

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P226630

Luminaire Tested: **ISW-AF-450-LED-E1-T4W-ULG**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P226630
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35944)-DOWNLIGHT AND
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISW-AF-450-LED-E1-T4W-ULG
Description: IMPACT ELITE LED WEDGE LUMINAIRE WITH UPLIGHT
LIGHT SQUARE WITH ACCULED OPTICS-TYPE IV WIDE, WITH UPLIGHT GLOW
Light Source: (16) 4000K CCT, 70 CRI LEDs and (1) UPLIGHT LED
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4989 lumens
Efficiency: N/A
Efficacy: 118.8 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.5' x L: 0.5' x H: 0.54')
IES Classification: Type IV - Medium - Non-Cutoff
BUG Rating: B1 - U5 - G1

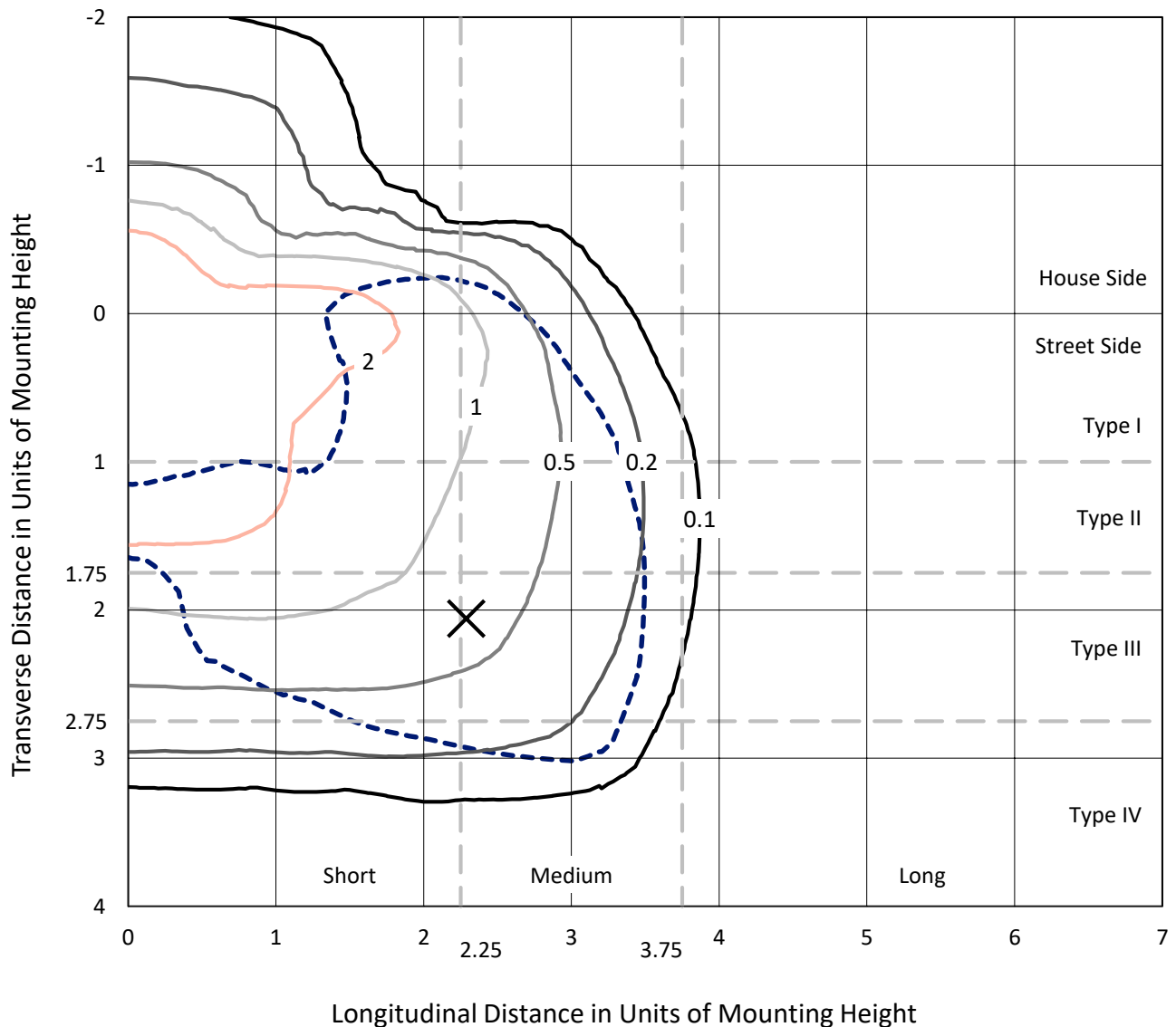
Input Watts (W): 42.01
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

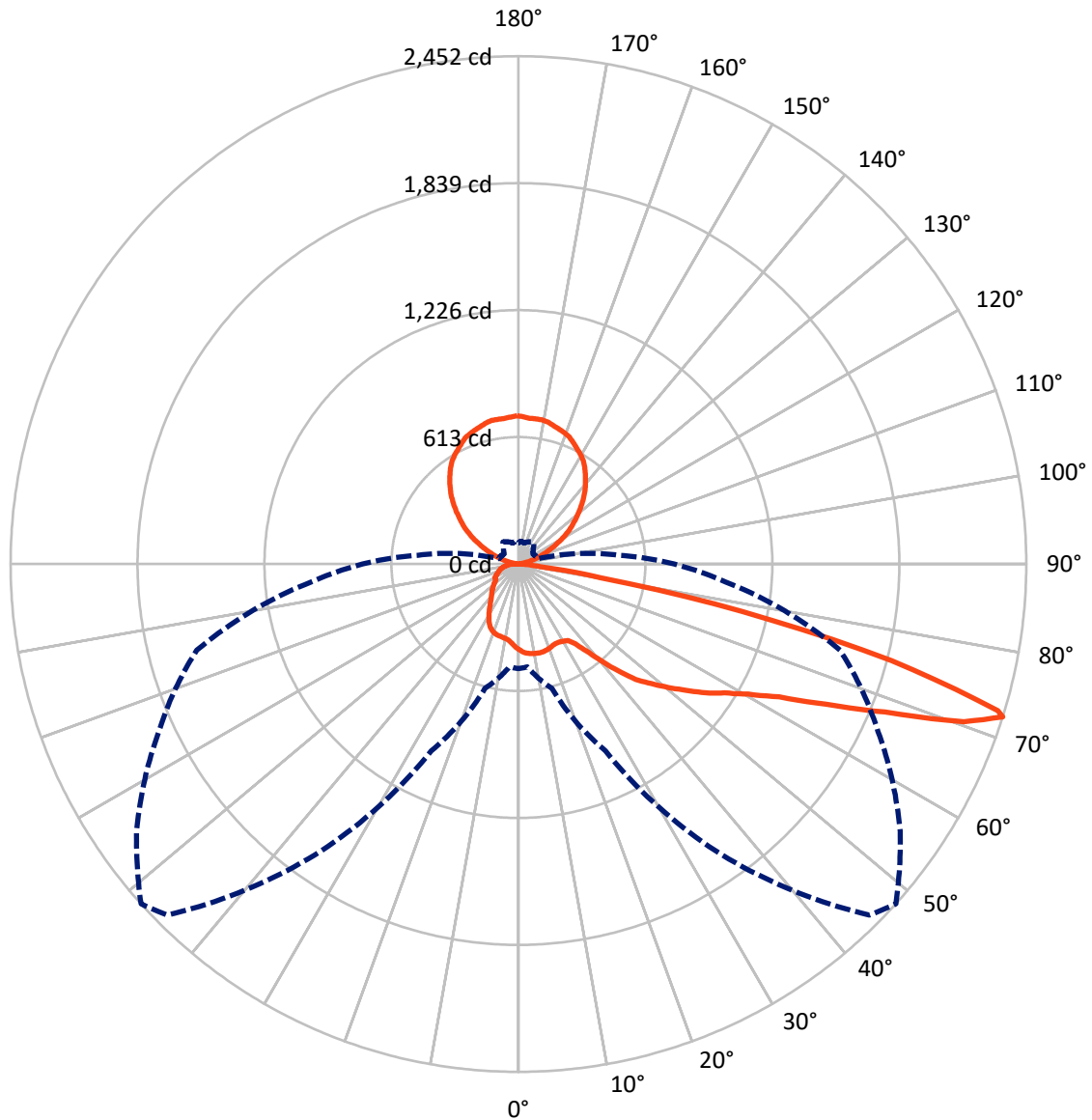
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.6 fc
 Type IV - Medium - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 48-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

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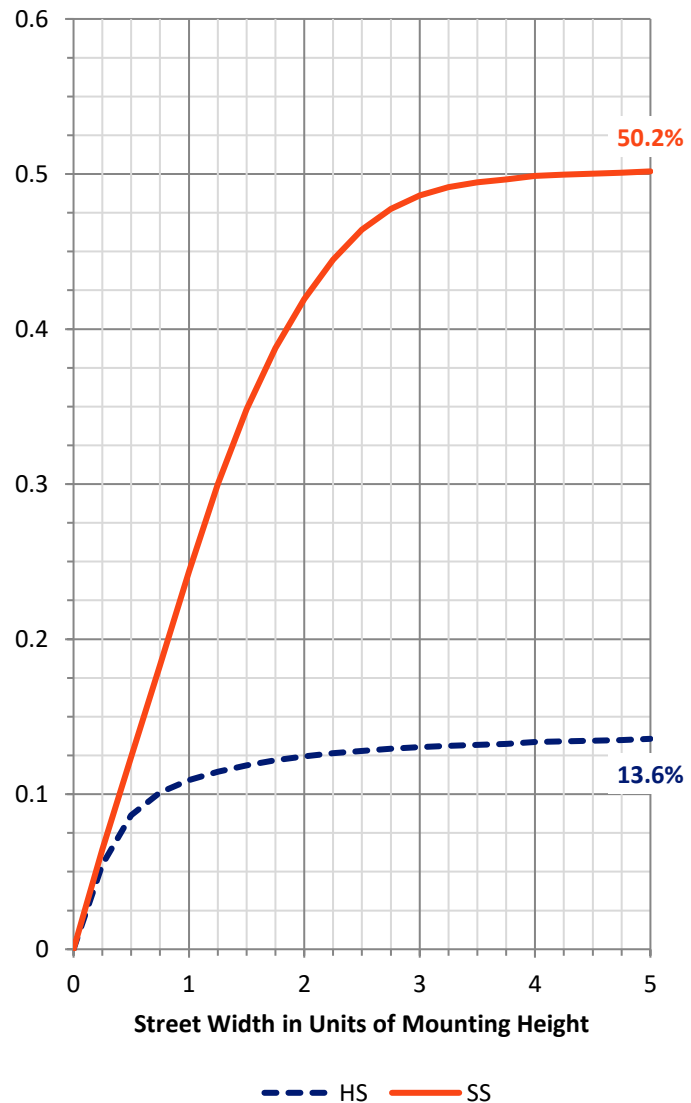
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	698.4	888.9	1587.3
	% Fixture	14.0	17.8	31.8
Street Side	Lumens	2513.7	888.0	3401.7
	% Fixture	50.4	17.8	68.2
Total	Lumens	3212.1	1776.9	4989.0
	% Fixture	64.4	35.6	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.1	0.8
10°-20°	114.2	2.3
20°-30°	176.0	3.5
30°-40°	263.9	5.3
40°-50°	439.4	8.8
50°-60°	686.7	13.8
60°-70°	907.0	18.2
70°-80°	524.7	10.5
