

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: P228366

Luminaire Tested: **ISS-AF-1200-LED-E1-SL4-8030**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P228366
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29763)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISS-AF-1200-LED-E1-SL4-8030
Description: IMPACT ELITE LED QUATER SPHERE LUMINAIRE
LIGHT SQUARE WITH ACCULED OPTICS-TYPE IV W/SPILL CONTROL
Light Source: (16) 3000K CCT, 80 CRI LEDs
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4748 lumens
Efficiency: N/A
Efficacy: 71.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G2

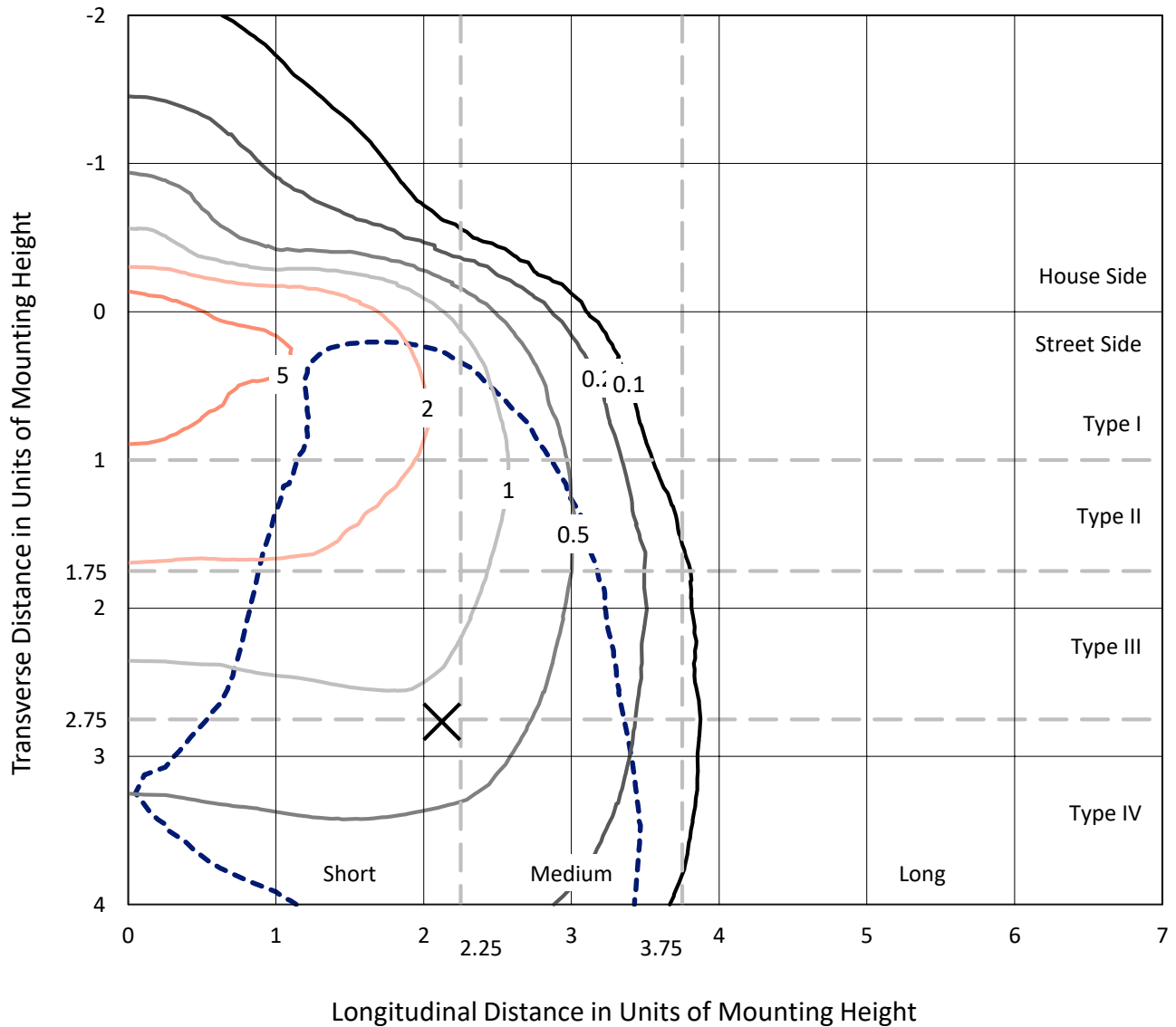
Input Watts (W): 66
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P228366
 CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

