36210	36210	36210
5°	36349	36349	36103	35857	35857
10°	36392	36144	35775	35398	35270
15°	36343	35959	35199	34815	34815
20°	36442	35527	34485	34090	34225
25°	36165	35215	33586	33177	33316
30°	35294	34155	32314	32031	32031
35°	33710	32515	30722	30414	30722
40°	31884	30606	28679	28679	28998
45°	29852	28289	26380	26380	26738
50°	27117	25974	24059	23297	23678
55°	24608	23328	21401	19901	19475
60°	22340	20619	18409	15962	13752
65°	19744	18007	14812	11039	8125
70°	17218	15072	11125	6093	3231
75°	13756	11865	7107	1891	946
80°	10592	7774	2819	727	727
85°	5616	4257	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 29852 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.2	4.4
10°-20°	122.1	12.4
20°-30°	180.1	18.3
30°-40°	203.9	20.7
40°-50°	188.4	19.1
50°-60°	140.7	14.3
60°-70°	77.7	7.9
70°-80°	26.2	2.7
80°-90°	3.3	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°	345.3	35.0
0°-40°	549.2	55.7
0°-60°	878.3	89.1
0°-90°	985.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	985.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	459	459	459	459	459	
5°	459	459	456	452	452	44
15°	445	440	431	426	426	126
25°	415	404	386	381	382	191
35°	350	337	319	316	319	219
45°	267	253	236	236	240	205
55°	179	170	156	145	142	161
65°	106	96	79	59	44	105
75°	45	39	23	6	3	49
85°	6	5	0	0	0	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°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7
2.5°	460.2	460.2	460.2	460.2	458.7	458.7	460.2	458.7	458.7	458.7	458.7
5°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7
7.5°	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	455.6	455.6	455.6
10°	454.0	454.0	454.0	454.0	454.0	454.0	454.0	452.5	452.5	452.5	450.9
12.5°	449.4	450.9	449.4	450.9	449.4	449.4	447.8	447.8	447.8	446.3	446.3
15°	444.7	444.7	444.7	444.7	444.7	443.1	443.1	441.6	441.6	441.6	440.0
17.5°	440.0	438.5	438.5	438.5	436.9	436.9	436.9	436.9	435.4	433.8	433.8
20°	433.8	432.3	432.3	432.3	430.7	430.7	429.1	429.1	426.0	426.0	422.9
22.5°	424.5	424.5	424.5	422.9	422.9	421.4	421.4	419.8	418.3	416.7	415.2
25°	415.2	415.2	413.6	413.6	412.0	412.0	412.0	408.9	407.4	405.8	404.3
27.5°	402.7	402.7	401.2	401.2	399.6	398.1	398.1	394.9	394.9	391.8	390.3
30°	387.2	387.2	387.2	384.1	384.1	384.1	382.5	380.9	377.8	376.3	374.7
32.5°	370.1	368.5	368.5	368.5	367.0	365.4	365.4	362.3	360.7	359.2	356.1
35°	349.8	349.8	349.8	349.8	348.3	346.7	346.7	343.6	342.1	339.0	337.4
37.5°	331.2	331.2	329.6	329.6	326.5	328.1	326.5	325.0	323.4	318.8	317.2
40°	309.4	309.4	309.4	307.9	306.3	306.3	304.8	303.2	300.1	298.5	297.0
42.5°	287.7	287.7	287.7	286.1	284.5	284.5	284.5	281.4	279.9	278.3	275.2