80°-90°	61.2	1.2
90°-100°	11.4	0.2
100°-110°	58.7	1.2
110°-120°	169.9	3.4
120°-130°	279.4	5.6
130°-140°	344.6	6.9
140°-150°	352.5	7.1
150°-160°	297.0	6.0
160°-170°	195.5	3.9
170°-180°	67.8	1.4
0°-90°	3212.1	64.4
0°-180°	4989.0	100.0



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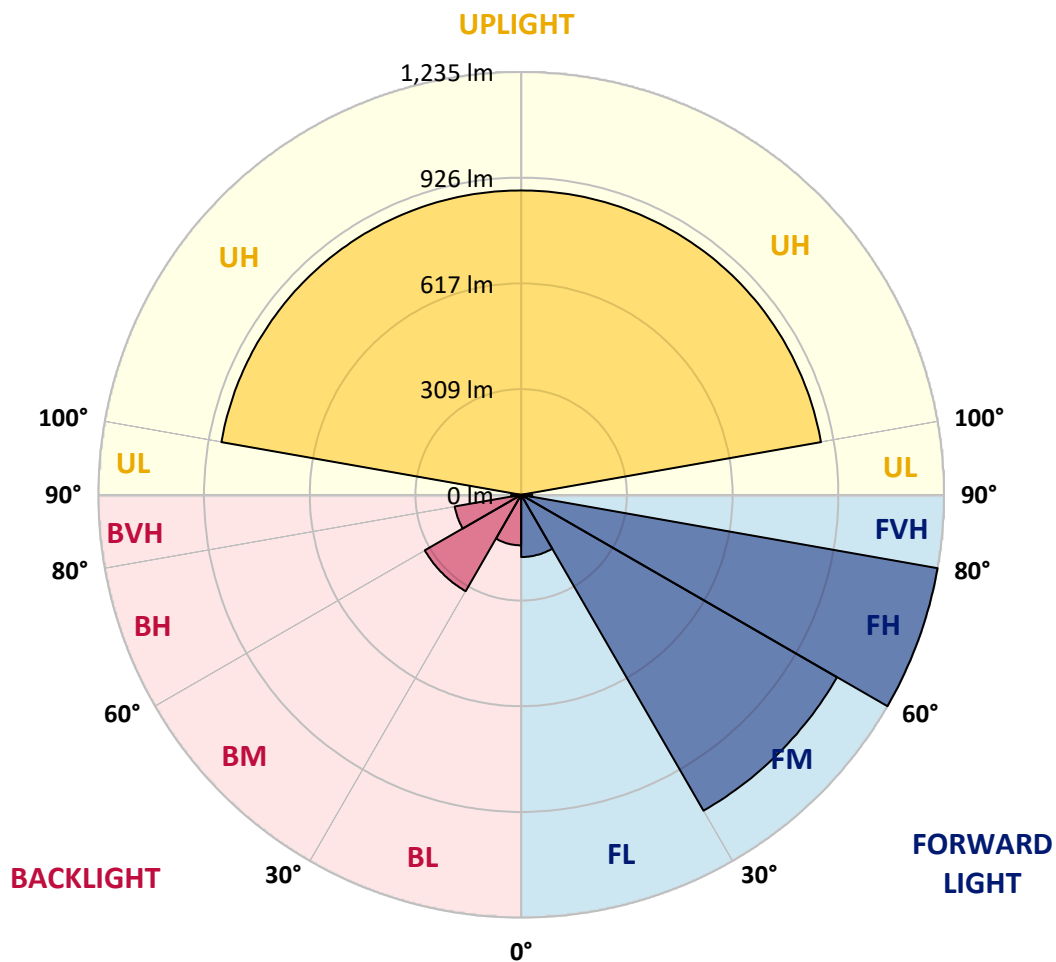
CATALOG NUMBER: ISW-AF-450-LED-E1-T4W-ULG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	181.7	3.6			
FM	(30°-60°)	1065.2	21.4			
FH	(60°-80°)	1234.8	24.7			G1/1800
FVH	(80°-90°)	32.1	0.6			G1/100
BL	(0°-30°)	147.6	3.0	B1/500		
BM	(30°-60°)	324.7	6.5	B1/1000		
BH	(60°-80°)	196.9	3.9	B1/500		G1/500
BVH	(80°-90°)	29.1	0.6			G1/100
UL	(90°-100°)	11.4	0.2		U2/50	
UH	(100°-180°)	888.9	17.8		U4/1000	

BUG Rating: B1-U5-G1

Type IV Medium





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	48°	55°	65°	75°	85°
0°	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4
2.5°	435.3	434.8	434.8	431.1	429.6	427.3	425.4	422.7	419.8	416.6	412.5
5°	456.2	457.6	455.7	450.2	443.1	435.7	432.9	426.4	417.6	409.6	402.1
7.5°	476.3	476.7	471.6	462.3	451.5	439.9	436.2	427.3	417.6	406.8	396.1
10°	490.7	491.1	483.8	470.7	456.2	443.1	438.9	430.2	418.0	406.3	392.8
12.5°	499.1	499.5	488.4	474.9	457.6	444.6	440.8	431.5	418.9	404.1	389.1
15°	497.7	499.1	489.8	474.9	456.6	445.0	440.4	432.4	416.6	401.7	385.9
17.5°	488.4	490.2	482.7	466.5	452.0	442.7	437.6	429.6	414.3	398.4	381.2
20°	470.1	472.5	469.2	453.4	443.7	436.2	432.9	425.4	411.0	394.7	377.0
22.5°	449.7	452.0	451.1	438.0	433.4	429.6	426.4	420.8	408.3	391.9	375.1
25°	434.8	436.6	435.3	424.0	425.4	425.4	423.6	419.4	407.7	392.8	375.1
