

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: P227930

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P227930
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29757)-DOWNLIGHT AND
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISS-AF-450-LED-E1-T4W-ULG
Description: IMPACT ELITE LED QUATER SPHERE 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: 4523.6 lumens
Efficiency: N/A
Efficacy: 107.7 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

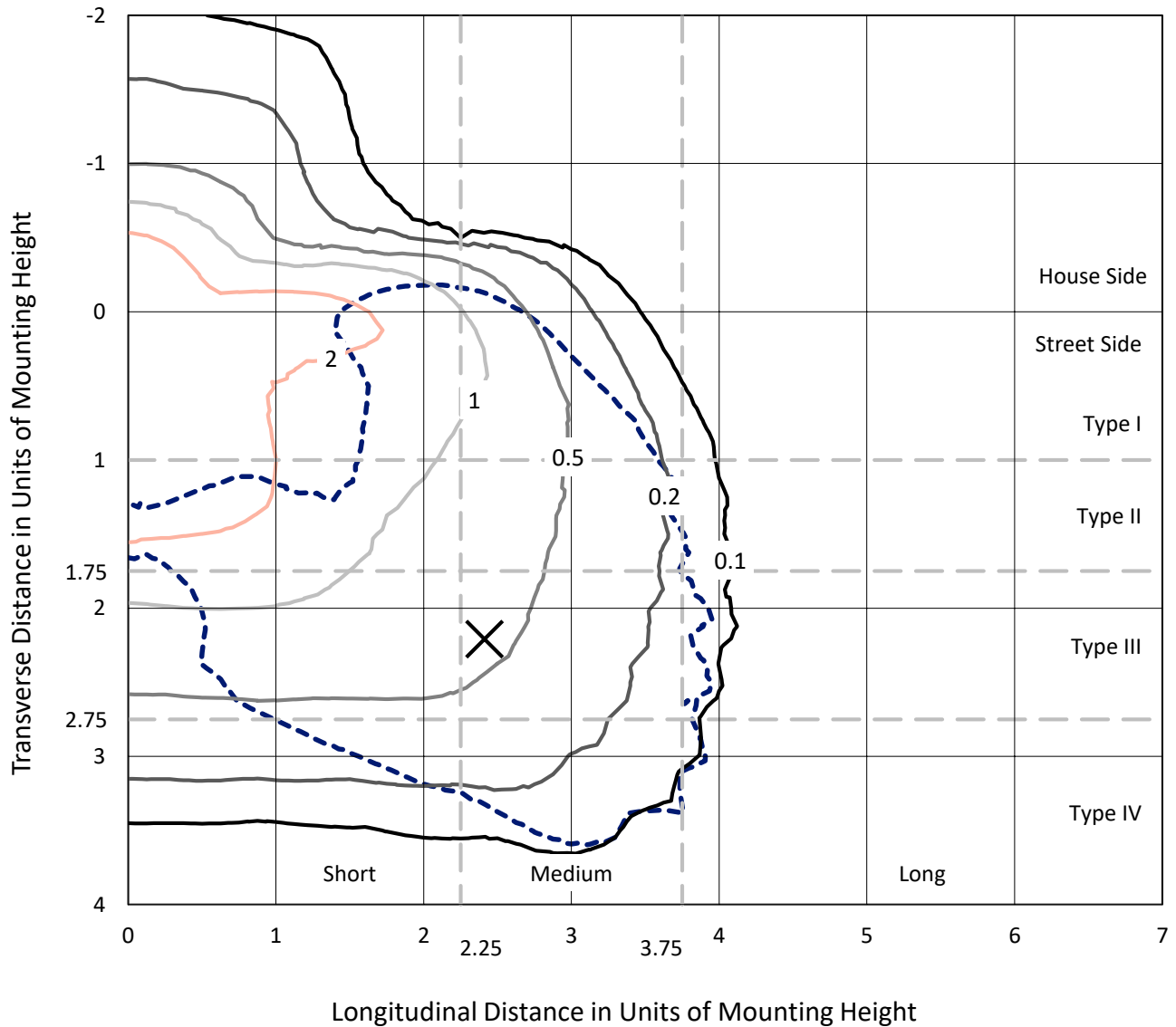
Input Watts (W): 42.01
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P227930
 CATALOG NUMBER: ISS-AF-450-LED-E1-T4W-ULG

Iso-Footcandle Lines of Horizontal Illumination

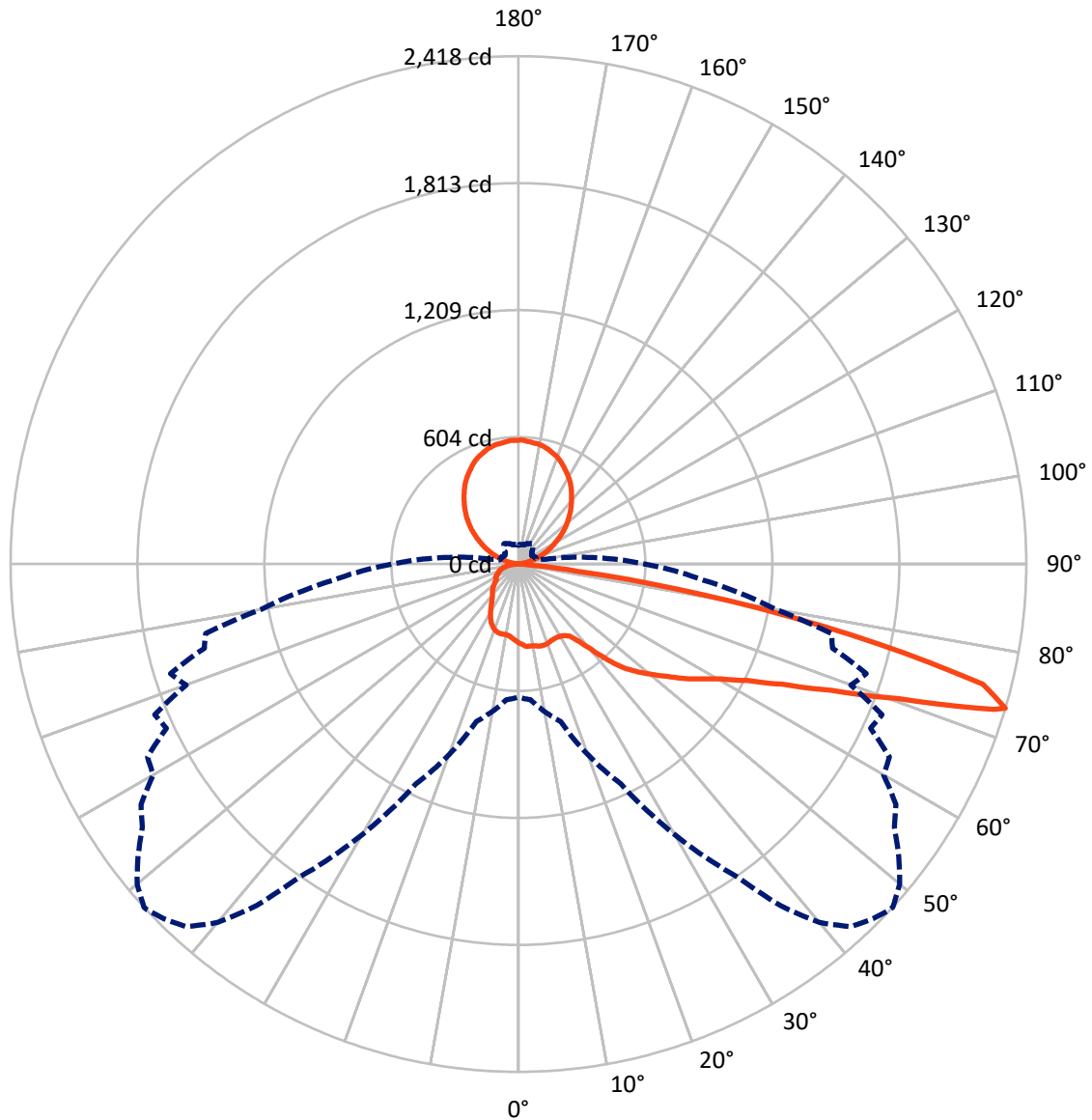
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.4 fc
 Type IV - Medium - Non-Cutoff

