

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: P640539

Luminaire Tested: ML5609LSWWD2W1E - 692W WW - 900LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P640539
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 - 2700K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM
Light Source: (1) D2W SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 658.3 lumens
Efficiency: N/A
Efficacy: 55.8 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

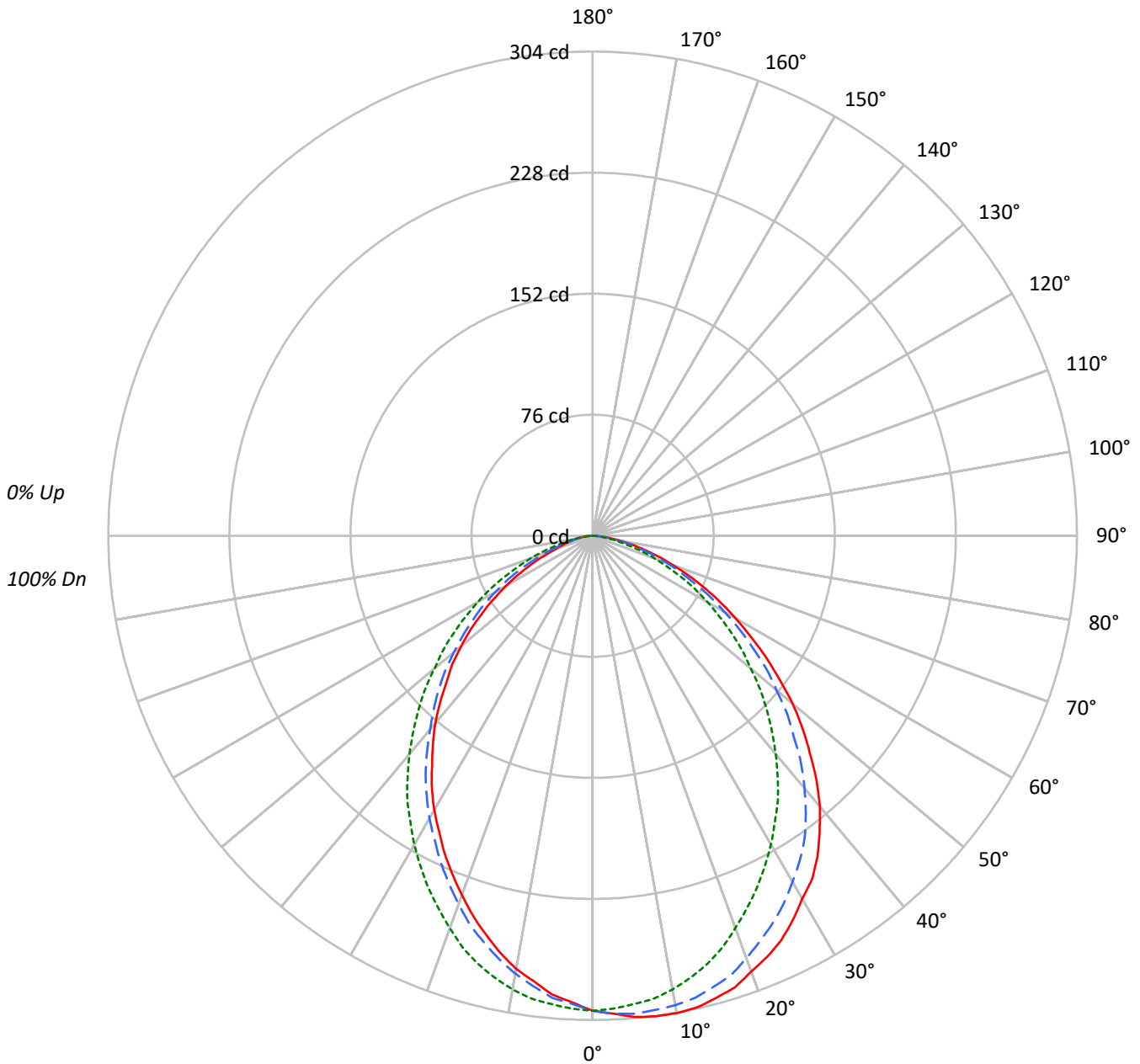
Input Watts (W): 11.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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°	16347	16347	16347	16347	16347
5°	16690	16580	16245	16025	15915
10°	16939	16655	16099	15542	15375
15°	17043	16640	15789	14989	14705
20°	16988	16463	15290	14351	14001
25°	16949	16217	14759	13664	13301
30°	16654	15889	14173	12970	12584
35°	16463	15526	13572	12234	11758
40°	15880	14806	12788	11357	10992
45°	14947	13854	11986	10590	10040
50°	13961	12844	11044	9680	9160
55°	12673	11708	10169	8736	8067
60°	11337	10460	9133	7708	6831
65°	10027	9119	7952	6512	5474
70°	8527	7886	6604	4985	4023
75°	7011	6375	4893	3410	3410
80°	5398	4767	3473	2841	3157
85°	3774	3145	2516	2516	2516

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 14947 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.0	4.3
10°-20°	78.5	11.9
20°-30°	113.6	17.3
30°-40°	129.0	19.6
40°-50°	121.8	18.5
50°-60°	96.0	14.6
60°-70°	60.1	9.1
70°-80°	26.0	3.9
80°-90°	5.3	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°	220.1	33.4
0°-40°	349.1	53.0
0°-60°	566.9	86.1
0°-90°	658.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	658.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	298	298	298	298	298	
5°	303	301	295	291	289	29
15°	300	293	278	264	259	85
25°	280	268	244	226	220	129
35°	246	232	203	183	176	153
45°	193	179	155	137	130	149
55°	133	122	106	91	84	119
65°	77	70	61	50	42	77
75°	33	30	23	16	16	36
85°	6	5	4	4	4	7
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°	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2
2.5°	300.3	300.3	301.3	301.3	300.3	300.3	300.3	300.3	300.3	300.3	300.3
5°	303.3	303.3	303.3	303.3	302.3	302.3	302.3	302.3	302.3	301.3	301.3
7.5°	304.3	304.3	304.3	304.3	303.3	303.3	302.3	302.3	302.3	301.3	300.3
