

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: P640540

Luminaire Tested: ML5609LSWWD2W1E - 692W WW - 900LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P640540
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5609LSWWD2W1E - 692W WW - 900LM - 3000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM
Light Source: (1) D2W SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

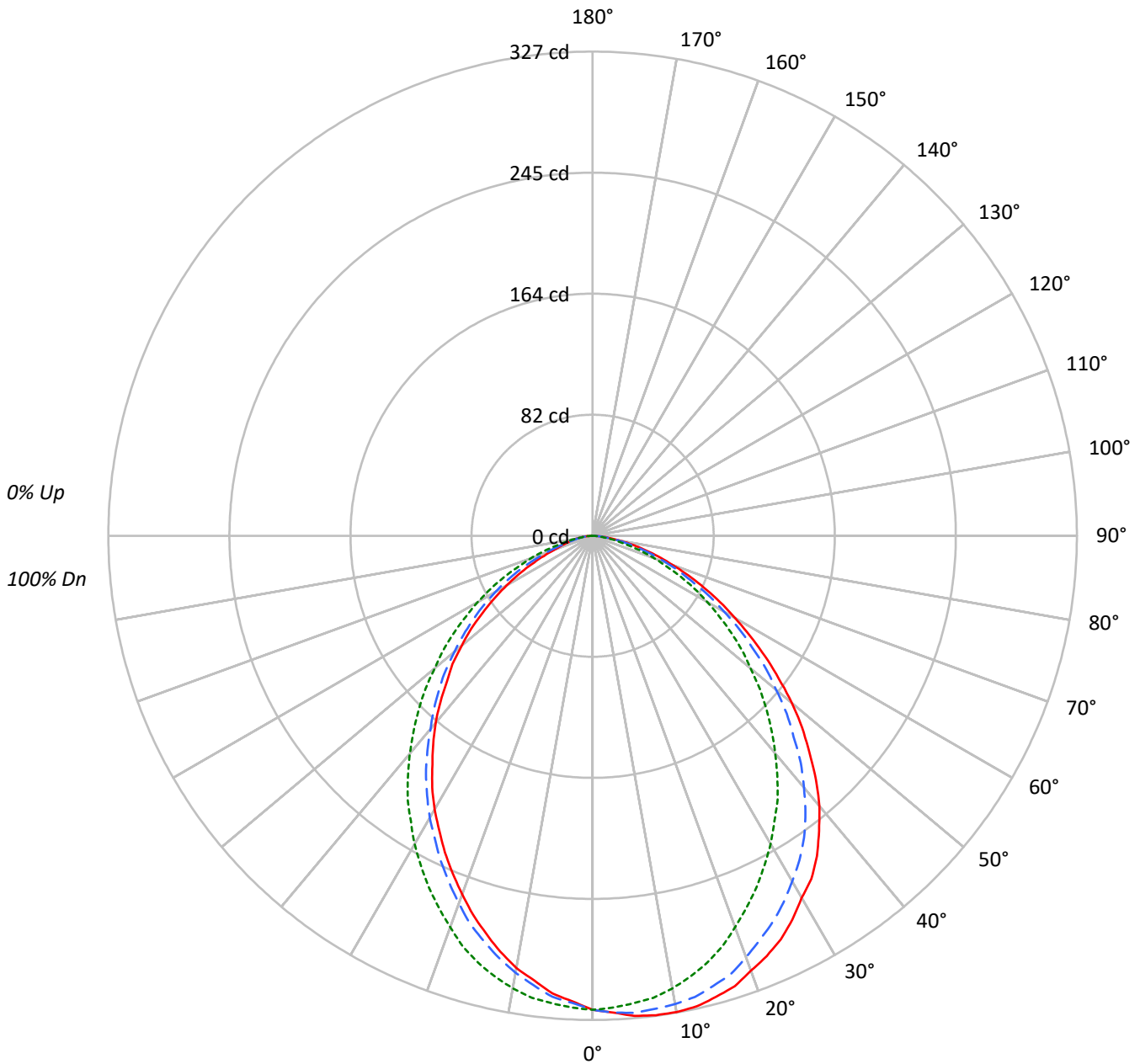
Lumens per Lamp: N/A
Luminaire Lumens: 706.6 lumens
Efficiency: N/A
Efficacy: 59.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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								
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87								
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	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43								
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38								
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35								
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31								
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	17548	17548	17548	17548	17548
5°	17912	17797	17439	17202	17081
10°	18180	17880	17279	16677	16499
15°	18292	17860	16947	16090	15783
20°	18237	17671	16411	15407	15028
25°	18189	17408	15842	14668	14275
30°	17876	17060	15218	13920	13508
35°	17674	16664	14569	13130	12622
40°	17046	15887	13733	12187	11801
45°	16040	14878	12870	11366	10776
50°	14985	13791	11855	10388	9833
55°	13600	12568	10924	9376	8650
60°	12170	11227	9813	8267	7324
65°	10766	9781	8522	6992	5876
70°	9152	8463	7085	5353	4312
75°	7540	6841	5253	3643	3643
80°	5777	5114	3757	3062	3410
85°	4088	3397	2705	2705	2705

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16040 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.1	4.3
10°-20°	84.2	11.9
20°-30°	121.9	17.3
30°-40°	138.5	19.6
40°-50°	130.7	18.5
50°-60°	103.1	14.6
60°-70°	64.5	9.1
70°-80°	27.9	3.9
80°-90°	5.7	0.8
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°	236.2	33.4
0°-40°	374.7	53.0
0°-60°	608.5	86.1
0°-90°	706.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	706.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	320	320	320	320	320	
5°	326	323	317	313	310	31
15°	322	315	299	284	278	91
25°	301	288	262	242	236	138
35°	264	249	218	196	189	164
45°	207	192	166	147	139	160
55°	142	132	114	98	90	127
65°	83	75	66	54	45	83