REPORT NUMBER: P227930
CATALOG NUMBER: ISS-AF-450-LED-E1-T4W-ULG

Luminous Intensity Polar Plot



— Vertical Plane Through 47.5-Deg Lateral - - - Horizontal Cone Through 73-Deg Vertical

REPORT NUMBER: P227930

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

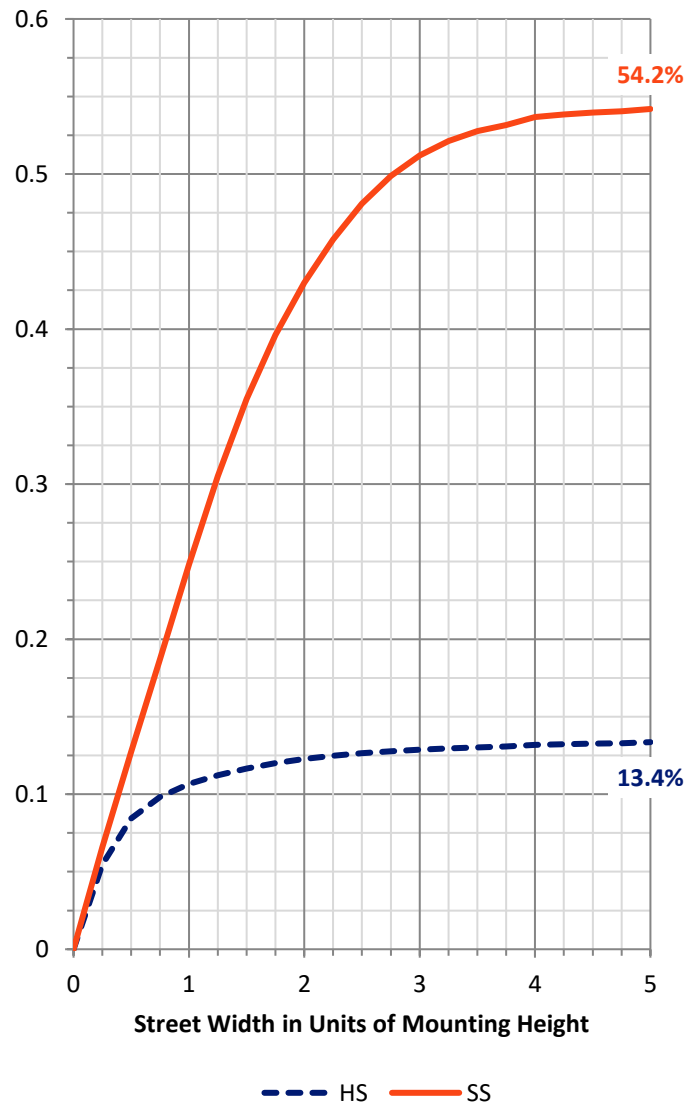
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	612.3	729.4	1341.7
	% Fixture	13.5	16.1	29.7
Street Side	Lumens	2452.4	729.4	3181.9
	% Fixture	54.2	16.1	70.3
Total	Lumens	3064.7	1458.9	4523.6
	% Fixture	67.7	32.3	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.8	0.8
10°-20°	106.6	2.4
20°-30°	163.9	3.6
30°-40°	239.1	5.3
40°-50°	394.3	8.7
50°-60°	617.3	13.6
60°-70°	837.4	18.5
70°-80°	620.1	13.7
80°-90°	50.1	1.1
90°-100°	4.8	0.1
100°-110°	70.6	1.6
110°-120°	156.6	3.5
120°-130°	229.0	5.1
130°-140°	271.7	6.0
140°-150°	275.5	6.1
150°-160°	236.4	5.2
160°-170°	158.7	3.5
170°-180°	55.6	1.2
0°-90°	3064.7	67.7
0°-180°	4523.6	100.0