10°	304.3	304.3	304.3	303.3	303.3	302.3	303.3	302.3	301.3	300.3	299.2
12.5°	303.3	302.3	302.3	302.3	301.3	301.3	301.3	300.3	299.2	298.2	297.2
15°	300.3	300.3	300.3	299.2	299.2	298.2	298.2	297.2	296.2	294.2	293.2
17.5°	297.2	297.2	296.2	296.2	295.2	294.2	294.2	293.2	292.2	290.2	289.2
20°	291.2	291.2	291.2	290.2	289.2	289.2	288.2	287.2	285.2	283.2	282.2
22.5°	286.2	285.2	285.2	284.2	283.2	283.2	282.2	280.2	279.2	277.2	275.1
25°	280.2	279.2	279.2	278.2	277.2	276.2	276.2	274.1	272.1	270.1	268.1
27.5°	272.1	272.1	271.1	270.1	269.1	269.1	268.1	267.1	264.1	262.1	260.1
30°	263.1	264.1	263.1	262.1	261.1	261.1	260.1	258.1	256.1	253.1	251.0
32.5°	256.1	256.1	255.1	254.1	252.1	252.1	252.1	249.0	247.0	245.0	242.0
35°	246.0	246.0	246.0	244.0	243.0	242.0	241.0	239.0	237.0	235.0	232.0
37.5°	234.0	235.0	234.0	233.0	232.0	231.0	230.0	228.0	224.9	222.9	219.9
40°	221.9	221.9	220.9	219.9	218.9	217.9	216.9	214.9	212.9	209.9	206.9
42.5°	207.9	207.9	206.9	205.9	204.9	203.9	203.9	201.8	198.8	196.8	193.8
45°	192.8	192.8	192.8	191.8	190.8	189.8	188.8	187.8	185.8	182.8	178.7
47.5°	178.7	178.7	178.7	176.7	176.7	174.7	173.7	171.7	170.7	167.7	165.7
50°	163.7	162.7	162.7	161.7	160.7	159.7	159.7	156.7	155.6	153.6	150.6
52.5°	147.6	147.6	147.6	146.6	145.6	144.6	144.6	142.6	140.6	138.6	137.6
55°	132.6	132.6	132.6	131.5	130.5	130.5	129.5	127.5	126.5	124.5	122.5
57.5°	117.5	118.5	117.5	116.5	116.5	115.5	115.5	114.5	112.5	110.5	109.5
60°	103.4	103.4	103.4	102.4	101.4	101.4	101.4	100.4	98.4	97.4	95.4
62.5°	90.4	90.4	89.4	89.4	88.4	88.4	87.4	86.4	85.4	84.4	83.3
65°	77.3	76.3	76.3	76.3	75.3	75.3	75.3	74.3	72.3	71.3	70.3
67.5°	65.3	65.3	64.3	64.3	63.3	63.3	63.3	62.3	61.3	60.3	59.2
70°	53.2	53.2	53.2	53.2	52.2	52.2	52.2	51.2	50.2	50.2	49.2
72.5°	43.2	43.2	43.2	43.2	42.2	42.2	42.2	41.2	40.2	39.2	39.2
75°	33.1	34.1	33.1	33.1	33.1	33.1	32.1	32.1	31.1	30.1	30.1
77.5°	25.1	25.1	25.1	25.1	24.1	24.1	24.1	24.1	23.1	22.1	22.1
80°	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	16.1	16.1	15.1
82.5°	10.0	11.0	11.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0
85°	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
87.5°	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2
2.5°	299.2	299.2	299.2	299.2	298.2	298.2	298.2	297.2	297.2	297.2	297.2