Iso-Footcandle Lines of Horizontal Illumination

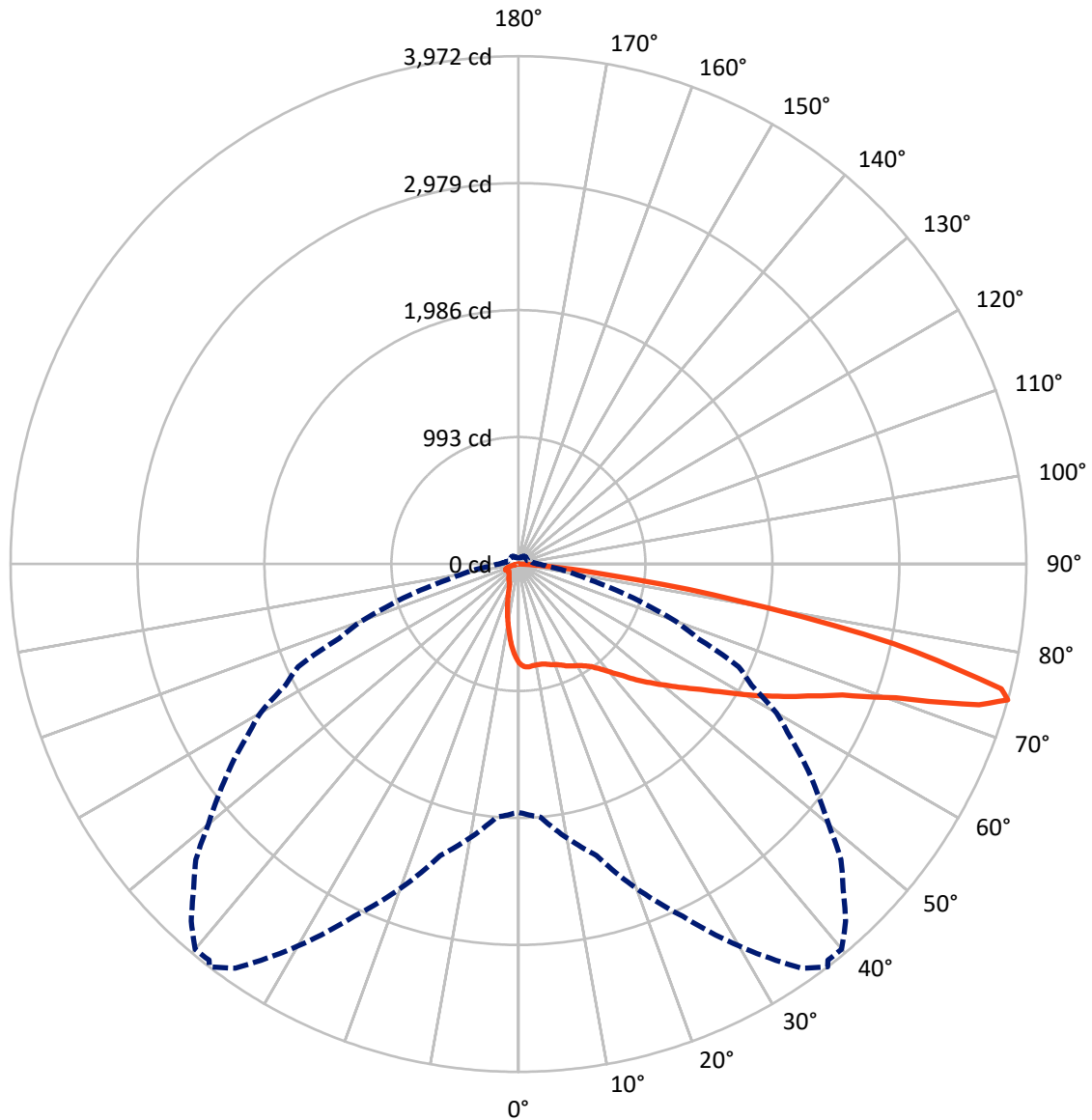
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.2 fc
 Type IV - Short - Non-Cutoff

REPORT NUMBER: P228366
CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

Luminous Intensity Polar Plot



— Vertical Plane Through 37.5-Deg Lateral - - - Horizontal Cone Through 74-Deg Vertical

REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	563.0	0.0	563.0
	% Fixture	11.9	0.0	11.9
Street Side	Lumens	4185.0	0.0	4185.0
	% Fixture	88.1	0.0	88.1
Total	Lumens	4748.0	0.0	4748.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	1.4
10°-20°	171.8	3.6
20°-30°	266.3	5.6
30°-40°	395.0	8.3
40°-50°	607.6	12.8
50°-60°	898.1	18.9
60°-70°	1197.2	25.2
70°-80°	1033.4	21.8
80°-90°	111.1	2.3
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°-90°	4748.0	100.0
0°-180°	4748.0	100.0



REPORT NUMBER: P228366

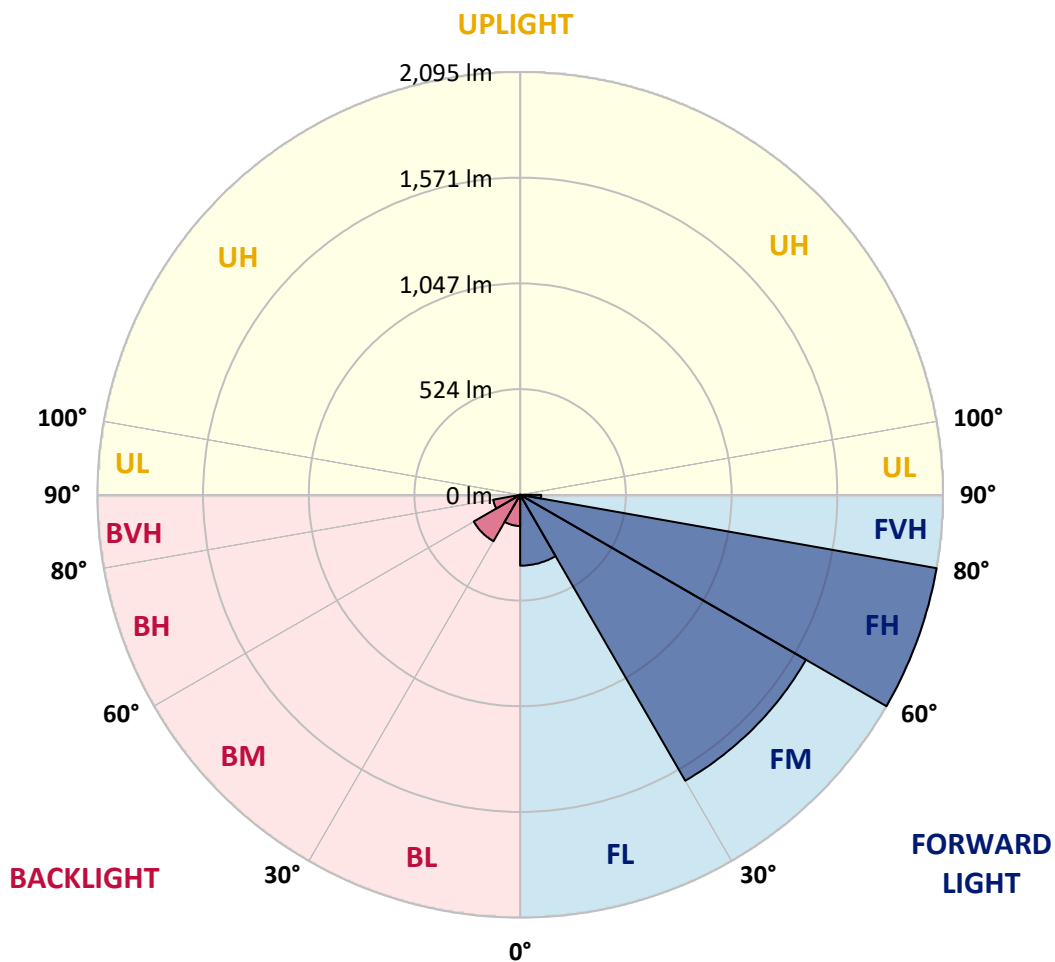
CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	351.0	7.4			
FM	(30°-60°)	1635.3	34.4			
FH	(60°-80°)	2094.8	44.1			G2/5000
FVH	(80°-90°)	103.8	2.2			G2/225
BL	(0°-30°)	154.6	3.3	B1/500		
BM	(30°-60°)	265.4	5.6	B1/1000		
BH	(60°-80°)	135.7	2.9	B1/500		G1/500
BVH	(80°-90°)	7.3	0.2			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G2