REPORT NUMBER: P227930

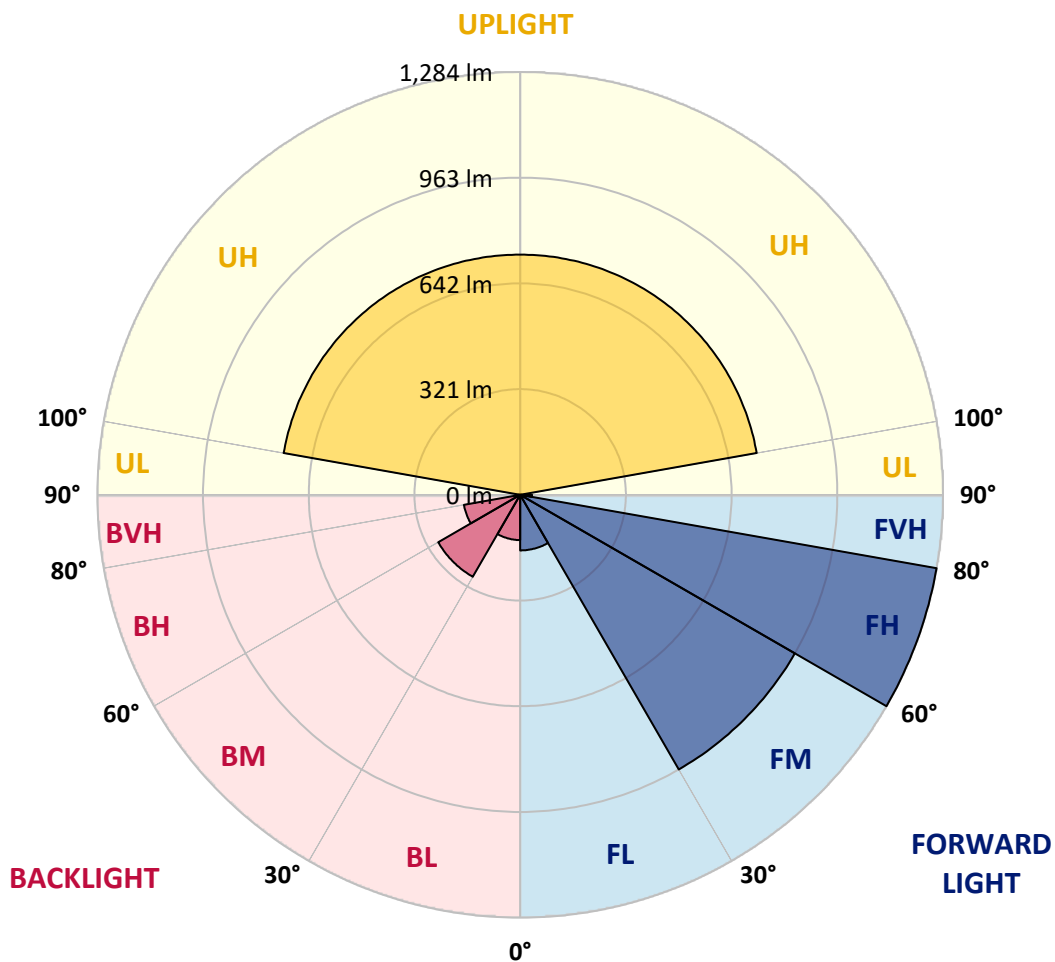
CATALOG NUMBER: ISS-AF-450-LED-E1-T4W-ULG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	168.9	3.7			
FM (30°-60°)	963.2	21.3			
FH (60°-80°)	1284.1	28.4			G1/1800
FVH (80°-90°)	36.1	0.8			G1/100
BL (0°-30°)	137.4	3.0	B1/500		
BM (30°-60°)	287.5	6.4	B1/1000		
BH (60°-80°)	173.4	3.8	B1/500		G1/500
BVH (80°-90°)	14.0	0.3			G1/100
UL (90°-100°)	4.8	0.1		U1/10	
UH (100°-180°)	729.4	16.1		U4/1000	

BUG Rating: B1-U5-G1

Type IV Medium





REPORT NUMBER: P227930

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	37.5°	40°	42.5°	45°	47°	47.5°
0°	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3
2.5°	398.6	397.6	394.6	393.5	390.6	388.5	387.5	386.5	389.5	387.5	384.4
5°	423.9	421.9	417.9	411.7	405.7	401.6	400.6	398.6	398.6	396.6	394.6
7.5°	442.1	441.1	435.1	426.0	415.8	408.8	404.7	401.6	402.6	400.6	394.6
10°	459.3	457.3	447.1	436.1	420.8	412.8	407.7	402.6	406.7	403.7	395.6
12.5°	472.5	470.5	456.2	442.1	424.9	415.8	410.7	407.7	411.7	409.7	400.6
15°	479.6	477.5	463.4	446.2	427.9	417.9	415.8	413.8	416.9	412.8	404.7
17.5°	475.5	475.5	462.4	444.2	428.9	418.8	415.8	413.8	417.9	413.8	404.7
20°	460.3	462.4	453.3	434.0	422.9	415.8	412.8	408.8	412.8	408.8	402.6
22.5°	441.1	443.1	438.0	420.8	412.8	407.7	406.7	402.6	405.7	402.6	396.6
25°	423.9	423.9	421.9	406.7	405.7	401.6	402.6	400.6	402.6	398.6	394.6
27.5°	424.9	424.9	416.9	401.6	400.6	400.6	400.6	400.6	401.6	398.6	394.6
30°	484.6	486.6	463.4	420.8	405.7	403.7	404.7	403.7	404.7	403.7	398.6
32.5°	574.7	574.7	552.4	486.6	433.0	419.8	414.8	413.8	410.7	409.7	405.7
35°	663.7	662.7	640.4	567.5	499.8	474.4	458.3	443.1	436.1	428.9	421.9
37.5°	738.6	735.5	732.4	649.5	578.7	549.3	530.1	507.9	493.7	481.6	465.3
40°	808.3	813.5	824.5	725.4	657.7	630.2	611.1	582.8	568.6	553.4	534.2
42.5°	904.5	911.6	912.6	807.3	729.5	711.3	696.0	674.8	659.6	641.4	624.2
45°	997.6	998.5	1001.6	895.4	817.4	794.2	783.1	762.8	743.6	720.4	706.1
47.5°	1061.3	1058.2	1071.4	996.6	920.7	894.4	878.2	847.8	818.5	789.1	767.9
50°	1139.2	1136.2	1136.2	1111.8	1040.0	1009.7	981.3	924.6	893.3	856.9	826.5
52.5°	1208.0	1196.9	1203.9	1218.1	1165.4	1127.0	1077.5	1013.7	972.2	927.7	889.3
55°	1302.0	1244.4	1260.6	1310.2	1289.9	1230.2	1164.4	1096.7	1049.1	998.5	963.1
57.5°	1269.7	1230.2	1277.8	1364.8	1363.8	1308.1	1252.5	1169.5	1122.0	1074.4	1030.9
60°	1153.4	1173.5	1276.7	1402.3	1407.3	1363.8	1318.3	1241.4	1203.9	1154.4	1110.8
62.5°	1063.3	1092.6	1234.3	1399.2	1456.9	1416.4	1378.9	1333.4	1307.1	1265.6	1221.1
65°	1058.2	1075.4	1213.0	1396.1	1526.7	1505.4	1488.2	1467.0	1461.9	1431.5	1380.0
67.5°	1106.8	1123.0	1249.4	1474.1	1629.9	1620.8	1646.0	1642.0	1664.2	1649.1	1606.5
70°	1011.7	1020.8	1176.6	1501.4	1865.6	1906.1	1962.7	1959.7	2007.2	1970.8	1921.2
72.5°	710.2	728.4	866.0	1240.3	1870.7	2087.1	2218.7	2330.0	2381.5	2390.6	2367.4
73°	634.3	648.6	776.0	1155.3	1820.0	2050.7	2227.8	2342.0	2387.6	2415.9	2417.9
75°	220.5	227.6	338.9	700.1	1454.8	1789.7	2017.4	2120.6	2109.4	2192.4	2283.4
77.5°	70.8	71.8	88.0	181.1	702.2	1110.8	1364.8	1459.9	1405.2	1495.2	1616.7
80°	43.5	45.5	57.7	81.9	184.1	336.9	570.6	714.2	685.0	768.8	898.4
82.5°	26.3	27.3	35.4	50.6	73.9	81.9	107.2	145.7	179.1	215.5	282.2
85°	12.2	13.2	17.2	23.2	30.4	31.4	30.4	28.3	32.3	37.4	43.5
87.5°	0.0	0.0	1.0	2.0	1.0	0.0	0.0	0.0	0.0	1.0	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
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
97.5°	2.0	2.0	2.0	3.1	4.1	5.3	6.6	8.0	9.2	10.0	10.2
100°	8.2	8.2	10.2	14.3	22.5	24.6	26.6	28.6	30.7	31.1	31.2
102.5°	28.6	28.6	32.7	38.9	46.0	47.3	48.6	49.9	51.1	51.4	51.4
105°	55.2	55.2	57.3	62.4	67.5	68.5	69.6	70.6	71.6	71.8	71.8
107.5°	79.8	78.8	81.8	85.9	90.0	90.8	91.6	92.3	93.1	93.5	93.6

