

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: P644116

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

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644116
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 - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 977.0 lumens
Efficiency: N/A
Efficacy: 57.1 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

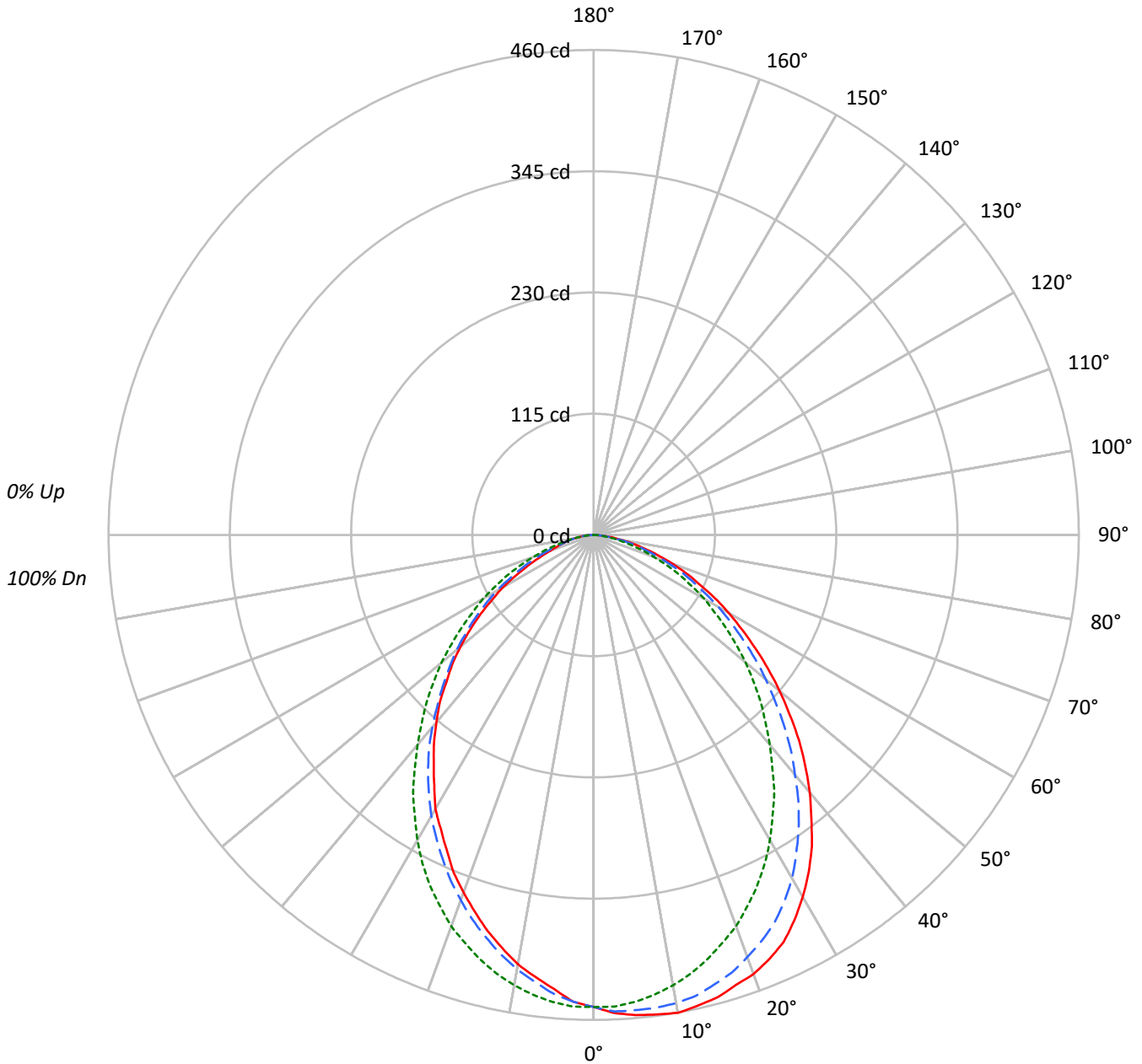
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86								
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74								
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64								
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55								
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49								
6	73	61	53	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43								
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39								
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35								
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32								
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	35350	35350	35350	35350	35350
5°	36230	35857	35239	34621	34257
10°	36897	36144	34773	33530	33154
15°	37103	36090	34055	32282	31767
20°	37232	35795	33183	30957	30301
25°	37114	35346	31966	29527	28709
30°	36142	34301	30472	28066	27355
35°	34760	32669	28766	26376	25470
40°	32852	30606	26762	24516	23877
45°	30723	28468	24996	22562	22049
50°	28259	26159	23101	20816	20239
55°	25682	23755	20975	18828	17974
60°	23319	21598	19151	16688	15709
65°	20622	19165	16848	14233	12776
70°	18303	16503	13987	11494	10040
75°	15189	13756	10919	8998	8998
80°	12002	10592	8501	7774	7774
85°	7065	7065	5616	7065	7065

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 30723 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.1	4.3
10°-20°	117.9	12.1
20°-30°	171.1	17.5
30°-40°	190.9	19.5
40°-50°	177.0	18.1
50°-60°	139.2	14.2
60°-70°	89.1	9.1
70°-80°	40.8	4.2
80°-90°	8.8	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°	331.2	33.9
0°-40°	522.1	53.4
0°-60°	838.2	85.8
0°-90°	977.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	977.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	448	448	448	448	448	
5°	457	452	445	437	432	44
15°	454	442	417	395	389	128
25°	426	406	367	339	330	195
35°	361	339	298	274	264	225
45°	275	255	224	202	198	212
55°	187	173	152	137	131	168