5°	300.3	299.2	299.2	298.2	298.2	298.2	297.2	297.2	296.2	295.2	295.2
7.5°	299.2	299.2	298.2	297.2	297.2	296.2	295.2	294.2	293.2	293.2	291.2
10°	298.2	297.2	296.2	295.2	294.2	294.2	292.2	291.2	290.2	289.2	288.2
12.5°	295.2	294.2	293.2	291.2	291.2	290.2	288.2	287.2	285.2	284.2	282.2
15°	291.2	290.2	289.2	287.2	286.2	285.2	283.2	281.2	279.2	278.2	276.2
17.5°	287.2	285.2	283.2	281.2	280.2	279.2	277.2	275.1	273.1	271.1	269.1
20°	280.2	278.2	276.2	273.1	272.1	271.1	268.1	266.1	264.1	262.1	260.1
22.5°	273.1	271.1	268.1	266.1	265.1	263.1	261.1	258.1	256.1	253.1	251.0
25°	266.1	263.1	260.1	258.1	256.1	255.1	252.1	250.0	246.0	244.0	242.0
27.5°	257.1	255.1	252.1	249.0	247.0	245.0	243.0	240.0	237.0	234.0	232.0
30°	248.0	245.0	242.0	240.0	237.0	236.0	233.0	230.0	226.9	223.9	221.9
32.5°	239.0	236.0	233.0	230.0	228.0	225.9	222.9	219.9	215.9	212.9	210.9
35°	229.0	225.9	221.9	218.9	216.9	214.9	211.9	208.9	205.9	202.8	199.8
37.5°	216.9	212.9	210.9	207.9	204.9	202.8	199.8	195.8	193.8	190.8	187.8
40°	203.9	200.8	197.8	194.8	191.8	190.8	186.8	183.8	181.8	178.7	175.7
42.5°	190.8	187.8	183.8	180.8	178.7	177.7	174.7	171.7	168.7	166.7	163.7
45°	176.7	173.7	170.7	167.7	165.7	164.7	161.7	159.7	156.7	154.6	151.6
47.5°	162.7	159.7	157.7	154.6	152.6	151.6	149.6	146.6	143.6	142.6	140.6
50°	148.6	145.6	143.6	140.6	139.6	138.6	136.6	134.6	132.6	129.5	128.5
52.5°	134.6	131.5	129.5	127.5	127.5	125.5	123.5	122.5	120.5	118.5	116.5
55°	120.5	119.5	117.5	114.5	114.5	113.5	111.5	109.5	107.4	106.4	104.4
57.5°	106.4	105.4	103.4	102.4	101.4	100.4	99.4	97.4	96.4	94.4	93.4
60°	94.4	93.4	91.4	90.4	89.4	88.4	87.4	85.4	84.4	83.3	82.3
62.5°	81.3	80.3	79.3	78.3	77.3	76.3	76.3	74.3	73.3	72.3	71.3
65°	70.3	68.3	67.3	66.3	66.3	65.3	64.3	63.3	62.3	61.3	60.3
67.5°	58.2	57.2	57.2	55.2	55.2	54.2	53.2	53.2	51.2	50.2	49.2
70°	48.2	47.2	46.2	45.2	45.2	44.2	43.2	42.2	41.2	41.2	40.2
72.5°	38.2	37.2	37.2	36.2	35.1	35.1	34.1	33.1	32.1	32.1	31.1
75°	29.1	28.1	28.1	27.1	27.1	26.1	25.1	25.1	24.1	23.1	22.1
77.5°	21.1	21.1	20.1	20.1	19.1	19.1	18.1	18.1	17.1	16.1	16.1
80°	15.1	14.1	14.1	13.1	13.1	13.1	12.1	12.1	11.0	11.0	10.0
82.5°	9.0	9.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	6.0
85°	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2
