

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: P640532

Luminaire Tested: ML5609LSWWD2W1E - 592SC WW - 900LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P640532
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: ML5609LSWWD2W1E - 592SC WW - 900LM - 3000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) D2W SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

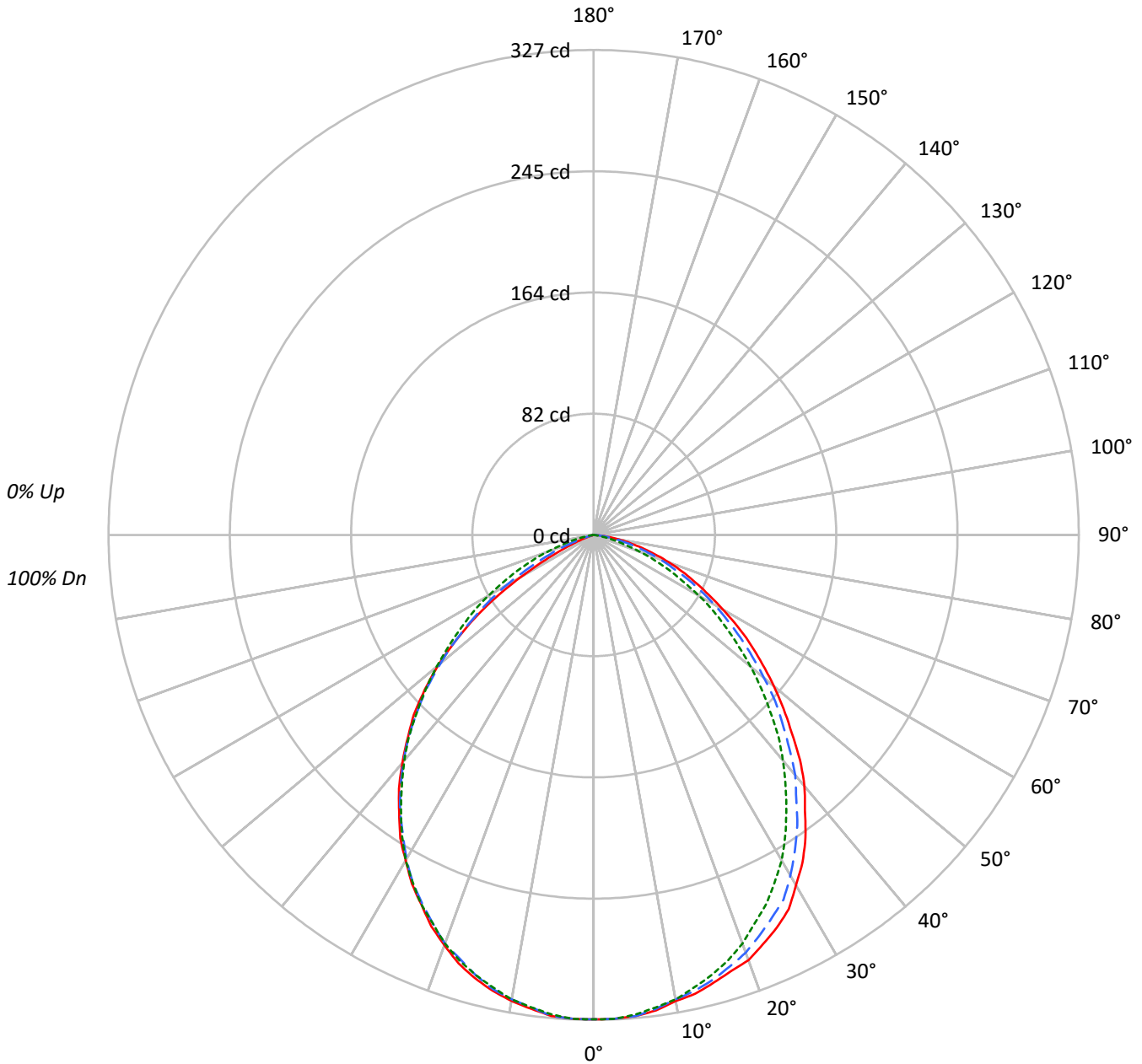
Lumens per Lamp: N/A
Luminaire Lumens: 698.7 lumens
Efficiency: N/A
Efficacy: 59.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 11.8
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	111	107	103	100	108	105	101	98	100	98	95	97	94	93	93	91	90	88				88				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76				76				
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66				66				
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58				58				
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51				51				
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45				45				
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40				40				
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36				36				
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33				33				
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30				30				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	25782	25782	25782	25782	25782
5°	25801	25801	25714	25801	25801
10°	25579	25490	25490	25490	25579
15°	25547	25376	25106	25106	25286
20°	25631	25177	24631	24631	24723
25°	25451	24789	23944	23848	23944
30°	24857	24174	23089	22998	23089
35°	23996	23061	21818	21924	22020
40°	22774	21774	20445	20548	20662
45°	21066	20095	18778	18778	19135
50°	19465	18397	16948	16555	16813
55°	17809	16612	14988	13804	13501
60°	15836	14809	12931	10720	8857
65°	14103	12889	10479	7042	4221
70°	12441	10940	7709	3485	1246
75°	10187	8540	4606	976	336
80°	7819	5864	1955	0	0
85°	3895	2898	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 21178 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.8	4.4
10°-20°	87.1	12.5
20°-30°	128.5	18.4
30°-40°	145.4	20.8
40°-50°	134.3	19.2
50°-60°	99.2	14.2
60°-70°	53.3	7.6
70°-80°	17.8	2.6
80°-90°	2.3	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°	246.4	35.3
0°-40°	391.8	56.1
0°-60°	625.3	89.5