75°	36	32	25	17	17	39
85°	6	5	4	4	4	8
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°	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1
2.5°	322.3	322.3	323.4	323.4	322.3	322.3	322.3	322.3	322.3	322.3	322.3
5°	325.5	325.5	325.5	325.5	324.4	324.4	324.4	324.4	324.4	323.4	323.4
7.5°	326.6	326.6	326.6	326.6	325.5	325.5	324.4	324.4	324.4	323.4	322.3
10°	326.6	326.6	326.6	325.5	325.5	324.4	325.5	324.4	323.4	322.3	321.2
12.5°	325.5	324.4	324.4	324.4	323.4	323.4	323.4	322.3	321.2	320.1	319.0
15°	322.3	322.3	322.3	321.2	321.2	320.1	320.1	319.0	318.0	315.8	314.7
17.5°	319.0	319.0	318.0	318.0	316.9	315.8	315.8	314.7	313.7	311.5	310.4
20°	312.6	312.6	312.6	311.5	310.4	310.4	309.3	308.3	306.1	304.0	302.9
22.5°	307.2	306.1	306.1	305.0	304.0	304.0	302.9	300.7	299.6	297.5	295.3
25°	300.7	299.6	299.6	298.6	297.5	296.4	296.4	294.3	292.1	289.9	287.8
27.5°	292.1	292.1	291.0	289.9	288.9	288.9	287.8	286.7	283.5	281.3	279.2
30°	282.4	283.5	282.4	281.3	280.2	280.2	279.2	277.0	274.9	271.6	269.5
32.5°	274.9	274.9	273.8	272.7	270.5	270.5	270.5	267.3	265.2	263.0	259.8
35°	264.1	264.1	264.1	261.9	260.8	259.8	258.7	256.5	254.4	252.2	249.0
37.5°	251.1	252.2	251.1	250.1	249.0	247.9	246.8	244.7	241.4	239.3	236.0
40°	238.2	238.2	237.1	236.0	235.0	233.9	232.8	230.7	228.5	225.3	222.0
42.5°	223.1	223.1	222.0	221.0	219.9	218.8	218.8	216.6	213.4	211.3	208.0
45°	206.9	206.9	206.9	205.9	204.8	203.7	202.6	201.6	199.4	196.2	191.9
47.5°	191.9	191.9	191.9	189.7	189.7	187.5	186.5	184.3	183.2	180.0	177.8
50°	175.7	174.6	174.6	173.5	172.5	171.4	171.4	168.1	167.1	164.9	161.7
52.5°	158.4	158.4	158.4	157.4	156.3	155.2	155.2	153.1	150.9	148.7	147.7
55°	142.3	142.3	142.3	141.2	140.1	140.1	139.0	136.9	135.8	133.7	131.5
57.5°	126.1	127.2	126.1	125.0	125.0	124.0	124.0	122.9	120.7	118.6	117.5
60°	111.0	111.0	111.0	109.9	108.9	108.9	108.9	107.8	105.6	104.6	102.4
62.5°	97.0	97.0	95.9	95.9	94.9	94.9	93.8	92.7	91.6	90.5	89.5
65°	83.0	81.9	81.9	81.9	80.8	80.8	80.8	79.8	77.6	76.5	75.4
67.5°	70.1	70.1	69.0	69.0	67.9	67.9	67.9	66.8	65.7	64.7	63.6
70°	57.1	57.1	57.1	57.1	56.0	56.0	56.0	55.0	53.9	53.9	52.8
72.5°	46.3	46.3	46.3	46.3	45.3	45.3	45.3	44.2	43.1	42.0	42.0
75°	35.6	36.6	35.6	35.6	35.6	35.6	34.5	34.5	33.4	32.3	32.3
77.5°	26.9	26.9	26.9	26.9	25.9	25.9	25.9	25.9	24.8	23.7	23.7
80°	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	17.2	17.2	16.2