REPORT NUMBER: P227930

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

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	37.5°	40°	42.5°	45°	47°	47.5°
110°	103.3	104.3	105.4	108.4	112.5	113.0	113.5	114.1	114.6	115.0	115.1
112.5°	126.8	126.8	128.9	132.0	135.0	135.5	136.1	136.6	137.1	137.5	137.6
115°	149.4	150.4	152.4	154.5	157.5	158.0	158.6	159.1	159.6	160.0	160.1
117.5°	172.9	173.9	175.9	178.0	181.1	181.6	182.1	182.6	183.1	183.3	183.3
120°	197.4	199.5	200.5	202.5	205.6	205.8	206.1	206.4	206.6	207.0	207.1
122.5°	224.0	225.0	226.1	228.1	231.2	231.4	231.7	232.0	232.2	232.4	232.4
125°	249.6	251.6	252.7	253.7	256.8	257.0	257.3	257.6	257.8	258.0	258.0
127.5°	273.1	275.2	276.2	278.2	280.3	280.8	281.3	281.8	282.3	282.7	282.8
130°	296.7	298.7	299.7	300.7	304.8	305.0	305.4	305.7	305.9	306.3	306.4
132.5°	320.2	321.2	324.3	325.3	328.4	328.6	328.9	329.2	329.4	330.0	330.2
135°	343.7	344.7	346.8	348.8	352.9	352.9	352.9	352.9	352.9	353.5	353.7
137.5°	367.2	368.3	371.3	372.4	375.4	375.4	375.4	375.4	375.4	375.8	375.9
140°	390.8	391.8	393.8	394.9	396.9	397.1	397.4	397.7	397.9	398.1	398.1
142.5°	413.3	415.3	417.4	416.3	419.4	419.4	419.4	419.4	419.4	419.8	419.9
145°	434.8	435.8	437.8	437.8	440.9	441.1	441.4	441.7	441.9	442.3	442.4
147.5°	454.2	454.2	457.3	458.3	462.4	462.6	462.9	463.2	463.4	463.6	463.6
150°	471.6	472.6	474.6	475.7	479.8	480.0	480.3	480.6	480.8	481.0	481.0
152.5°	490.0	491.0	494.1	493.1	496.1	496.3	496.6	496.9	497.2	497.4	497.4
155°	510.5	511.5	513.5	512.5	514.5	514.5	514.5	514.5	514.5	514.7	514.7
157.5°	524.8	526.8	528.9	527.8	530.9	530.9	530.9	530.9	530.9	530.9	530.9
160°	537.0	539.1	541.1	541.1	544.2	544.2	544.2	544.2	544.2	544.2	544.2
162.5°	547.3	548.3	551.4	550.3	553.4	553.4	553.4	553.4	553.4	553.6	553.6
165°	558.5	559.6	561.6	560.6	564.7	564.7	564.7	564.7	564.7	564.9	564.9
167.5°	567.7	568.8	571.8	570.8	573.9	573.7	573.4	573.1	572.9	572.9	572.9
170°	574.9	575.9	579.0	578.0	580.0	579.8	579.5	579.2	579.0	578.8	578.8
172.5°	578.0	579.0	582.1	580.0	582.1	581.9	581.5	581.2	581.0	581.2	581.2
175°	580.0	582.1	583.1	582.1	585.1	585.1	585.1	585.1	585.1	585.3	585.3
177.5°	585.1	586.2	588.2	587.2	591.3	591.1	590.8	590.4	590.2	590.2	590.2
180°	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2



REPORT NUMBER: P227930

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

CANDELA DISTRIBUTION (continued):