27.5°	459.5	459.5	447.3	424.5	422.2	426.4	425.4	423.1	413.8	397.5	378.9
30°	549.8	542.9	521.0	463.7	434.3	432.4	432.0	430.6	422.2	407.7	390.5
32.5°	651.0	644.0	617.9	546.2	485.1	445.0	440.8	441.3	438.9	425.4	408.3
35°	740.9	740.0	719.5	641.7	563.9	489.3	472.5	461.4	460.4	454.8	441.3
37.5°	813.7	813.7	815.5	726.9	649.2	559.7	531.2	495.8	495.8	492.6	484.2
40°	896.6	900.3	904.5	804.3	740.5	643.5	611.4	557.8	541.4	546.6	548.5
42.5°	1005.7	1010.3	1007.5	899.8	823.9	743.7	704.1	639.3	599.2	607.6	627.3
45°	1079.2	1081.2	1101.1	999.5	928.7	828.5	795.0	705.9	666.4	683.6	718.1
47.5°	1162.7	1167.3	1170.6	1112.8	1051.8	924.5	863.1	770.8	745.1	771.2	825.7
50°	1244.2	1238.2	1247.0	1244.6	1168.2	1009.9	936.6	831.4	833.2	868.6	958.1
52.5°	1315.0	1294.5	1315.0	1340.7	1318.3	1097.4	1012.1	902.7	929.7	973.0	1114.2
55°	1369.5	1320.1	1354.7	1427.3	1422.2	1174.8	1098.3	997.7	1042.9	1102.1	1303.9
57.5°	1258.2	1264.3	1359.3	1485.6	1483.3	1253.0	1173.8	1116.6	1172.0	1238.2	1528.5
60°	1154.3	1181.3	1328.1	1494.9	1525.6	1338.3	1275.4	1251.7	1302.9	1383.5	1743.7
62.5°	1099.3	1124.9	1277.3	1477.7	1593.2	1464.7	1412.0	1393.8	1463.6	1554.1	1935.7
65°	1116.6	1132.4	1274.0	1503.7	1671.1	1655.6	1632.8	1602.6	1637.5	1722.3	2022.4
67.5°	1068.1	1094.1	1247.0	1549.9	1813.2	1888.7	1907.8	1875.2	1845.8	1834.2	1896.1
70°	795.0	820.1	980.5	1359.3	1929.7	2293.1	2281.5	2172.4	1974.9	1809.9	1481.4
72°	505.1	498.2	620.7	995.8	1715.3	2397.1	2452.0	2250.3	1916.2	1607.3	1006.1
72.5°	367.2	400.3	515.0	885.4	1629.6	2340.2	2420.4	2225.1	1839.3	1518.2	885.0
75°	89.5	94.6	123.5	317.3	954.3	1761.0	1861.7	1719.1	1342.5	901.2	392.4