2.5°	296.2	296.2	295.2	296.2	295.2	295.2	295.2	295.2	294.2	294.2	294.2
5°	294.2	293.2	293.2	292.2	293.2	292.2	291.2	291.2	291.2	291.2	290.2
7.5°	290.2	290.2	289.2	288.2	288.2	287.2	286.2	286.2	285.2	285.2	284.2
10°	287.2	285.2	284.2	283.2	283.2	282.2	281.2	280.2	279.2	278.2	278.2
12.5°	280.2	279.2	278.2	277.2	277.2	275.1	274.1	273.1	272.1	271.1	270.1
15°	275.1	273.1	271.1	270.1	270.1	268.1	267.1	266.1	264.1	264.1	262.1
17.5°	267.1	265.1	263.1	262.1	261.1	260.1	259.1	257.1	256.1	254.1	254.1
20°	257.1	256.1	253.1	252.1	251.0	250.0	248.0	247.0	246.0	244.0	243.0
22.5°	249.0	246.0	244.0	243.0	243.0	240.0	239.0	237.0	236.0	235.0	233.0
25°	239.0	237.0	235.0	233.0	233.0	231.0	230.0	228.0	225.9	224.9	223.9
27.5°	229.0	226.9	223.9	222.9	221.9	220.9	218.9	216.9	214.9	213.9	212.9
30°	217.9	215.9	213.9	212.9	210.9	208.9	206.9	205.9	204.9	202.8	201.8
32.5°	207.9	204.9	202.8	200.8	200.8	197.8	196.8	194.8	193.8	192.8	190.8
35°	196.8	193.8	191.8	190.8	189.8	186.8	184.8	182.8	182.8	180.8	179.8
37.5°	184.8	181.8	180.8	178.7	177.7	175.7	173.7	172.7	170.7	168.7	168.7
40°	173.7	170.7	167.7	167.7	165.7	164.7	161.7	160.7	158.7	157.7	156.7
42.5°	161.7	158.7	156.7	155.6	154.6	152.6	150.6	148.6	147.6	146.6	145.6
45°	148.6	146.6	145.6	143.6	142.6	140.6	139.6	137.6	136.6	134.6	133.6
47.5°	137.6	135.6	133.6	132.6	131.5	129.5	128.5	126.5	125.5	123.5	122.5
50°	126.5	124.5	122.5	121.5	120.5	118.5	116.5	115.5	113.5	112.5	110.5
52.5°	114.5	112.5	110.5	110.5	109.5	107.4	106.4	104.4	102.4	100.4	99.4
55°	103.4	101.4	99.4	98.4	98.4	96.4	94.4	93.4	91.4	90.4	88.4
57.5°	91.4	89.4	88.4	87.4	87.4	85.4	84.4	82.3	81.3	79.3	78.3
60°	80.3	79.3	77.3	77.3	76.3	74.3	73.3	71.3	70.3	69.3	68.3
62.5°	69.3	68.3	66.3	66.3	65.3	64.3	63.3	61.3	60.3	58.2	57.2
65°	58.2	57.2	56.2	55.2	55.2	53.2	52.2	51.2	50.2	49.2	48.2
67.5°	48.2	47.2	46.2	46.2	45.2	44.2	42.2	41.2	40.2	39.2	38.2
70°	39.2	37.2	36.2	36.2	35.1	34.1	33.1	32.1	31.1	30.1	29.1
72.5°	30.1	28.1	28.1	27.1	26.1	25.1	25.1	24.1	23.1	23.1	21.1
75°	22.1	21.1	20.1	20.1	19.1	18.1	17.1	17.1	16.1	16.1	16.1
77.5°	15.1	14.1	14.1	13.1	13.1	13.1	12.1	12.1	12.1	12.1	13.1
80°	10.0	10.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.0	10.0
82.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0
85°	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