0°-90°	698.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	698.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	327	327	327	327	327	
5°	326	326	324	326	326	31
15°	313	310	307	307	309	88
25°	292	285	275	274	275	134
35°	249	239	226	228	228	155
45°	189	180	168	168	171	146
55°	129	121	109	100	98	116
65°	76	69	56	38	23	75
75°	33	28	15	3	1	36
85°	4	3	0	0	0	6
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°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
2.5°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
5°	325.6	325.6	324.5	325.6	325.6	325.6	325.6	324.5	325.6	325.6	325.6
7.5°	323.4	322.3	322.3	322.3	322.3	322.3	322.3	322.3	322.3	322.3	322.3
10°	319.1	319.1	319.1	319.1	319.1	319.1	319.1	319.1	319.1	319.1	318.0
12.5°	316.9	315.9	315.9	315.9	315.9	315.9	315.9	314.8	315.9	314.8	314.8
15°	312.6	312.6	312.6	312.6	312.6	312.6	311.6	311.6	311.6	311.6	310.5
17.5°	308.3	308.3	309.4	309.4	308.3	308.3	308.3	307.2	306.2	306.2	305.1
20°	305.1	305.1	304.0	304.0	302.9	304.0	302.9	301.9	301.9	300.8	299.7
22.5°	298.6	298.6	298.6	298.6	298.6	297.5	297.5	296.5	295.4	294.3	292.2
25°	292.2	292.2	292.2	292.2	291.1	291.1	291.1	288.9	287.8	286.8	284.6
27.5°	284.6	283.5	283.5	283.5	282.4	282.4	281.4	280.3	279.2	278.1	277.1
30°	272.7	272.7	272.7	272.7	271.7	270.6	270.6	269.5	268.4	266.3	265.2
32.5°	262.0	262.0	260.9	259.8	259.8	259.8	258.7	257.7	255.5	254.4	252.3
35°	249.0	248.0	248.0	246.9	246.9	246.9	245.8	243.6	242.6	241.5	239.3
37.5°	233.9	235.0	233.9	233.9	232.9	231.8	230.7	229.6	228.5	226.4	224.2
40°	221.0	221.0	219.9	218.8	217.8	217.8	216.7	215.6	214.5	213.5	211.3
42.5°	205.9	205.9	204.8	204.8	203.8	203.8	201.6	200.5	199.4	198.4	195.1
45°	188.7	188.7	189.7	188.7	187.6	186.5	186.5	185.4	183.3	182.2	180.0
47.5°	173.6	174.6	173.6	172.5	172.5	171.4	171.4	169.3	169.3	167.1	166.0
50°	158.5	158.5	158.5	158.5	157.4	156.3	156.3	155.2	153.1	152.0	149.8
52.5°	143.4	143.4	143.4	143.4	142.3	142.3	141.2	140.1	139.1	136.9	134.8
55°	129.4	128.3	128.3	128.3	127.2	127.2	126.1	125.1	124.0	122.9	120.7
57.5°	115.4	114.3	114.3	113.2	113.2	112.1	112.1	111.0	110.0	107.8	106.7
60°	100.3	101.3	100.3	100.3	99.2	99.2	99.2	98.1	95.9	94.9	93.8
62.5°	87.3	88.4	87.3	86.2	86.2	86.2	86.2	84.1	83.0	81.9	80.9
65°	75.5	75.5	75.5	74.4	74.4	74.4	72.2	72.2	71.2	70.1	69.0
67.5°	64.7	63.6	63.6	63.6	62.5	62.5	61.4	61.4	59.3	59.3	57.1