77.5°	60.6	62.9	81.5	111.8	280.5	1004.2	1104.9	949.2	600.7	306.6	174.7
80°	45.2	46.6	59.2	79.2	116.5	342.5	404.1	321.1	149.6	170.1	124.4
82.5°	31.7	32.6	44.7	58.2	77.3	80.2	106.7	117.9	97.0	111.4	72.7
85°	21.9	21.9	32.6	40.1	48.9	39.6	42.5	59.2	65.7	66.2	44.3
87.5°	11.7	13.1	19.1	25.7	25.7	18.2	20.0	30.3	36.8	39.6	26.6
90°	9.3	9.3	15.0	18.0	14.2	11.9	11.4	13.2	18.1	21.8	15.5
92.5°	4.1	4.1	5.1	6.1	6.1	6.1	6.4	7.2	7.2	6.1	6.1
95°	5.1	5.1	6.1	7.2	7.2	7.2	7.2	7.2	8.2	7.2	7.2
97.5°	7.2	7.2	8.2	8.2	9.2	9.2	10.1	12.3	10.2	9.2	8.2
100°	8.2	8.2	9.2	10.2	12.3	21.5	23.9	29.7	26.6	23.5	19.4
102.5°	11.3	11.3	13.3	18.4	27.6	40.9	44.0	51.1	48.1	43.0	39.9
105°	21.5	22.5	27.6	36.8	49.1	64.4	67.2	73.7	71.6	66.5	62.4
107.5°	41.9	43.0	50.1	59.3	74.7	90.0	92.2	97.2	96.2	92.1	89.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	48°	55°	65°	75°	85°
110°	67.5	69.6	75.7	89.0	104.3	116.6	118.5	122.8	123.8	121.7	118.7
112.5°	101.3	101.3	108.4	123.8	137.1	146.3	147.8	151.4	153.4	152.4	150.4
115°	143.2	142.2	150.4	162.6	171.9	178.0	179.5	183.1	186.2	183.1	181.1
117.5°	188.2	188.2	193.3	201.5	206.6	209.7	211.5	215.8	219.9	214.8	212.8
120°	230.2	228.1	231.2	238.3	242.4	248.6	249.5	251.6	255.7	250.6	248.6
122.5°	269.0	266.0	267.0	273.1	277.2	283.4	284.0	285.4	289.5	284.4	282.3
125°	304.8	300.7	302.8	305.9	312.0	317.1	318.0	320.2	322.2	317.1	317.1
127.5°	337.6	336.6	336.6	340.6	346.8	347.8	349.3	352.9	353.9	353.9	352.9
130°	371.3	369.3	370.3	374.4	378.5	380.5	382.1	385.7	389.7	389.7	387.7
132.5°	405.1	403.0	402.0	410.2	413.3	414.3	416.1	420.4	425.5	423.5	423.5
135°	438.8	435.8	435.8	441.9	445.0	447.0	448.9	453.2	458.3	457.3	460.3