82.5°	10.8	11.9	11.9	11.9	10.8	10.8	10.8	10.8	10.8	10.8	9.7
85°	6.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
87.5°	2.2	2.2	2.2	2.2	2.2	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°	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1
2.5°	321.2	321.2	321.2	321.2	320.1	320.1	320.1	319.0	319.0	319.0	319.0
5°	322.3	321.2	321.2	320.1	320.1	320.1	319.0	319.0	318.0	316.9	316.9
7.5°	321.2	321.2	320.1	319.0	319.0	318.0	316.9	315.8	314.7	314.7	312.6
10°	320.1	319.0	318.0	316.9	315.8	315.8	313.7	312.6	311.5	310.4	309.3
12.5°	316.9	315.8	314.7	312.6	312.6	311.5	309.3	308.3	306.1	305.0	302.9
15°	312.6	311.5	310.4	308.3	307.2	306.1	304.0	301.8	299.6	298.6	296.4
17.5°	308.3	306.1	304.0	301.8	300.7	299.6	297.5	295.3	293.2	291.0	288.9
20°	300.7	298.6	296.4	293.2	292.1	291.0	287.8	285.6	283.5	281.3	279.2
22.5°	293.2	291.0	287.8	285.6	284.6	282.4	280.2	277.0	274.9	271.6	269.5
25°	285.6	282.4	279.2	277.0	274.9	273.8	270.5	268.4	264.1	261.9	259.8
27.5°	275.9	273.8	270.5	267.3	265.2	263.0	260.8	257.6	254.4	251.1	249.0
30°	266.2	263.0	259.8	257.6	254.4	253.3	250.1	246.8	243.6	240.4	238.2
32.5°	256.5	253.3	250.1	246.8	244.7	242.5	239.3	236.0	231.7	228.5	226.3
35°	245.7	242.5	238.2	235.0	232.8	230.7	227.4	224.2	221.0	217.7	214.5
37.5°	232.8	228.5	226.3	223.1	219.9	217.7	214.5	210.2	208.0	204.8	201.6
40°	218.8	215.6	212.3	209.1	205.9	204.8	200.5	197.2	195.1	191.9	188.6
42.5°	204.8	201.6	197.2	194.0	191.9	190.8	187.5	184.3	181.1	178.9	175.7
45°	189.7	186.5	183.2	180.0	177.8	176.8	173.5	171.4	168.1	166.0	162.8
47.5°	174.6	171.4	169.2	166.0	163.8	162.8	160.6	157.4	154.1	153.1	150.9
50°	159.5	156.3	154.1	150.9	149.8	148.7	146.6	144.4	142.3	139.0	138.0
52.5°	144.4	141.2	139.0	136.9	136.9	134.7	132.6	131.5	129.3	127.2	125.0
55°	129.3	128.3	126.1	122.9	122.9	121.8	119.6	117.5	115.3	114.3	112.1
57.5°	114.3	113.2	111.0	109.9	108.9	107.8	106.7	104.6	103.5	101.3	100.2
60°	101.3	100.2	98.1	97.0	95.9	94.9	93.8	91.6	90.5	89.5	88.4
62.5°	87.3	86.2	85.1	84.1	83.0	81.9	81.9	79.8	78.7	77.6	76.5
65°	75.4	73.3	72.2	71.1	71.1	70.1	69.0	67.9	66.8	65.7	64.7
67.5°	62.5	61.4	61.4	59.3	59.3	58.2	57.1	57.1	55.0	53.9	52.8
70°	51.7	50.7	49.6	48.5	48.5	47.4	46.3	45.3	44.2	44.2	43.1
72.5°	41.0	39.9	39.9	38.8	37.7	37.7	36.6	35.6	34.5	34.5	33.4
75°	31.3	30.2	30.2	29.1	29.1	28.0	26.9	26.9	25.9	24.8	23.7