70°	53.9	52.8	52.8	52.8	51.7	50.7	51.7	49.6	48.5	47.4	47.4
72.5°	43.1	43.1	42.0	42.0	42.0	41.0	41.0	39.9	38.8	37.7	36.7
75°	33.4	33.4	33.4	32.3	32.3	31.3	31.3	30.2	30.2	28.0	28.0
77.5°	24.8	24.8	24.8	23.7	23.7	23.7	22.6	22.6	21.6	20.5	19.4
80°	17.2	16.2	16.2	16.2	16.2	15.1	15.1	15.1	14.0	14.0	12.9
82.5°	9.7	9.7	9.7	9.7	9.7	9.7	8.6	8.6	8.6	7.5	7.5
85°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.2	3.2	3.2
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
2.5°	326.6	326.6	326.6	326.6	325.6	326.6	325.6	326.6	326.6	326.6	326.6
5°	325.6	324.5	324.5	324.5	325.6	325.6	324.5	324.5	324.5	324.5	324.5
7.5°	322.3	322.3	322.3	321.3	322.3	322.3	321.3	322.3	322.3	321.3	322.3
10°	319.1	319.1	318.0	318.0	318.0	318.0	318.0	318.0	316.9	318.0	318.0
12.5°	314.8	314.8	314.8	313.7	313.7	313.7	313.7	313.7	312.6	312.6	313.7
15°	310.5	310.5	309.4	309.4	309.4	308.3	308.3	308.3	308.3	307.2	307.2
17.5°	305.1	304.0	304.0	302.9	302.9	301.9	301.9	300.8	300.8	300.8	299.7
20°	298.6	297.5	296.5	296.5	295.4	295.4	294.3	294.3	293.2	293.2	292.2
22.5°	291.1	290.0	288.9	287.8	287.8	286.8	286.8	285.7	284.6	283.5	283.5
25°	284.6	282.4	281.4	280.3	278.1	278.1	277.1	277.1	276.0	274.9	273.8
27.5°	274.9	272.7	271.7	270.6	269.5	268.4	266.3	266.3	265.2	264.1	263.0
30°	263.0	262.0	259.8	258.7	257.7	257.7	255.5	253.3	253.3	253.3	252.3
32.5°	251.2	249.0	248.0	245.8	244.7	244.7	243.6	241.5	240.4	240.4	239.3
35°	238.2	236.1	233.9	232.9	231.8	230.7	229.6	228.5	227.5	226.4	225.3
37.5°	223.2	221.0	219.9	218.8	217.8	216.7	215.6	214.5	213.5	212.4	213.5
40°	209.1	207.0	204.8	203.8	202.7	202.7	201.6	200.5	199.4	198.4	198.4
42.5°	194.0	191.9	190.8	189.7	188.7	187.6	186.5	185.4	184.3	184.3	183.3
45°	177.9	176.8	174.6	173.6	172.5	172.5	170.3	169.3	169.3	168.2	168.2
47.5°	163.9	161.7	159.6	158.5	157.4	156.3	155.2	154.2	153.1	153.1	153.1
50°	147.7	146.6	144.5	143.4	142.3	142.3	141.2	140.1	139.1	138.0	138.0
52.5°	132.6	131.5	131.5	129.4	128.3	128.3	126.1	126.1	124.0	122.9	121.8
55°	119.7	117.5	116.4	114.3	114.3	113.2	112.1	111.0	110.0	108.9	107.8
57.5°	104.6	103.5	102.4	101.3	101.3	100.3	99.2	98.1	95.9	95.9	93.8
60°	92.7	90.6	89.5	88.4	87.3	87.3	86.2	85.2	83.0	81.9	80.9
62.5°	79.8	77.6	77.6	76.5	74.4	74.4	73.3	71.2	70.1	67.9	66.8
65°	67.9	66.8	64.7	63.6	63.6	62.5	60.4	59.3	58.2	56.1	53.9