137.5°	470.6	467.5	469.5	470.6	474.6	478.7	480.3	483.9	485.9	486.9	492.0
140°	499.2	496.1	498.2	500.2	502.3	508.4	509.3	511.5	513.5	515.6	520.7
142.5°	529.9	526.8	528.9	529.9	533.0	537.0	537.7	539.1	545.2	545.2	546.3
145°	562.6	558.5	556.5	559.6	562.6	563.6	565.2	568.8	574.9	573.9	570.8
147.5°	588.2	585.1	584.1	587.2	587.2	588.2	589.7	593.3	598.4	599.4	596.4
150°	608.7	605.6	606.6	606.6	606.6	606.6	607.8	610.7	613.8	616.8	619.9
152.5°	625.0	622.0	622.0	623.0	624.0	624.0	624.3	625.0	628.1	632.2	637.3
155°	643.4	639.3	639.3	641.4	644.5	642.4	641.8	640.4	645.5	650.6	652.6
157.5°	660.8	657.8	657.8	658.8	660.8	659.8	659.5	658.8	662.9	664.9	664.9
160°	678.2	675.1	674.1	671.1	670.0	670.0	671.0	673.1	679.2	676.2	675.1
162.5°	688.4	684.4	684.4	680.3	676.2	678.2	679.4	682.3	686.4	685.4	683.3
165°	696.6	693.6	691.5	691.5	688.4	688.4	688.1	687.4	692.5	695.6	693.6
167.5°	705.8	702.8	699.7	701.7	703.8	700.7	698.6	693.6	699.7	703.8	703.8
170°	714.0	711.0	707.9	707.9	708.9	706.9	705.3	701.7	704.8	709.9	712.0
172.5°	715.0	713.0	711.0	708.9	705.8	705.8	705.5	704.8	707.9	709.9	712.0
175°	716.1	714.0	713.0	711.0	706.9	705.8	705.8	705.8	711.0	712.0	709.9
177.5°	723.2	721.2	716.1	715.0	713.0	711.0	710.6	709.9	715.0	717.1	714.0
180°	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4	413.4
2.5°	411.4	408.7	405.0	403.0	402.1	400.3	398.4	397.5	397.5	395.7	396.1
5°	398.4	394.2	389.1	385.3	384.9	384.9	385.9	385.9	386.3	384.9	386.8
7.5°	391.9	387.3	379.8	375.6	372.4	371.8	373.7	377.5	379.3	377.9	379.8
10°	387.3	382.1	373.7	368.6	366.3	365.3	366.7	370.5	376.5	376.5	378.4
12.5°	382.6	376.0	367.6	364.0	362.1	362.5	364.4	367.2	373.7	376.0	377.0