45°	267.4	265.9	265.9	264.3	264.3	262.8	261.2	259.7	258.1	256.6	253.4
47.5°	244.1	244.1	242.6	242.6	241.0	241.0	239.5	237.9	236.3	234.8	231.7
50°	220.8	222.3	222.3	220.8	220.8	219.2	217.7	217.7	216.1	214.6	211.5
52.5°	200.6	200.6	200.6	199.0	199.0	197.5	197.5	195.9	194.4	191.3	189.7
55°	178.8	180.4	178.8	178.8	178.8	177.3	177.3	175.7	174.1	171.0	169.5
57.5°	160.2	160.2	158.6	158.6	157.0	157.0	157.0	155.5	153.9	152.4	149.3
60°	141.5	139.9	139.9	139.9	138.4	138.4	138.4	135.3	133.7	132.2	130.6
62.5°	122.8	122.8	122.8	121.3	121.3	119.7	118.2	118.2	116.6	115.1	112.0
65°	105.7	105.7	104.2	104.2	104.2	102.6	102.6	101.1	99.5	98.0	96.4
67.5°	88.6	88.6	88.6	87.1	87.1	87.1	85.5	84.0	84.0	82.4	80.9
70°	74.6	73.1	73.1	73.1	71.5	71.5	71.5	70.0	68.4	66.9	65.3
72.5°	59.1	59.1	59.1	59.1	57.5	57.5	56.0	56.0	54.4	52.9	51.3
75°	45.1	45.1	45.1	45.1	43.5	43.5	43.5	42.0	42.0	40.4	38.9
77.5°	34.2	34.2	34.2	32.7	32.7	31.1	31.1	31.1	29.5	29.5	28.0
80°	23.3	23.3	21.8	21.8	21.8	21.8	21.8	20.2	18.7	18.7	17.1
82.5°	14.0	14.0	14.0	12.4	12.4	12.4	12.4	12.4	10.9	10.9	9.3
85°	6.2	6.2	6.2	6.2	6.2	6.2	4.7	4.7	4.7	4.7	4.7
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7
2.5°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	457.1	457.1	457.1	457.1
5°	457.1	457.1	457.1	457.1	457.1	455.6	457.1	455.6	455.6	455.6	455.6
7.5°	454.0	454.0	454.0	454.0	452.5	454.0	452.5	452.5	452.5	452.5	450.9
10°	450.9	449.4	449.4	449.4	449.4	447.8	447.8	446.3	446.3	446.3	444.7
12.5°	446.3	444.7	444.7	443.1	443.1	443.1	441.6	441.6	440.0	438.5	438.5
15°	438.5	438.5	436.9	435.4	435.4	433.8	433.8	432.3	432.3	430.7	429.1
17.5°	432.3	430.7	429.1	427.6	426.0	426.0	424.5	422.9	422.9	419.8	419.8
20°	421.4	419.8	418.3	416.7	416.7	416.7	413.6	413.6	412.0	410.5	408.9
22.5°	412.0	410.5	407.4	405.8	405.8	404.3	402.7	401.2	399.6	398.1	396.5
25°	401.2	399.6	396.5	394.9	393.4	391.8	390.3	388.7	387.2	385.6	384.1
27.5°	387.2	384.1	384.1	380.9	379.4	377.8	376.3	374.7	373.2	371.6	370.1
30°	371.6	370.1	367.0	363.8	362.3	362.3	359.2	357.6	357.6	354.5	353.0
32.5°	354.5	351.4	348.3	346.7	345.2	343.6	342.1	340.5	339.0	337.4	335.9
35°	335.9	331.2	329.6	326.5	326.5	325.0	323.4	320.3	320.3	318.8	315.6
37.5°	315.6	312.5	311.0	307.9	306.3	304.8	303.2	301.6	300.1	298.5	297.0
40°	293.9	290.8	289.2	287.7	286.1	284.5	283.0	281.4	279.9	278.3	276.8
42.5°	272.1	270.6	267.4	264.3	264.3	262.8	261.2	259.7	258.1	258.1	256.6
45°	250.3	248.8	245.7	244.1	242.6	242.6	239.5	239.5	237.9	236.3	236.3
47.5°	230.1	227.0	223.9	223.9	220.8	222.3	219.2	219.2	216.1	216.1	214.6