	50°	52.5°	55°	57.5°	60°	62.5°	65°	67.5°	70°	72.5°	75°
0°	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3
2.5°	387.5	384.4	384.4	380.4	382.4	378.4	380.4	376.3	378.4	373.3	376.3
5°	393.5	388.5	388.5	382.4	383.4	376.3	379.4	371.3	375.3	366.2	372.4
7.5°	396.6	387.5	391.5	380.4	385.4	373.3	379.4	366.2	374.3	360.2	370.3
10°	400.6	387.5	394.6	382.4	388.5	374.3	382.4	366.2	376.3	359.2	368.3
12.5°	406.7	392.5	398.6	384.4	392.5	376.3	384.4	368.3	378.4	359.2	370.3
15°	410.7	396.6	402.6	388.5	394.6	376.3	386.5	367.2	378.4	358.1	370.3
17.5°	409.7	396.6	402.6	386.5	393.5	375.3	385.4	366.2	376.3	355.1	368.3
20°	405.7	394.6	398.6	384.4	390.6	372.4	381.5	362.2	373.3	352.1	365.2
22.5°	400.6	389.5	394.6	381.5	387.5	369.3	377.4	360.2	371.3	350.1	362.2
25°	397.6	388.5	391.5	378.4	386.5	370.3	378.4	359.2	371.3	350.1	364.2
27.5°	396.6	388.5	394.6	382.4	389.5	375.3	383.4	366.2	376.3	354.1	368.3
30°	402.6	395.6	400.6	390.6	396.6	382.4	390.6	374.3	384.4	363.2	379.4
32.5°	409.7	402.6	407.7	398.6	407.7	393.5	403.7	387.5	399.7	378.4	393.5
35°	424.9	416.9	423.9	413.8	423.9	412.8	423.9	406.7	421.9	400.6	416.9
37.5°	464.4	442.1	449.2	438.0	448.2	434.0	453.3	436.1	453.3	433.0	455.3
40°	527.1	487.6	494.7	471.5	486.6	465.3	488.7	475.5	498.8	473.5	501.8
42.5°	609.1	571.6	564.6	529.1	542.3	517.0	540.2	517.0	548.3	524.1	559.5
45°	683.9	644.5	633.3	598.9	608.0	574.7	604.0	571.6	613.1	584.7	629.3
47.5°	745.6	699.1	690.0	650.5	666.8	635.4	671.8	637.4	687.9	659.6	711.3
50°	802.3	744.6	742.6	700.1	727.4	696.0	747.7	724.4	774.0	745.6	806.3
52.5°	867.1	794.2	804.3	765.9	809.4	783.1	842.7	809.4	874.1	843.7	910.5
55°	935.8	859.0	885.3	861.9	913.6	896.4	946.9	916.6	980.3	950.0	1020.8
57.5°	1011.7	945.9	992.5	981.3	1026.8	1005.7	1062.3	1035.0	1098.8	1073.4	1144.3
60°	1110.8	1067.3	1112.9	1111.8	1151.3	1150.3	1186.7	1170.6	1231.2	1220.1	1284.8
62.5°	1239.3	1204.9	1253.5	1240.3	1287.9	1279.8	1324.3	1324.3	1367.8	1383.0	1447.8
65°	1412.3	1366.8	1424.5	1404.2	1451.8	1453.8	1482.2	1487.2	1539.8	1557.0	1612.7
67.5°	1647.1	1594.5	1640.0	1601.5	1656.2	1653.1	1677.4	1687.6	1694.6	1736.0	1742.2
70°	1984.9	1906.1	1947.5	1894.9	1905.0	1912.1	1866.6	1899.9	1819.0	1884.8	1795.8
72.5°	2350.2	2260.1	2188.3	2135.7	2031.5	2016.3	1883.8	1912.1	1740.1	1796.8	1616.7
73°	2369.4	2282.4	2185.2	2130.6	2007.2	1991.1	1849.4	1873.6	1683.5	1737.1	1547.9
75°	2153.9	2177.1	1943.5	1965.7	1751.3	1776.6	1555.0	1583.3	1349.6	1390.1	1146.2
77.5°	1451.8	1529.7	1267.6	1365.8	1099.7	1197.9	897.3	906.4	661.6	618.2	419.8
80°	719.3	786.1	557.4	609.1	408.8	401.6	244.8	203.4	173.0	177.1	182.1
82.5°	207.4	233.7	144.6	143.6	102.2	97.1	97.1	103.2	105.3	117.3	114.4
85°	39.5	47.6	41.4	55.6	49.6	54.6	50.6	58.7	54.6	67.8	58.7
87.5°	1.0	0.0	1.0	3.1	3.1	7.1	5.0	8.1	8.1	14.1	13.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
97.5°	11.3	12.3	13.3	11.8	10.2	8.7	7.2	6.6	6.1	5.6	5.1
100°	31.7	32.2	32.7	32.2	31.7	31.2	30.7	29.9	29.2	28.4	27.6
102.5°	51.7	52.0	52.2	52.0	51.7	51.4	51.1	50.6	50.1	49.6	49.1
105°	72.1	72.4	72.6	72.6	72.6	72.6	72.6	72.1	71.6	71.1	70.6
107.5°	94.1	94.6	95.1	94.9	94.6	94.3	94.1	93.9	93.6	93.3	93.1



REPORT NUMBER: P227930

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

CANDELA DISTRIBUTION (continued):

	50°	52.5°	55°	57.5°	60°	62.5°	65°	67.5°	70°	72.5°	75°
110°	115.6	116.1	116.6	116.6	116.6	116.6	116.6	116.4	116.1	115.8	115.6
112.5°	138.1	138.6	139.1	139.1	139.1	139.1	139.1	138.9	138.6	138.3	138.1
115°	160.6	161.1	161.6	161.6	161.6	161.6	161.6	161.6	161.6	161.6	161.6
117.5°	183.6	183.9	184.1	184.3	184.6	184.9	185.2	184.9	184.6	184.3	184.1
120°	207.7	208.2	208.7	208.7	208.7	208.7	208.7	208.7	208.7	208.7	208.7
122.5°	232.7	233.0	233.2	233.2	233.2	233.2	233.2	233.4	233.7	234.1	234.3
125°	258.3	258.6	258.8	259.0	259.3	259.6	259.8	259.8	259.8	259.8	259.8
127.5°	283.4	283.9	284.4	284.2	283.9	283.6	283.4	283.6	283.9	284.2	284.4
130°	306.9	307.4	307.9	307.9	307.9	307.9	307.9	308.1	308.4	308.7	308.9
132.5°	330.9	331.6	332.5	332.5	332.5	332.5	332.5	332.7	333.0	333.3	333.5
135°	354.5	355.2	356.0	356.0	356.0	356.0	356.0	356.2	356.5	356.8	357.0
137.5°	376.4	377.0	377.5	377.5	377.5	377.5	377.5	377.7	378.0	378.3	378.5
140°	398.4	398.7	399.0	399.0	399.0	399.0	399.0	399.5	400.0	400.5	401.0
142.5°	420.4	420.9	421.5	421.5	421.5	421.5	421.5	421.7	422.0	422.3	422.5
145°	442.9	443.4	444.0	443.8	443.4	443.1	442.9	443.1	443.4	443.8	444.0
147.5°	463.9	464.2	464.4	463.9	463.4	462.9	462.4	462.6	462.9	463.2	463.4
150°	481.3	481.6	481.8	481.3	480.8	480.3	479.8	479.8	479.8	479.8	479.8
152.5°	497.7	498.0	498.2	498.0	497.7	497.4	497.2	497.2	497.2	497.2	497.2
155°	515.1	515.4	515.6	515.4	515.1	514.7	514.5	514.7	515.1	515.4	515.6
157.5°	530.9	530.9	530.9	530.4	529.9	529.4	528.9	529.1	529.4	529.7	529.9
160°	544.2	544.2	544.2	543.7	543.2	542.7	542.2	542.2	542.2	542.2	542.2
162.5°	553.9	554.2	554.4	553.9	553.4	552.9	552.4	551.9	551.4	550.9	550.3
165°	565.2	565.5	565.7	564.9	564.2	563.4	562.6	562.1	561.6	561.1	560.6
167.5°	572.9	572.9	572.9	572.3	571.8	571.3	570.8	571.0	571.3	571.6	571.8
170°	578.5	578.2	578.0	577.8	577.5	577.1	576.9	577.5	578.0	578.5	579.0
172.5°	581.5	581.9	582.1	581.5	581.0	580.5	580.0	580.2	580.5	580.8	581.0
175°	585.6	585.9	586.2	585.3	584.6	583.9	583.1	582.6	582.1	581.5	581.0
177.5°	590.2	590.2	590.2	589.4	588.7	588.0	587.2	587.2	587.2	587.2	587.2
180°	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2