15°	377.9	370.5	363.5	358.3	358.3	359.8	362.1	365.3	371.4	375.6	376.5
17.5°	373.3	365.8	359.8	355.6	355.6	357.4	359.8	364.0	368.2	374.2	374.2
20°	369.1	363.0	355.1	351.4	350.9	352.3	355.1	359.3	362.5	368.6	369.1
22.5°	366.7	359.3	351.8	346.3	343.9	343.0	345.8	350.0	353.2	359.3	360.2
25°	365.8	357.4	348.1	337.9	331.7	329.9	331.3	336.4	339.2	343.9	345.3
27.5°	369.1	361.1	346.7	328.1	315.5	310.4	311.8	315.0	316.0	321.1	323.4
30°	380.2	370.9	349.5	317.8	295.0	285.6	285.6	286.1	287.6	291.7	292.2
32.5°	398.4	389.5	357.9	307.1	274.0	261.0	257.7	255.3	255.3	254.9	255.3
35°	432.0	424.5	372.4	295.0	251.1	236.7	228.8	224.6	220.4	218.5	218.1
37.5°	480.5	473.9	392.8	281.0	231.1	216.7	206.9	198.6	193.8	193.3	195.7
40°	552.7	546.2	415.6	265.1	212.1	201.3	191.1	182.2	177.1	177.6	179.8
42.5°	641.7	621.6	440.4	243.7	196.6	191.1	179.8	172.4	167.3	164.5	164.0
45°	745.6	712.1	463.7	223.7	179.8	182.2	171.4	163.1	156.6	149.1	148.2
47.5°	875.1	802.4	484.2	203.7	161.7	172.9	162.6	154.7	145.0	136.1	134.7
50°	1010.3	906.3	501.9	182.2	145.4	162.6	153.7	143.1	129.5	121.6	121.6
52.5°	1166.4	1031.2	524.7	158.5	132.8	151.5	142.6	128.6	117.4	116.5	116.5
55°	1340.2	1162.2	540.5	139.8	123.1	139.3	135.1	130.9	127.3	128.2	128.6
57.5°	1521.9	1298.7	526.6	126.7	115.1	136.6	148.6	143.1	131.4	130.9	130.5
60°	1678.6	1405.0	449.2	118.4	109.0	141.2	159.4	143.1	131.4	137.5	137.9
62.5°	1781.1	1455.4	299.2	107.6	100.1	133.3	155.7	138.9	131.9	149.1	150.5
65°	1767.0	1398.9	172.0	100.1	94.6	122.5	150.5	133.7	123.1	132.8	130.0
67.5°	1558.8	1172.4	124.4	97.0	90.4	115.1	141.2	126.3	114.7	126.7	121.6