67.5°	56.1	55.0	53.9	51.7	51.7	50.7	48.5	47.4	45.3	44.2	42.0
70°	45.3	44.2	43.1	41.0	41.0	39.9	38.8	36.7	34.5	33.4	31.3
72.5°	35.6	34.5	33.4	31.3	31.3	30.2	28.0	27.0	24.8	22.6	21.6
75°	27.0	25.9	23.7	22.6	21.6	21.6	19.4	18.3	17.2	15.1	14.0
77.5°	18.3	17.2	16.2	15.1	15.1	14.0	12.9	11.9	10.8	9.7	7.5
80°	11.9	10.8	9.7	9.7	8.6	8.6	7.5	6.5	5.4	4.3	3.2
82.5°	6.5	6.5	5.4	4.3	4.3	4.3	3.2	3.2	2.2	1.1	1.1
85°	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	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°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
2.5°	326.6	326.6	326.6	326.6	326.6	326.6	325.6	326.6	326.6	326.6	325.6
5°	325.6	324.5	324.5	325.6	324.5	324.5	325.6	325.6	325.6	324.5	324.5
7.5°	321.3	322.3	321.3	321.3	322.3	322.3	322.3	322.3	321.3	321.3	322.3
10°	318.0	318.0	316.9	318.0	316.9	318.0	318.0	318.0	318.0	318.0	318.0
12.5°	312.6	312.6	312.6	313.7	312.6	312.6	313.7	313.7	313.7	313.7	313.7
15°	306.2	306.2	307.2	306.2	307.2	307.2	307.2	307.2	307.2	307.2	308.3
17.5°	299.7	299.7	299.7	299.7	299.7	299.7	299.7	299.7	299.7	300.8	300.8
20°	292.2	292.2	292.2	292.2	292.2	291.1	292.2	292.2	293.2	293.2	293.2
22.5°	282.4	282.4	282.4	282.4	282.4	282.4	282.4	282.4	283.5	284.6	283.5
25°	272.7	272.7	272.7	272.7	272.7	272.7	272.7	273.8	273.8	273.8	274.9
27.5°	263.0	263.0	263.0	262.0	263.0	262.0	263.0	263.0	264.1	263.0	264.1
30°	252.3	251.2	251.2	251.2	251.2	252.3	251.2	251.2	252.3	253.3	252.3
32.5°	238.2	238.2	238.2	239.3	239.3	239.3	240.4	239.3	239.3	240.4	240.4
35°	225.3	225.3	225.3	226.4	226.4	226.4	226.4	227.5	227.5	227.5	228.5
37.5°	211.3	212.4	211.3	212.4	212.4	213.5	213.5	213.5	213.5	214.5	214.5
40°	198.4	197.3	198.4	198.4	198.4	198.4	198.4	198.4	199.4	200.5	200.5
42.5°	183.3	183.3	183.3	183.3	183.3	183.3	184.3	184.3	184.3	185.4	185.4
45°	168.2	167.1	167.1	167.1	167.1	168.2	167.1	168.2	168.2	169.3	169.3
47.5°	152.0	152.0	152.0	152.0	152.0	152.0	152.0	152.0	152.0	153.1	152.0
50°	138.0	136.9	135.8	135.8	134.8	135.8	134.8	134.8	134.8	135.8	134.8
52.5°	121.8	120.7	119.7	119.7	119.7	118.6	117.5	117.5	117.5	116.4	116.4
55°	107.8	106.7	104.6	105.6	103.5	102.4	102.4	101.3	100.3	100.3	99.2
57.5°	92.7	91.6	90.6	89.5	89.5	87.3	86.2	85.2	84.1	83.0	80.9
60°	79.8	77.6	75.5	75.5	74.4	73.3	71.2	69.0	67.9	65.8	64.7