REPORT NUMBER: P227930

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

CANDELA DISTRIBUTION (continued):

	77.5°	80°	85°	90°	95°	100°	102.5°	105°	107.5°	110°	112.5°
0°	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3
2.5°	372.4	377.4	375.3	373.3	371.3	370.3	366.2	368.3	363.2	367.2	363.2
5°	364.2	370.3	367.2	363.2	361.2	359.2	352.1	357.1	349.0	356.1	350.1
7.5°	355.1	365.2	362.2	358.1	354.1	352.1	337.9	349.0	336.9	347.0	336.9
10°	352.1	363.2	359.2	354.1	350.1	348.0	330.8	344.0	330.8	342.0	328.8
12.5°	350.1	363.2	357.1	352.1	348.0	345.0	325.8	342.0	324.8	340.9	325.8
15°	348.0	363.2	355.1	349.0	345.0	342.0	321.7	339.9	320.7	338.9	321.7
17.5°	346.0	360.2	353.1	346.0	342.0	339.9	317.6	336.9	316.7	336.9	319.7
20°	343.0	357.1	349.0	342.0	337.9	334.9	312.6	332.9	311.6	331.8	312.6
22.5°	338.9	354.1	347.0	339.9	335.8	330.8	306.6	327.8	305.6	325.8	307.6
25°	339.9	356.1	347.0	339.9	333.9	328.8	302.5	325.8	300.4	320.7	300.4
27.5°	345.0	359.2	350.1	344.0	335.8	329.8	302.5	323.8	298.5	315.7	294.4
30°	355.1	369.3	361.2	352.1	345.0	336.9	307.6	324.8	298.5	309.5	288.4
32.5°	372.4	385.4	377.4	370.3	362.2	350.1	317.6	329.8	300.4	305.6	283.3
35°	394.6	410.7	406.7	401.6	391.5	370.3	334.9	336.9	304.5	301.5	276.2
37.5°	431.0	453.3	452.2	451.2	440.1	401.6	354.1	351.1	308.5	298.5	267.1
40°	478.5	504.8	511.9	519.0	495.7	439.1	376.3	365.2	310.6	292.4	253.0
42.5°	534.2	569.6	590.9	604.0	561.5	480.6	401.6	381.5	310.6	283.3	236.7
45°	602.9	644.5	685.0	699.1	634.3	525.1	427.9	394.6	306.6	269.1	215.5
47.5°	686.9	735.5	791.2	798.2	713.2	572.6	446.2	403.7	293.4	249.9	196.3
50°	780.0	838.7	920.7	915.5	797.2	622.2	458.3	409.7	270.2	227.6	173.0
52.5°	884.2	958.1	1074.4	1051.2	899.4	683.9	469.4	417.9	241.8	201.3	149.8
55°	1014.8	1102.7	1248.4	1198.9	1012.7	751.7	485.6	418.8	204.4	170.0	132.6
57.5°	1155.3	1249.4	1435.6	1345.6	1118.9	804.3	478.5	386.5	166.9	143.6	119.4
60°	1324.3	1438.7	1622.8	1482.2	1208.0	822.6	428.9	318.6	142.6	129.5	113.3
62.5°	1513.5	1626.8	1776.6	1577.3	1258.5	792.2	318.6	220.5	122.4	115.3	104.2
65°	1714.9	1822.1	1850.4	1585.4	1225.2	658.6	197.3	144.6	106.2	103.2	96.2
67.5°	1899.9	1910.1	1780.5	1453.8	1063.3	459.3	134.5	115.3	98.1	97.1	93.1
70°	1947.5	1772.5	1480.1	1132.1	767.9	273.1	109.3	100.1	94.1	94.1	91.0
72.5°	1626.8	1349.6	989.4	685.9	418.8	145.7	93.1	91.0	89.0	89.0	87.1
73°	1525.6	1243.4	886.3	598.9	354.1	130.5	91.0	89.0	88.0	87.1	86.0
75°	1013.7	781.0	502.8	303.5	164.9	94.1	80.9	80.9	79.9	80.9	79.9
77.5°	390.6	294.4	194.3	130.5	94.1	73.9	68.8	69.8	68.8	70.8	69.8
80°	172.0	170.0	128.5	92.1	68.8	55.6	55.6	55.6	56.7	57.7	57.7
82.5°	117.3	99.1	75.9	56.7	41.4	40.5	41.4	41.4	42.5	43.5	42.5
85°	64.8	54.6	40.5	25.3	22.3	27.3	27.3	27.3	26.3	26.3	25.3
87.5°	20.3	15.1	11.2	3.1	5.0	5.0	7.1	6.0	6.0	7.1	7.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
97.5°	4.9	4.6	4.1	4.1	4.1	4.6	4.9	5.1	5.6	6.1	6.6
100°	27.4	27.1	26.6	25.6	26.6	27.1	27.4	27.6	28.4	29.2	29.9
102.5°	49.3	49.6	50.1	49.1	50.1	49.6	49.3	49.1	49.6	50.1	50.6
105°	71.1	71.6	72.6	70.6	72.6	71.6	71.1	70.6	71.1	71.6	72.1
107.5°	93.3	93.6	94.1	93.1	94.1	93.6	93.3	93.1	93.3	93.6	93.9



REPORT NUMBER: P227930
 CATALOG NUMBER: ISS-AF-450-LED-E1-T4W-ULG

REPORT N
 CATALOG

CANDELA DISTRIBUTION (continued):