70°	1120.2	798.2	107.2	94.1	87.6	106.3	134.7	121.6	110.0	118.4	110.5
72°	751.7	485.6	98.3	91.8	84.8	100.7	130.0	117.9	105.8	110.5	101.6
72.5°	639.9	383.1	96.0	90.8	83.9	99.2	128.6	116.9	104.9	109.6	101.2
75°	239.1	150.1	85.3	83.9	77.3	92.3	123.1	112.7	100.1	98.8	95.0
77.5°	123.1	95.0	72.7	74.1	69.5	84.4	116.9	106.3	92.3	87.2	85.3
80°	89.5	68.9	58.7	62.9	59.2	76.0	108.5	96.5	83.9	78.3	76.0
82.5°	56.4	42.9	44.7	49.8	50.3	67.1	98.8	86.6	74.6	69.9	66.2
85°	27.0	25.7	31.7	36.8	40.5	56.9	90.4	76.9	65.3	56.0	56.4
87.5°	14.4	19.5	19.1	24.7	31.2	46.6	80.2	62.9	52.2	41.9	42.5
90°	10.4	12.3	14.8	19.0	19.7	27.2	59.9	44.1	42.1	20.0	18.2
92.5°	6.1	6.1	6.1	7.2	7.2	6.1	6.1	6.1	5.1	4.1	4.1
95°	7.2	7.2	7.2	8.2	7.2	7.2	7.2	7.2	6.1	5.1	5.1
97.5°	8.2	8.2	9.2	10.2	12.3	9.2	9.2	8.2	8.2	7.2	7.2
100°	19.4	19.4	23.5	26.6	29.7	21.5	12.3	10.2	9.2	8.2	8.2
102.5°	38.9	39.9	43.0	48.1	51.1	40.9	27.6	18.4	13.3	11.3	11.3
105°	62.4	62.4	66.5	71.6	73.7	64.4	49.1	36.8	27.6	22.5	21.5
107.5°	88.0	89.0	92.1	96.2	97.2	90.0	74.7	59.3	50.1	43.0	41.9



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CATALOG NUMBER: ISW-AF-450-LED-E1-T4W-ULG

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
110°	119.7	118.7	121.7	123.8	122.8	116.6	104.3	89.0	75.7	69.6	67.5
112.5°	150.4	150.4	152.4	153.4	151.4	146.3	137.1	123.8	108.4	101.3	101.3
115°	182.1	181.1	183.1	186.2	183.1	178.0	171.9	162.6	150.4	142.2	143.2
117.5°	213.8	212.8	214.8	219.9	215.8	209.7	206.6	201.5	193.3	188.2	188.2
120°	248.6	248.6	250.6	255.7	251.6	248.6	242.4	238.3	231.2	228.1	230.2
122.5°	283.4	282.3	284.4	289.5	285.4	283.4	277.2	273.1	267.0	266.0	269.0
125°	317.1	317.1	317.1	322.2	320.2	317.1	312.0	305.9	302.8	300.7	304.8