50°	208.4	206.8	203.7	202.1	202.1	200.6	199.0	199.0	197.5	195.9	194.4
52.5°	188.1	185.0	183.5	181.9	180.4	180.4	178.8	178.8	175.7	175.7	174.1
55°	167.9	166.4	163.3	161.7	161.7	161.7	158.6	157.0	157.0	155.5	153.9
57.5°	147.7	146.2	144.6	143.0	141.5	141.5	139.9	138.4	136.8	135.3	132.2
60°	129.1	127.5	125.9	124.4	122.8	122.8	121.3	119.7	118.2	116.6	115.1
62.5°	110.4	110.4	107.3	105.7	104.2	104.2	102.6	101.1	99.5	98.0	96.4
65°	94.8	93.3	90.2	88.6	88.6	88.6	85.5	84.0	82.4	79.3	77.7
67.5°	79.3	76.2	74.6	74.6	73.1	71.5	70.0	68.4	65.3	63.8	60.6
70°	63.8	62.2	60.6	59.1	57.5	56.0	54.4	52.9	49.8	48.2	46.6
72.5°	49.8	48.2	46.6	45.1	43.5	43.5	40.4	38.9	37.3	34.2	32.7
75°	37.3	35.8	34.2	32.7	31.1	29.5	29.5	26.4	24.9	23.3	20.2
77.5°	26.4	24.9	23.3	21.8	21.8	20.2	18.7	17.1	15.5	14.0	12.4
80°	17.1	15.5	14.0	14.0	12.4	12.4	10.9	9.3	7.8	6.2	6.2
82.5°	9.3	7.8	7.8	6.2	6.2	6.2	4.7	3.1	3.1	3.1	1.6
85°	3.1	3.1	3.1	1.6	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°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7
2.5°	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	455.6	455.6
5°	454.0	454.0	454.0	454.0	454.0	454.0	452.5	452.5	452.5	452.5	452.5
7.5°	450.9	450.9	450.9	449.4	449.4	449.4	449.4	447.8	447.8	447.8	447.8
10°	444.7	444.7	444.7	443.1	443.1	443.1	443.1	443.1	441.6	441.6	441.6
12.5°	436.9	436.9	436.9	436.9	436.9	435.4	435.4	435.4	435.4	433.8	435.4
15°	429.1	429.1	427.6	427.6	427.6	426.0	426.0	426.0	426.0	426.0	426.0
17.5°	419.8	418.3	418.3	416.7	416.7	416.7	416.7	416.7	416.7	416.7	416.7
20°	408.9	407.4	407.4	407.4	407.4	405.8	405.8	404.3	405.8	405.8	405.8
22.5°	396.5	394.9	394.9	394.9	393.4	393.4	393.4	393.4	393.4	393.4	393.4
25°	384.1	382.5	380.9	380.9	380.9	379.4	379.4	380.9	380.9	380.9	380.9
27.5°	368.5	368.5	367.0	367.0	367.0	365.4	365.4	365.4	367.0	367.0	367.0
30°	351.4	351.4	351.4	351.4	349.8	349.8	351.4	349.8	351.4	349.8	351.4
32.5°	335.9	335.9	334.3	332.7	332.7	334.3	332.7	332.7	334.3	334.3	334.3
35°	315.6	315.6	315.6	315.6	315.6	315.6	315.6	315.6	315.6	317.2	318.8
37.5°	297.0	297.0	297.0	297.0	297.0	297.0	297.0	298.5	298.5	298.5	298.5
40°	276.8	276.8	276.8	276.8	276.8	276.8	276.8	276.8	278.3	278.3	279.9
42.5°	255.0	256.6	256.6	256.6	255.0	255.0	256.6	256.6	256.6	258.1	258.1
45°	234.8	234.8	234.8	234.8	236.3	234.8	234.8	234.8	236.3	236.3	236.3
47.5°	214.6	213.0	213.0	214.6	213.0	213.0	213.0	213.0	214.6	214.6	213.0
50°	194.4	192.8	192.8	192.8	191.3	191.3	192.8	189.7	189.7	189.7	191.3
52.5°	174.1	172.6	171.0	171.0	171.0	169.5	167.9	167.9	167.9	166.4	166.4
55°	152.4	150.8	149.3	149.3	149.3	147.7	147.7	144.6	144.6	143.0	143.0