65°	110	103	90	76	68	111
75°	50	45	36	30	30	54
85°	8	8	6	8	8	11
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°	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8
2.5°	454.0	454.0	454.0	454.0	454.0	454.0	452.5	452.5	452.5	452.5	452.5
5°	457.2	457.2	457.2	457.2	455.6	455.6	455.6	455.6	454.0	454.0	452.5
7.5°	458.7	458.7	458.7	457.2	457.2	457.2	455.6	455.6	455.6	454.0	452.5
10°	460.3	458.7	458.7	457.2	457.2	457.2	455.6	455.6	454.0	452.5	450.9
12.5°	457.2	457.2	457.2	457.2	455.6	455.6	454.0	452.5	450.9	449.4	447.8
15°	454.0	454.0	454.0	452.5	450.9	450.9	449.4	447.8	446.3	444.7	441.6
17.5°	447.8	449.4	447.8	447.8	446.3	446.3	444.7	443.2	440.0	438.5	435.4
20°	443.2	441.6	441.6	441.6	440.0	438.5	436.9	435.4	432.3	430.7	426.1
22.5°	435.4	435.4	433.8	432.3	430.7	430.7	429.2	426.1	424.5	421.4	416.7
25°	426.1	424.5	424.5	422.9	421.4	421.4	418.3	416.7	413.6	408.9	405.8
27.5°	412.1	412.1	412.1	410.5	408.9	407.4	405.8	402.7	401.2	395.0	391.8
30°	396.5	396.5	395.0	395.0	391.8	391.8	390.3	387.2	384.1	379.4	376.3
32.5°	379.4	379.4	379.4	376.3	374.7	373.2	371.6	370.1	365.4	360.7	357.6
35°	360.7	360.7	359.2	357.6	356.1	354.5	353.0	349.9	346.8	343.6	339.0
37.5°	339.0	340.5	339.0	337.4	335.9	334.3	332.8	331.2	326.5	323.4	318.8
40°	318.8	318.8	317.2	315.7	314.1	314.1	312.5	309.4	306.3	301.7	297.0
42.5°	297.0	297.0	295.4	293.9	293.9	292.3	289.2	287.7	284.6	281.4	276.8
45°	275.2	273.7	272.1	272.1	270.6	269.0	269.0	265.9	262.8	258.1	255.0
47.5°	251.9	251.9	250.3	250.3	248.8	247.2	247.2	244.1	239.5	236.4	233.2
50°	230.1	230.1	228.6	228.6	227.0	225.5	223.9	222.4	219.2	216.1	213.0
52.5°	208.4	208.4	208.4	205.3	203.7	203.7	203.7	200.6	199.0	195.9	192.8
55°	186.6	186.6	186.6	185.0	183.5	183.5	183.5	180.4	178.8	175.7	172.6
57.5°	166.4	166.4	166.4	164.8	164.8	163.3	161.7	160.2	158.6	157.0	153.9
60°	147.7	147.7	146.2	144.6	146.2	144.6	143.1	141.5	139.9	138.4	136.8
62.5°	129.1	129.1	129.1	127.5	125.9	125.9	125.9	124.4	121.3	119.7	118.2
65°	110.4	110.4	110.4	110.4	108.8	108.8	107.3	105.7	105.7	104.2	102.6
67.5°	94.9	94.9	93.3	93.3	91.7	91.7	91.7	90.2	88.6	88.6	87.1
70°	79.3	77.7	77.7	77.7	76.2	76.2	76.2	74.6	74.6	73.1	71.5
72.5°	63.8	63.8	63.8	63.8	62.2	62.2	60.6	60.6	59.1	59.1	57.5
75°	49.8	49.8	49.8	49.8	48.2	48.2	48.2	48.2	46.6	46.6	45.1
77.5°	37.3	37.3	37.3	37.3	37.3	37.3	35.8	35.8	35.8	34.2	34.2