127.5°	355.0	352.9	353.9	353.9	352.9	347.8	346.8	340.6	336.6	336.6	337.6
130°	388.7	387.7	389.7	389.7	385.7	380.5	378.5	374.4	370.3	369.3	371.3
132.5°	424.5	423.5	423.5	425.5	420.4	414.3	413.3	410.2	402.0	403.0	405.1
135°	461.4	460.3	457.3	458.3	453.2	447.0	445.0	441.9	435.8	435.8	438.8
137.5°	493.1	492.0	486.9	485.9	483.9	478.7	474.6	470.6	469.5	467.5	470.6
140°	522.7	520.7	515.6	513.5	511.5	508.4	502.3	500.2	498.2	496.1	499.2
142.5°	548.3	546.3	545.2	545.2	539.1	537.0	533.0	529.9	528.9	526.8	529.9
145°	572.9	570.8	573.9	574.9	568.8	563.6	562.6	559.6	556.5	558.5	562.6
147.5°	598.4	596.4	599.4	598.4	593.3	588.2	587.2	587.2	584.1	585.1	588.2
150°	624.0	619.9	616.8	613.8	610.7	606.6	606.6	606.6	606.6	605.6	608.7
152.5°	642.4	637.3	632.2	628.1	625.0	624.0	624.0	623.0	622.0	622.0	625.0
155°	655.7	652.6	650.6	645.5	640.4	642.4	644.5	641.4	639.3	639.3	643.4
157.5°	670.0	664.9	664.9	662.9	658.8	659.8	660.8	658.8	657.8	657.8	660.8
160°	681.3	675.1	676.2	679.2	673.1	670.0	670.0	671.1	674.1	675.1	678.2
162.5°	689.5	683.3	685.4	686.4	682.3	678.2	676.2	680.3	684.4	684.4	688.4
165°	697.7	693.6	695.6	692.5	687.4	688.4	688.4	691.5	691.5	693.6	696.6
167.5°	709.9	703.8	703.8	699.7	693.6	700.7	703.8	701.7	699.7	702.8	705.8
170°	717.1	712.0	709.9	704.8	701.7	706.9	708.9	707.9	707.9	711.0	714.0
172.5°	717.1	712.0	709.9	707.9	704.8	705.8	705.8	708.9	711.0	713.0	715.0
175°	715.0	709.9	712.0	711.0	705.8	705.8	706.9	711.0	713.0	714.0	716.1
177.5°	718.1	714.0	717.1	715.0	709.9	711.0	713.0	715.0	716.1	721.2	723.2
180°	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1

(END OF REPORT)