57.5°	132.2	130.6	129.1	129.1	127.5	125.9	125.9	122.8	122.8	121.3	118.2
60°	112.0	110.4	108.8	108.8	108.8	105.7	104.2	101.1	101.1	98.0	96.4
62.5°	93.3	91.7	90.2	88.6	88.6	85.5	84.0	80.9	79.3	77.7	74.6
65°	76.2	73.1	71.5	70.0	70.0	66.9	65.3	62.2	59.1	57.5	54.4
67.5°	59.1	57.5	54.4	52.9	52.9	49.8	46.6	45.1	42.0	38.9	37.3
70°	43.5	42.0	38.9	37.3	35.8	34.2	31.1	29.5	26.4	24.9	21.8
72.5°	29.5	28.0	24.9	24.9	23.3	20.2	18.7	17.1	14.0	12.4	10.9
75°	18.7	17.1	15.5	14.0	12.4	10.9	9.3	7.8	6.2	4.7	4.7
77.5°	10.9	9.3	7.8	6.2	6.2	4.7	3.1	3.1	3.1	1.6	1.6
80°	4.7	3.1	3.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.0	0.0	1.6	1.6
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: P644086

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	458.7	458.7	458.7	458.7	458.7	458.7	458.7	458.7
2.5°	457.1	455.6	457.1	457.1	455.6	455.6	455.6	455.6
5°	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5
7.5°	449.4	447.8	447.8	447.8	447.8	447.8	447.8	447.8
10°	441.6	441.6	441.6	441.6	441.6	441.6	441.6	440.0
12.5°	433.8	433.8	433.8	433.8	433.8	433.8	433.8	433.8
15°	426.0	426.0	426.0	426.0	426.0	426.0	426.0	426.0
17.5°	416.7	416.7	416.7	416.7	416.7	415.2	416.7	416.7
20°	405.8	405.8	405.8	405.8	405.8	405.8	405.8	407.4
22.5°	393.4	393.4	393.4	393.4	393.4	393.4	393.4	394.9
25°	380.9	380.9	380.9	380.9	380.9	380.9	380.9	382.5
27.5°	367.0	367.0	367.0	367.0	367.0	367.0	367.0	367.0
30°	351.4	351.4	353.0	351.4	351.4	351.4	353.0	351.4
32.5°	335.9	335.9	335.9	335.9	335.9	335.9	335.9	334.3
35°	318.8	317.2	318.8	318.8	318.8	318.8	318.8	318.8
37.5°	300.1	300.1	300.1	300.1	300.1	300.1	301.6	301.6
40°	281.4	279.9	279.9	281.4	281.4	281.4	279.9	281.4
42.5°	258.1	259.7	259.7	259.7	261.2	259.7	261.2	261.2
45°	236.3	237.9	237.9	237.9	237.9	237.9	239.5	239.5
47.5°	214.6	214.6	214.6	214.6	216.1	216.1	216.1	216.1
50°	191.3	191.3	191.3	191.3	192.8	191.3	192.8	192.8
52.5°	166.4	166.4	166.4	166.4	166.4	166.4	167.9	166.4
55°	141.5	141.5	141.5	141.5	139.9	139.9	139.9	141.5
57.5°	118.2	116.6	115.1	116.6	113.5	113.5	113.5	113.5
60°	93.3	91.7	91.7	90.2	88.6	87.1	88.6	87.1
62.5°	71.5	70.0	70.0	66.9	65.3	65.3	63.8	63.8
65°	52.9	49.8	48.2	48.2	46.6	45.1	43.5	43.5
67.5°	34.2	32.7	31.1	31.1	29.5	28.0	28.0	26.4
70°	20.2	18.7	17.1	18.7	15.5	14.0	14.0	14.0
72.5°	9.3	7.8	7.8	7.8	6.2	6.2	6.2	6.2
75°	4.7	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	1.6	1.6	3.1	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	0.0	0.0	0.0	1.6	1.6	0.0	1.6
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
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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)