62.5°	65.8	63.6	61.4	60.4	59.3	58.2	56.1	53.9	51.7	50.7	48.5
65°	52.8	50.7	48.5	47.4	46.4	44.2	42.0	39.9	37.7	35.6	34.5
67.5°	39.9	37.7	36.7	34.5	33.4	31.3	29.1	28.0	25.9	23.7	20.5
70°	29.1	27.0	24.8	23.7	22.6	20.5	19.4	17.2	15.1	14.0	11.9
72.5°	19.4	17.2	16.2	15.1	14.0	12.9	10.8	9.7	7.5	6.5	5.4
75°	11.9	10.8	9.7	8.6	7.5	6.5	5.4	4.3	3.2	2.2	1.1
77.5°	6.5	5.4	4.3	4.3	3.2	2.2	2.2	1.1	1.1	1.1	1.1
80°	3.2	2.2	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	1.1
82.5°	1.1	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: P640532

CATALOG NUMBER: ML5609LSWWD2W1E - 592SC WW - 900LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
2.5°	326.6	326.6	326.6	326.6	326.6	326.6	326.6	326.6
5°	325.6	325.6	324.5	325.6	324.5	324.5	324.5	325.6
7.5°	322.3	322.3	322.3	322.3	322.3	322.3	322.3	322.3
10°	318.0	318.0	318.0	319.1	319.1	319.1	318.0	319.1
12.5°	313.7	313.7	313.7	314.8	313.7	314.8	313.7	314.8
15°	308.3	308.3	309.4	309.4	308.3	308.3	309.4	309.4
17.5°	300.8	301.9	301.9	301.9	301.9	301.9	301.9	302.9
20°	294.3	294.3	293.2	294.3	294.3	295.4	295.4	294.3
22.5°	283.5	285.7	285.7	285.7	285.7	285.7	285.7	285.7
25°	274.9	274.9	274.9	276.0	274.9	274.9	276.0	274.9
27.5°	264.1	265.2	264.1	265.2	265.2	265.2	265.2	265.2
30°	253.3	253.3	253.3	253.3	253.3	254.4	253.3	253.3
32.5°	240.4	241.5	241.5	241.5	242.6	241.5	241.5	242.6
35°	228.5	228.5	228.5	229.6	228.5	229.6	229.6	228.5
37.5°	214.5	215.6	214.5	215.6	215.6	215.6	215.6	215.6
40°	201.6	200.5	201.6	200.5	201.6	201.6	201.6	200.5
42.5°	185.4	186.5	186.5	186.5	186.5	186.5	186.5	185.4
45°	169.3	170.3	170.3	170.3	170.3	170.3	171.4	171.4
47.5°	152.0	154.2	154.2	154.2	153.1	155.2	154.2	154.2
50°	134.8	134.8	135.8	135.8	136.9	136.9	136.9	136.9
52.5°	117.5	116.4	117.5	117.5	118.6	117.5	118.6	117.5
55°	98.1	98.1	98.1	97.0	98.1	98.1	98.1	98.1
57.5°	80.9	79.8	78.7	77.6	77.6	77.6	76.5	77.6
60°	62.5	60.4	61.4	59.3	58.2	57.1	57.1	56.1
62.5°	46.4	44.2	43.1	42.0	39.9	37.7	37.7	36.7
65°	31.3	29.1	28.0	25.9	24.8	23.7	22.6	22.6
67.5°	19.4	17.2	17.2	16.2	15.1	14.0	12.9	12.9
70°	10.8	9.7	8.6	7.5	7.5	6.5	5.4	5.4
72.5°	4.3	3.2	3.2	2.2	2.2	2.2	2.2	1.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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
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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)