77.5°	22.6	22.6	21.6	21.6	20.5	20.5	19.4	19.4	18.3	17.2	17.2
80°	16.2	15.1	15.1	14.0	14.0	14.0	12.9	12.9	11.9	11.9	10.8
82.5°	9.7	9.7	8.6	8.6	8.6	8.6	7.5	7.5	7.5	6.5	6.5
85°	5.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1
2.5°	318.0	318.0	316.9	318.0	316.9	316.9	316.9	316.9	315.8	315.8	315.8
5°	315.8	314.7	314.7	313.7	314.7	313.7	312.6	312.6	312.6	312.6	311.5
7.5°	311.5	311.5	310.4	309.3	309.3	308.3	307.2	307.2	306.1	306.1	305.0
10°	308.3	306.1	305.0	304.0	304.0	302.9	301.8	300.7	299.6	298.6	298.6
12.5°	300.7	299.6	298.6	297.5	297.5	295.3	294.3	293.2	292.1	291.0	289.9
15°	295.3	293.2	291.0	289.9	289.9	287.8	286.7	285.6	283.5	283.5	281.3
17.5°	286.7	284.6	282.4	281.3	280.2	279.2	278.1	275.9	274.9	272.7	272.7
20°	275.9	274.9	271.6	270.5	269.5	268.4	266.2	265.2	264.1	261.9	260.8
22.5°	267.3	264.1	261.9	260.8	260.8	257.6	256.5	254.4	253.3	252.2	250.1
25°	256.5	254.4	252.2	250.1	250.1	247.9	246.8	244.7	242.5	241.4	240.4
27.5°	245.7	243.6	240.4	239.3	238.2	237.1	235.0	232.8	230.7	229.6	228.5
30°	233.9	231.7	229.6	228.5	226.3	224.2	222.0	221.0	219.9	217.7	216.6
32.5°	223.1	219.9	217.7	215.6	215.6	212.3	211.3	209.1	208.0	206.9	204.8
35°	211.3	208.0	205.9	204.8	203.7	200.5	198.3	196.2	196.2	194.0	192.9
37.5°	198.3	195.1	194.0	191.9	190.8	188.6	186.5	185.4	183.2	181.1	181.1
40°	186.5	183.2	180.0	180.0	177.8	176.8	173.5	172.5	170.3	169.2	168.1
42.5°	173.5	170.3	168.1	167.1	166.0	163.8	161.7	159.5	158.4	157.4	156.3
45°	159.5	157.4	156.3	154.1	153.1	150.9	149.8	147.7	146.6	144.4	143.4
47.5°	147.7	145.5	143.4	142.3	141.2	139.0	138.0	135.8	134.7	132.6	131.5
50°	135.8	133.7	131.5	130.4	129.3	127.2	125.0	124.0	121.8	120.7	118.6
52.5°	122.9	120.7	118.6	118.6	117.5	115.3	114.3	112.1	109.9	107.8	106.7
55°	111.0	108.9	106.7	105.6	105.6	103.5	101.3	100.2	98.1	97.0	94.9
57.5°	98.1	95.9	94.9	93.8	93.8	91.6	90.5	88.4	87.3	85.1	84.1
60°	86.2	85.1	83.0	83.0	81.9	79.8	78.7	76.5	75.4	74.4	73.3
62.5°	74.4	73.3	71.1	71.1	70.1	69.0	67.9	65.7	64.7	62.5	61.4
65°	62.5	61.4	60.4	59.3	59.3	57.1	56.0	55.0	53.9	52.8	51.7
67.5°	51.7	50.7	49.6	49.6	48.5	47.4	45.3	44.2	43.1	42.0	41.0
70°	42.0	39.9	38.8	38.8	37.7	36.6	35.6	34.5	33.4	32.3	31.3
72.5°	32.3	30.2	30.2	29.1	28.0	26.9	26.9	25.9	24.8	24.8	22.6
75°	23.7	22.6	21.6	21.6	20.5	19.4	18.3	18.3	17.2	17.2	17.2
77.5°	16.2	15.1	15.1	14.0	14.0	14.0	12.9	12.9	12.9	12.9	14.0