80°	26.4	26.4	26.4	26.4	24.9	24.9	24.9	24.9	24.9	23.3	23.3
82.5°	17.1	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	14.0
85°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
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°	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8
2.5°	450.9	450.9	450.9	450.9	449.4	449.4	449.4	447.8	447.8	447.8	447.8
5°	452.5	452.5	449.4	449.4	449.4	449.4	447.8	447.8	446.3	444.7	443.2
7.5°	450.9	450.9	449.4	447.8	446.3	446.3	444.7	443.2	441.6	440.0	438.5
10°	449.4	447.8	446.3	444.7	443.2	441.6	440.0	438.5	435.4	433.8	432.3
12.5°	446.3	443.2	441.6	438.5	438.5	436.9	433.8	432.3	429.2	426.1	424.5
15°	440.0	436.9	433.8	430.7	430.7	427.6	424.5	422.9	419.8	416.7	413.6
17.5°	432.3	429.2	426.1	422.9	421.4	418.3	415.2	412.1	408.9	405.8	402.7
20°	424.5	419.8	416.7	412.1	410.5	408.9	404.3	401.2	398.1	395.0	390.3
22.5°	413.6	410.5	404.3	401.2	399.6	396.5	393.4	388.7	384.1	381.0	377.8
25°	401.2	398.1	393.4	388.7	385.6	384.1	379.4	374.7	371.6	367.0	363.9
27.5°	387.2	382.5	379.4	373.2	371.6	368.5	363.9	359.2	356.1	351.4	346.8
30°	371.6	367.0	362.3	357.6	354.5	353.0	348.3	343.6	339.0	334.3	331.2
32.5°	353.0	348.3	343.6	340.5	335.9	332.8	329.6	325.0	320.3	315.7	312.5
35°	334.3	329.6	325.0	320.3	317.2	317.2	311.0	306.3	301.7	298.5	293.9
37.5°	314.1	309.4	304.8	300.1	298.5	295.4	290.8	286.1	283.0	278.3	275.2
40°	293.9	287.7	284.6	279.9	278.3	275.2	272.1	267.4	264.3	259.7	256.6
42.5°	272.1	269.0	264.3	261.2	258.1	256.6	251.9	247.2	244.1	241.0	239.5
45°	251.9	247.2	242.6	239.5	237.9	234.8	233.2	228.6	225.5	223.9	220.8
47.5°	230.1	227.0	223.9	219.2	217.7	216.1	213.0	211.5	208.4	205.3	202.1
50°	209.9	206.8	203.7	200.6	199.0	199.0	194.4	191.3	189.7	188.1	185.0
52.5°	189.7	186.6	183.5	180.4	180.4	178.8	175.7	174.2	172.6	169.5	166.4
55°	171.0	167.9	164.8	163.3	161.7	161.7	158.6	157.0	153.9	152.4	150.8
57.5°	152.4	149.3	147.7	146.2	144.6	144.6	141.5	139.9	138.4	135.3	135.3
60°	135.3	132.2	130.6	129.1	127.5	125.9	125.9	122.8	121.3	121.3	118.2
62.5°	116.6	115.1	113.5	112.0	110.4	110.4	108.8	107.3	105.7	104.2	102.6
65°	101.1	99.5	98.0	96.4	94.9	94.9	93.3	91.7	90.2	90.2	87.1
67.5°	85.5	84.0	82.4	80.9	80.9	79.3	77.7	77.7	76.2	74.6	73.1
70°	70.0	70.0	68.4	66.9	66.9	65.3	63.8	63.8	62.2	60.6	59.1
72.5°	57.5	56.0	54.4	54.4	52.9	52.9	51.3	51.3	49.8	48.2	46.6
75°	43.5	42.0	42.0	42.0	40.4	40.4	40.4	38.9	37.3	35.8	35.8