87.5°	1.0	1.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
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: P640539

CATALOG NUMBER: ML5609LSWWD2W1E - 692W WW - 900LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	298.2	298.2	298.2	298.2	298.2	298.2	298.2	298.2
2.5°	293.2	294.2	294.2	293.2	294.2	293.2	293.2	293.2
5°	290.2	289.2	289.2	289.2	288.2	289.2	289.2	289.2
7.5°	284.2	284.2	283.2	283.2	282.2	282.2	283.2	282.2
10°	277.2	276.2	277.2	276.2	276.2	276.2	275.1	276.2
12.5°	270.1	269.1	269.1	268.1	268.1	268.1	268.1	268.1
15°	262.1	261.1	261.1	260.1	260.1	259.1	260.1	259.1
17.5°	253.1	253.1	251.0	251.0	251.0	251.0	251.0	250.0
20°	242.0	242.0	241.0	242.0	240.0	240.0	240.0	240.0
22.5°	233.0	232.0	231.0	231.0	231.0	230.0	230.0	230.0
25°	221.9	221.9	220.9	220.9	219.9	219.9	219.9	219.9
27.5°	211.9	210.9	210.9	210.9	209.9	208.9	208.9	208.9
30°	200.8	200.8	199.8	199.8	198.8	198.8	198.8	198.8
32.5°	189.8	189.8	188.8	187.8	187.8	187.8	186.8	187.8
35°	178.7	177.7	177.7	176.7	176.7	176.7	175.7	175.7
37.5°	167.7	166.7	165.7	166.7	165.7	164.7	164.7	164.7
40°	155.6	154.6	154.6	153.6	153.6	153.6	152.6	153.6
42.5°	144.6	144.6	143.6	142.6	142.6	142.6	141.6	141.6
45°	133.6	131.5	132.6	131.5	131.5	130.5	130.5	129.5
47.5°	121.5	120.5	120.5	120.5	119.5	119.5	119.5	119.5
50°	109.5	108.5	109.5	108.5	108.5	107.4	107.4	107.4
52.5°	98.4	97.4	97.4	97.4	97.4	96.4	96.4	96.4
55°	87.4	86.4	86.4	86.4	85.4	85.4	84.4	84.4
57.5°	77.3	76.3	75.3	74.3	74.3	74.3	73.3	73.3
60°	66.3	65.3	64.3	64.3	63.3	63.3	63.3	62.3
62.5°	56.2	55.2	54.2	54.2	53.2	52.2	52.2	52.2
65°	46.2	45.2	45.2	44.2	43.2	43.2	42.2	42.2
67.5°	37.2	36.2	36.2	35.1	34.1	33.1	33.1	33.1
70°	29.1	28.1	27.1	27.1	27.1	26.1	25.1	25.1
72.5°	21.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1
75°	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
77.5°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
80°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
82.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
85°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
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Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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(END OF REPORT)