80°	10.8	10.8	9.7	9.7	9.7	9.7	9.7	9.7	9.7	10.8	10.8
82.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.5
85°	3.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
87.5°	1.1	1.1	2.2	1.1	2.2	1.1	2.2	2.2	2.2	2.2	2.2
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: P640540

CATALOG NUMBER: ML5609LSWWD2W1E - 692W WW - 900LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	320.1	320.1	320.1	320.1	320.1	320.1	320.1	320.1
2.5°	314.7	315.8	315.8	314.7	315.8	314.7	314.7	314.7
5°	311.5	310.4	310.4	310.4	309.3	310.4	310.4	310.4
7.5°	305.0	305.0	304.0	304.0	302.9	302.9	304.0	302.9
10°	297.5	296.4	297.5	296.4	296.4	296.4	295.3	296.4
12.5°	289.9	288.9	288.9	287.8	287.8	287.8	287.8	287.8
15°	281.3	280.2	280.2	279.2	279.2	278.1	279.2	278.1
17.5°	271.6	271.6	269.5	269.5	269.5	269.5	269.5	268.4
20°	259.8	259.8	258.7	259.8	257.6	257.6	257.6	257.6
22.5°	250.1	249.0	247.9	247.9	247.9	246.8	246.8	246.8
25°	238.2	238.2	237.1	237.1	236.0	236.0	236.0	236.0
27.5°	227.4	226.3	226.3	226.3	225.3	224.2	224.2	224.2
30°	215.6	215.6	214.5	214.5	213.4	213.4	213.4	213.4
32.5°	203.7	203.7	202.6	201.6	201.6	201.6	200.5	201.6
35°	191.9	190.8	190.8	189.7	189.7	189.7	188.6	188.6
37.5°	180.0	178.9	177.8	178.9	177.8	176.8	176.8	176.8
40°	167.1	166.0	166.0	164.9	164.9	164.9	163.8	164.9
42.5°	155.2	155.2	154.1	153.1	153.1	153.1	152.0	152.0
45°	143.4	141.2	142.3	141.2	141.2	140.1	140.1	139.0
47.5°	130.4	129.3	129.3	129.3	128.3	128.3	128.3	128.3
50°	117.5	116.4	117.5	116.4	116.4	115.3	115.3	115.3
52.5°	105.6	104.6	104.6	104.6	104.6	103.5	103.5	103.5
55°	93.8	92.7	92.7	92.7	91.6	91.6	90.5	90.5
57.5°	83.0	81.9	80.8	79.8	79.8	79.8	78.7	78.7
60°	71.1	70.1	69.0	69.0	67.9	67.9	67.9	66.8
62.5°	60.4	59.3	58.2	58.2	57.1	56.0	56.0	56.0
65°	49.6	48.5	48.5	47.4	46.3	46.3	45.3	45.3
67.5°	39.9	38.8	38.8	37.7	36.6	35.6	35.6	35.6
70°	31.3	30.2	29.1	29.1	29.1	28.0	26.9	26.9
72.5°	22.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
75°	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
77.5°	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
80°	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
82.5°	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
85°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
87.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1
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)