77.5°	32.7	32.7	31.1	29.5	29.5	29.5	28.0	28.0	28.0	26.4	26.4
80°	23.3	21.8	21.8	20.2	20.2	20.2	20.2	18.7	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	10.9
85°	7.8	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.1	3.1
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8
2.5°	446.3	446.3	444.7	444.7	444.7	444.7	444.7	443.2	443.2	443.2	443.2
5°	443.2	441.6	440.0	440.0	440.0	438.5	438.5	436.9	436.9	435.4	435.4
7.5°	436.9	435.4	433.8	433.8	432.3	432.3	429.2	429.2	427.6	426.1	426.1
10°	429.2	427.6	426.1	424.5	424.5	421.4	421.4	419.8	418.3	416.7	416.7
12.5°	421.4	419.8	416.7	415.2	415.2	413.6	410.5	408.9	407.4	405.8	404.3
15°	410.5	408.9	405.8	404.3	402.7	401.2	399.6	398.1	395.0	393.4	393.4
17.5°	399.6	398.1	393.4	391.8	391.8	388.7	387.2	384.1	382.5	381.0	379.4
20°	387.2	384.1	381.0	379.4	377.8	374.7	373.2	371.6	368.5	367.0	365.4
22.5°	373.2	370.1	367.0	365.4	363.9	360.7	359.2	356.1	354.5	353.0	351.4
25°	359.2	356.1	353.0	351.4	348.3	346.8	343.6	340.5	339.0	337.4	335.9
27.5°	343.6	340.5	335.9	334.3	332.8	331.2	328.1	325.0	323.4	320.3	320.3
30°	326.5	323.4	320.3	318.8	317.2	314.1	312.5	309.4	307.9	304.8	304.8
32.5°	309.4	304.8	301.7	300.1	298.5	297.0	293.9	292.3	290.8	289.2	287.7
35°	290.8	287.7	284.6	283.0	281.4	278.3	276.8	275.2	273.7	270.6	270.6
37.5°	272.1	269.0	265.9	264.3	264.3	261.2	259.7	256.6	256.6	253.5	253.5
40°	253.5	250.3	247.2	247.2	245.7	242.6	241.0	239.5	237.9	236.4	236.4
42.5°	236.4	231.7	230.1	230.1	227.0	225.5	223.9	222.4	219.2	219.2	219.2
45°	217.7	214.6	213.0	211.5	209.9	208.4	206.8	203.7	202.1	200.6	200.6
47.5°	200.6	197.5	195.9	194.4	192.8	191.3	189.7	188.1	185.0	185.0	183.5
50°	183.5	180.4	178.8	177.3	175.7	174.2	172.6	171.0	169.5	167.9	166.4
52.5°	164.8	163.3	161.7	160.2	160.2	157.0	155.5	153.9	152.4	152.4	149.3
55°	149.3	147.7	146.2	144.6	143.1	141.5	139.9	138.4	136.8	135.3	133.7
57.5°	132.2	130.6	129.1	129.1	127.5	125.9	124.4	122.8	121.3	119.7	118.2
60°	116.6	115.1	113.5	113.5	112.0	110.4	108.8	108.8	105.7	104.2	102.6
62.5°	101.1	99.5	98.0	98.0	96.4	96.4	94.9	93.3	90.2	90.2	88.6
65°	87.1	85.5	84.0	82.4	82.4	80.9	79.3	77.7	76.2	76.2	74.6
67.5°	73.1	71.5	70.0	70.0	68.4	66.9	65.3	63.8	62.2	62.2	60.6
70°	59.1	57.5	56.0	56.0	54.4	52.9	52.9	51.3	49.8	48.2	48.2
72.5°	45.1	45.1	43.5	43.5	42.0	42.0	40.4	38.9	38.9	37.3	35.8