CANDELA

	77.5°	80°	85°	90°	95°	100°	102.5°	105°	107.5°	110°	112.5°	
110°	115.8	116.1	116.6	115.6	116.6	116.1	115.8	115.6	115.8	116.1	116.4	0°
112.5°	138.6	139.1	140.1	138.1	140.1	139.1	138.6	138.1	138.3	138.6	138.9	2.5°
115°	162.1	162.6	163.7	162.6	163.7	162.6	162.1	161.6	161.6	161.6	161.6	5°
117.5°	184.6	185.2	186.2	184.1	186.2	185.2	184.6	184.1	184.3	184.6	184.9	7.5°
120°	209.2	209.7	210.7	208.7	210.7	209.7	209.2	208.7	208.7	208.7	208.7	10°
122.5°	235.3	236.3	238.3	237.3	238.3	236.3	235.3	234.3	234.1	233.7	233.4	12.5°
125°	260.6	261.4	262.9	261.9	262.9	261.4	260.6	259.8	259.8	259.8	259.8	15°
127.5°	285.2	285.9	287.4	284.4	287.4	285.9	285.2	284.4	284.2	283.9	283.6	17.5°
130°	309.7	310.5	312.0	310.0	312.0	310.5	309.7	308.9	308.7	308.4	308.1	20°
132.5°	334.3	335.0	336.6	334.5	336.6	335.0	334.3	333.5	333.3	333.0	332.7	22.5°
135°	357.5	358.0	359.1	358.0	359.1	358.0	357.5	357.0	356.8	356.5	356.2	25°
137.5°	379.5	380.5	382.6	380.5	382.6	380.5	379.5	378.5	378.3	378.0	377.7	27.5°
140°	402.0	403.0	405.1	403.0	405.1	403.0	402.0	401.0	400.5	400.0	399.5	30°
142.5°	423.3	424.0	425.5	424.5	425.5	424.0	423.3	422.5	422.3	422.0	421.7	32.5°
145°	444.8	445.5	447.0	445.0	447.0	445.5	444.8	444.0	443.8	443.4	443.1	35°
147.5°	464.2	464.9	466.5	463.4	466.5	464.9	464.2	463.4	463.2	462.9	462.6	37.5°
150°	480.8	481.8	483.9	480.8	483.9	481.8	480.8	479.8	479.8	479.8	479.8	40°
152.5°	498.0	498.7	500.2	497.2	500.2	498.7	498.0	497.2	497.2	497.2	497.2	42.5°
155°	516.4	517.1	518.6	516.6	518.6	517.1	516.4	515.6	515.4	515.1	514.7	45°
157.5°	531.1	532.4	535.0	531.9	535.0	532.4	531.1	529.9	529.7	529.4	529.1	47.5°
160°	543.0	543.7	545.2	543.2	545.2	543.7	543.0	542.2	542.2	542.2	542.2	50°
162.5°	550.9	551.4	552.4	549.3	552.4	551.4	550.9	550.3	550.9	551.4	551.9	52.5°
165°	561.1	561.6	562.6	560.6	562.6	561.6	561.1	560.6	561.1	561.6	562.1	55°
167.5°	572.9	573.9	575.9	573.9	575.9	573.9	572.9	571.8	571.6	571.3	571.0	57.5°
170°	580.2	581.5	584.1	582.1	584.1	581.5	580.2	579.0	578.5	578.0	577.5	60°
172.5°	581.9	582.6	584.1	581.0	584.1	582.6	581.9	581.0	580.8	580.5	580.2	62.5°
175°	581.9	582.6	584.1	581.0	584.1	582.6	581.9	581.0	581.5	582.1	582.6	65°
177.5°	588.0	588.7	590.2	587.2	590.2	588.7	588.0	587.2	587.2	587.2	587.2	67.5°
180°	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	70°
												72.5°
												73°
												75°
												77.5°
												80°
												82.5°
												85°
												87.5°
												90°
												92.5°
												95°
												97.5°
												100°
												102.5°
												105°
												107.5°

NUMBER: P227930
 NUMBER: ISS-AF-450-LED-E1-T4W-ULG

REPORT NUMBER: P
 CATALOG NUMBER:

DISTRIBUTION (continued):

CANDELA DISTRIBUTION

115°	117.5°	120°	122.5°	125°	127.5°	130°	135°	145°	155°	165°	110°	115°
376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	376.3	110°	116.6
367.2	364.2	367.2	362.2	366.2	362.2	365.2	365.2	364.2	364.2	364.2	112.5°	139.1
355.1	350.1	355.1	352.1	355.1	351.1	354.1	355.1	356.1	359.2	358.1	115°	161.6
346.0	335.8	347.0	336.9	346.0	336.9	345.0	346.0	349.0	353.1	356.1	117.5°	185.2
342.0	328.8	342.0	329.8	340.9	330.8	340.9	342.0	345.0	350.1	355.1	120°	208.7
339.9	325.8	339.9	327.8	339.9	329.8	339.9	343.0	345.0	349.0	355.1	122.5°	233.2
337.9	323.8	339.9	326.7	339.9	329.8	340.9	343.0	346.0	350.1	355.1	125°	259.8
336.9	320.7	337.9	325.8	337.9	327.8	339.9	339.9	344.0	349.0	352.1	127.5°	283.4
332.9	317.6	332.9	320.7	332.9	323.8	333.9	333.9	337.9	339.9	345.0	130°	307.9
326.7	310.6	324.8	313.6	324.8	315.7	323.8	323.8	326.7	329.8	332.9	132.5°	332.5
317.6	302.5	314.7	304.5	312.6	304.5	310.6	309.5	311.6	313.6	315.7	135°	356.0
307.6	292.4	302.5	291.3	296.5	288.4	292.4	290.3	291.3	292.4	293.4	137.5°	377.5
296.5	281.2	286.3	276.2	277.2	269.1	271.2	268.1	267.1	266.1	264.0	140°	399.0
284.3	268.1	268.1	258.0	255.9	248.9	248.9	244.8	241.8	237.7	233.7	142.5°	421.5
269.1	254.9	247.9	239.8	235.7	228.6	227.6	222.6	215.5	208.4	204.4	145°	442.9
253.9	237.7	227.6	219.5	215.5	210.4	209.4	205.4	197.3	189.1	183.1	147.5°	462.4
233.7	217.5	206.4	203.4	200.3	196.3	197.3	192.2	184.1	175.0	170.0	150°	479.8
213.5	199.3	190.2	189.1	187.2	186.2	187.2	183.1	174.0	165.9	159.9	152.5°	497.2
196.3	182.1	173.0	172.0	170.9	175.0	176.0	175.0	164.9	156.8	148.7	155°	514.5
179.1	161.8	155.8	153.7	154.8	160.9	162.9	165.9	156.8	147.7	136.6	157.5°	528.9
158.9	142.6	140.7	138.6	139.6	144.6	149.8	155.8	147.7	134.5	119.4	160°	542.2
140.7	126.4	127.5	125.4	127.5	131.6	135.5	145.7	135.5	122.4	115.3	162.5°	552.4
126.4	115.3	117.3	115.3	117.3	122.4	125.4	133.5	133.5	130.5	124.4	165°	562.6
116.3	108.2	110.3	108.2	111.3	115.3	118.4	135.5	145.7	137.6	125.4	167.5°	570.8
110.3	103.2	104.2	102.2	104.2	110.3	116.3	136.6	152.7	136.6	127.5	170°	576.9
101.2	95.1	94.1	94.1	96.2	106.2	109.3	127.5	150.8	135.5	128.5	172.5°	580.0
95.1	90.0	89.0	88.0	90.0	97.1	100.1	118.4	145.7	128.5	116.3	175°	583.1
92.1	88.0	86.0	84.0	86.0	92.1	95.1	111.3	137.6	122.4	109.3	177.5°	587.2
89.0	85.0	84.0	81.9	83.0	87.1	91.0	102.2	130.5	115.3	102.2	180°	589.2
85.0	80.9	79.9	76.9	77.9	81.9	84.0	96.2	121.4	108.2	95.1		
84.0	79.9	78.9	75.9	76.9	79.9	81.9	94.1	119.4	107.2	94.1		
78.9	74.9	73.9	71.8	72.8	72.8	74.9	86.0	113.3	101.2	88.0		
69.8	66.8	65.8	63.7	62.7	61.7	64.8	75.9	103.2	91.0	70.8		
57.7	54.6	53.6	49.6	49.6	49.6	53.6	64.8	76.9	65.8	54.6		
42.5	40.5	40.5	37.4	36.4	35.4	38.5	44.5	60.7	51.6	42.5		
25.3	24.2	25.3	22.3	23.2	22.3	25.3	31.4	33.3	26.3	20.3		
6.0	7.1	7.1	7.1	6.0	6.0	5.0	4.1	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
7.2	8.7	10.2	11.8	13.3	12.3	11.3	9.2	4.1	3.1	2.0		
30.7	31.2	31.7	32.2	32.7	32.2	31.7	30.7	22.5	14.3	10.2		
51.1	51.4	51.7	52.0	52.2	52.0	51.7	51.1	46.0	38.9	32.7		
72.6	72.6	72.6	72.6	72.6	72.4	72.1	71.6	67.5	62.4	57.3		
94.1	94.3	94.6	94.9	95.1	94.6	94.1	93.1	90.0	85.9	81.8		