75°	34.2	34.2	32.7	32.7	31.1	31.1	29.5	29.5	29.5	28.0	29.5
77.5°	24.9	24.9	23.3	23.3	23.3	21.8	21.8	21.8	23.3	23.3	23.3
80°	17.1	17.1	17.1	17.1	15.5	15.5	17.1	17.1	17.1	17.1	17.1
82.5°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	12.4	12.4	12.4
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.8	7.8	7.8	7.8
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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: P644116

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	447.8	447.8	447.8	447.8	447.8	447.8	447.8	447.8
2.5°	441.6	441.6	441.6	441.6	441.6	441.6	441.6	443.2
5°	433.8	433.8	433.8	433.8	433.8	433.8	433.8	432.3
7.5°	426.1	424.5	424.5	424.5	424.5	422.9	422.9	422.9
10°	415.2	415.2	413.6	413.6	413.6	413.6	412.1	413.6
12.5°	404.3	402.7	402.7	402.7	401.2	401.2	401.2	401.2
15°	391.8	390.3	390.3	390.3	388.7	388.7	388.7	388.7
17.5°	377.8	377.8	376.3	376.3	374.7	374.7	374.7	374.7
20°	363.9	363.9	363.9	362.3	362.3	362.3	360.7	360.7
22.5°	349.9	348.3	346.8	348.3	346.8	345.2	346.8	346.8
25°	334.3	332.8	331.2	331.2	331.2	331.2	329.6	329.6
27.5°	318.8	315.7	315.7	315.7	315.7	314.1	314.1	314.1
30°	303.2	301.7	301.7	300.1	298.5	298.5	298.5	300.1
32.5°	286.1	284.6	283.0	283.0	283.0	283.0	281.4	281.4
35°	269.0	269.0	267.4	267.4	267.4	265.9	265.9	264.3
37.5°	251.9	251.9	250.3	250.3	250.3	248.8	248.8	248.8
40°	234.8	233.2	233.2	234.8	233.2	233.2	231.7	231.7
42.5°	217.7	217.7	216.1	216.1	216.1	216.1	214.6	216.1
45°	199.0	199.0	199.0	199.0	199.0	199.0	197.5	197.5
47.5°	183.5	181.9	181.9	181.9	181.9	181.9	181.9	181.9
50°	166.4	164.8	164.8	164.8	164.8	164.8	164.8	164.8
52.5°	149.3	147.7	147.7	147.7	147.7	147.7	147.7	147.7
55°	133.7	132.2	132.2	130.6	132.2	130.6	130.6	130.6
57.5°	118.2	116.6	115.1	116.6	115.1	115.1	115.1	113.5
60°	102.6	101.1	101.1	101.1	99.5	98.0	98.0	99.5
62.5°	87.1	87.1	85.5	85.5	84.0	82.4	82.4	82.4
65°	73.1	71.5	71.5	70.0	70.0	68.4	68.4	68.4
67.5°	59.1	59.1	57.5	57.5	56.0	56.0	56.0	54.4
70°	46.6	46.6	45.1	45.1	45.1	43.5	43.5	43.5
72.5°	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
75°	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5
77.5°	23.3	23.3	23.3	23.3	23.3	23.3	23.3	24.9
80°	17.1	17.1	18.7	17.1	18.7	17.1	17.1	17.1
82.5°	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
85°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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)