'227930
 ISS-AF-450-LED-E1-T4W-ULG

REPORT NUMBER: P227930
 CATALOG NUMBER: ISS-AF-451

TION (continued):

CANDELA DISTRIBUTION (con

117.5°	120°	122.5°	125°	127.5°	130°	135°	145°	155°	165°		175°	180°
116.6	116.6	116.6	116.6	116.1	115.6	114.6	112.5	108.4	105.4	0°	376.3	376.3
139.1	139.1	139.1	139.1	138.6	138.1	137.1	135.0	132.0	128.9	2.5°	363.2	362.2
161.6	161.6	161.6	161.6	161.1	160.6	159.6	157.5	154.5	152.4	5°	358.1	358.1
184.9	184.6	184.3	184.1	183.9	183.6	183.1	181.1	178.0	175.9	7.5°	356.1	356.1
208.7	208.7	208.7	208.7	208.2	207.7	206.6	205.6	202.5	200.5	10°	357.1	357.1
233.2	233.2	233.2	233.2	233.0	232.7	232.2	231.2	228.1	226.1	12.5°	357.1	359.2
259.6	259.3	259.0	258.8	258.6	258.3	257.8	256.8	253.7	252.7	15°	360.2	359.2
283.6	283.9	284.2	284.4	283.9	283.4	282.3	280.3	278.2	276.2	17.5°	357.1	357.1
307.9	307.9	307.9	307.9	307.4	306.9	305.9	304.8	300.7	299.7	20°	349.0	351.1
332.5	332.5	332.5	332.5	331.6	330.9	329.4	328.4	325.3	324.3	22.5°	337.9	337.9
356.0	356.0	356.0	356.0	355.2	354.5	352.9	352.9	348.8	346.8	25°	319.7	320.7
377.5	377.5	377.5	377.5	377.0	376.4	375.4	375.4	372.4	371.3	27.5°	295.4	297.5
399.0	399.0	399.0	399.0	398.7	398.4	397.9	396.9	394.9	393.8	30°	265.0	267.1
421.5	421.5	421.5	421.5	420.9	420.4	419.4	419.4	416.3	417.4	32.5°	230.7	232.7
443.1	443.4	443.8	444.0	443.4	442.9	441.9	440.9	437.8	437.8	35°	203.4	204.4
462.9	463.4	463.9	464.4	464.2	463.9	463.4	462.4	458.3	457.3	37.5°	185.2	185.2
480.3	480.8	481.3	481.8	481.6	481.3	480.8	479.8	475.7	474.6	40°	170.0	170.0
497.4	497.7	498.0	498.2	498.0	497.7	497.2	496.1	493.1	494.1	42.5°	155.8	154.8
514.7	515.1	515.4	515.6	515.4	515.1	514.5	514.5	512.5	513.5	45°	141.7	139.6
529.4	529.9	530.4	530.9	530.9	530.9	530.9	530.9	527.8	528.9	47.5°	127.5	126.4
542.7	543.2	543.7	544.2	544.2	544.2	544.2	544.2	541.1	541.1	50°	115.3	115.3
552.9	553.4	553.9	554.4	554.2	553.9	553.4	553.4	550.3	551.4	52.5°	117.3	117.3
563.4	564.2	564.9	565.7	565.5	565.2	564.7	564.7	560.6	561.6	55°	126.4	126.4
571.3	571.8	572.3	572.9	572.9	572.9	572.9	573.9	570.8	571.8	57.5°	127.5	126.4
577.1	577.5	577.8	578.0	578.2	578.5	579.0	580.0	578.0	579.0	60°	138.6	137.6
580.5	581.0	581.5	582.1	581.9	581.5	581.0	582.1	580.0	582.1	62.5°	144.6	147.7
583.9	584.6	585.3	586.2	585.9	585.6	585.1	585.1	582.1	583.1	65°	126.4	122.4
588.0	588.7	589.4	590.2	590.2	590.2	590.2	591.3	587.2	588.2	67.5°	120.4	114.4
589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	70°	108.2	99.1
										72.5°	96.2	91.0
										73°	93.1	89.0
										75°	83.0	80.9
										77.5°	62.7	61.7
										80°	52.6	51.6
										82.5°	35.4	33.3
										85°	15.1	14.1
										87.5°	0.0	0.0
										90°	0.0	0.0
										92.5°	0.0	0.0
										95°	1.0	1.0
										97.5°	2.0	2.0
										100°	8.2	8.2
										102.5°	28.6	28.6
										105°	55.2	55.2
										107.5°	78.8	79.8



REPORT NUMBER: P227930

CATALOG NUMBER: ISS-AF-450-LED-E1-1

CANDELA DISTRIBUTION (continued):

	175°	180°
110°	104.3	103.3
112.5°	126.8	126.8
115°	150.4	149.4
117.5°	173.9	172.9
120°	199.5	197.4
122.5°	225.0	224.0
125°	251.6	249.6
127.5°	275.2	273.1
130°	298.7	296.7
132.5°	321.2	320.2
135°	344.7	343.7
137.5°	368.3	367.2
140°	391.8	390.8
142.5°	415.3	413.3
145°	435.8	434.8
147.5°	454.2	454.2
150°	472.6	471.6
152.5°	491.0	490.0
155°	511.5	510.5
157.5°	526.8	524.8
160°	539.1	537.0
162.5°	548.3	547.3
165°	559.6	558.5
167.5°	568.8	567.7
170°	575.9	574.9
172.5°	579.0	578.0
175°	582.1	580.0
177.5°	586.2	585.1
180°	589.2	589.2

(END OF REPORT)

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