Type IV Short





REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	37.5°	38°	40°	42.5°	45°	47.5°
0°	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8
2.5°	819.1	817.4	813.8	812.0	808.5	803.2	808.5	801.4	797.8	801.4	794.3
5°	833.3	831.5	828.0	820.9	817.4	808.5	813.8	804.9	803.2	806.7	797.8
7.5°	835.1	831.5	826.2	817.4	813.8	803.2	806.7	796.1	792.5	796.1	790.8
10°	829.8	828.0	822.7	808.5	804.9	801.4	799.6	792.5	790.8	789.0	787.2
12.5°	820.9	820.9	817.4	812.0	810.3	803.2	804.9	797.8	799.6	796.1	792.5
15°	817.4	815.6	819.1	822.7	822.7	812.0	819.1	813.8	810.3	812.0	806.7
17.5°	813.8	815.6	828.0	835.1	838.6	828.0	838.6	828.0	820.9	829.8	820.9
20°	812.0	817.4	838.6	854.6	856.4	838.6	856.4	838.6	838.6	849.3	833.3
22.5°	820.9	829.8	859.9	877.6	881.2	858.1	879.4	856.4	856.4	865.2	849.3
25°	849.3	858.1	891.8	911.3	907.8	883.0	902.5	879.4	877.6	888.3	867.0
27.5°	886.5	898.9	930.8	948.6	936.1	902.5	930.8	897.1	897.1	913.1	884.7
30°	939.7	948.6	976.9	978.7	962.7	922.0	953.9	916.6	911.3	939.7	904.2
32.5°	998.2	1005.3	1026.6	1014.2	991.1	948.6	985.8	941.5	939.7	969.8	929.0
35°	1060.3	1067.3	1074.4	1053.2	1031.9	985.8	1026.6	982.2	980.5	1014.2	975.1
37.5°	1124.1	1124.1	1124.1	1099.3	1085.1	1040.7	1078.0	1042.5	1039.0	1074.4	1037.2
40°	1175.5	1179.0	1173.7	1150.7	1143.6	1111.7	1143.6	1111.7	1117.0	1148.9	1118.8
42.5°	1218.0	1221.6	1223.4	1203.9	1211.0	1193.2	1218.0	1195.0	1196.8	1232.2	1214.5
45°	1260.6	1258.8	1273.0	1267.7	1289.0	1290.7	1304.9	1296.1	1299.6	1326.2	1320.9
47.5°	1304.9	1296.1	1312.0	1335.1	1374.1	1386.5	1395.3	1398.9	1413.1	1425.5	1437.9
50°	1347.5	1338.6	1349.2	1400.7	1462.7	1489.3	1491.1	1508.8	1524.8	1542.5	1567.3
52.5°	1391.8	1384.7	1395.3	1468.0	1567.3	1604.6	1599.2	1629.4	1652.4	1671.9	1712.7
55°	1437.9	1430.8	1441.4	1549.6	1679.0	1730.4	1725.1	1767.7	1812.0	1819.1	1865.2
57.5°	1482.2	1473.4	1503.5	1645.3	1812.0	1890.0	1865.2	1930.8	1973.3	1969.8	2033.6
60°	1530.1	1523.0	1570.9	1762.4	1978.7	2079.7	2042.5	2129.4	2159.5	2147.1	2207.4
62.5°	1576.2	1574.4	1654.2	1898.9	2180.8	2278.3	2244.6	2320.8	2342.1	2326.2	2356.3
65°	1618.7	1629.4	1744.6	2035.4	2375.8	2487.5	2441.4	2517.7	2542.5	2530.1	2581.5
67.5°	1689.7	1702.1	1856.3	2209.2	2616.9	2732.2	2693.2	2773.0	2810.2	2806.7	2863.4
70°	1794.3	1817.3	2021.2	2455.6	2983.9	3131.1	3109.8	3207.3	3297.8	3290.7	3347.4
72.5°	1976.9	2014.1	2292.5	2838.6	3586.8	3765.8	3741.0	3796.0	3780.0	3650.6	3546.0
74°	1941.4	1987.5	2359.9	3038.9	3858.0	3971.5	3930.7	3932.5	3787.1	3590.3	3421.9
75°	1812.0	1859.9	2262.3	3014.1	3838.5	3900.6	3842.1	3769.4	3593.9	3393.5	3186.1
77.5°	1242.9	1304.9	1663.1	2434.3	3090.3	3005.2	2991.0	2852.7	2620.5	2395.3	2129.4
80°	636.5	680.8	859.9	1273.0	1833.3	1748.2	1776.5	1664.8	1471.6	1308.5	1037.2
82.5°	152.5	163.1	253.5	492.9	794.3	726.9	737.6	652.5	540.8	441.5	342.2
85°	79.8	90.4	124.1	136.5	209.2	216.3	211.0	203.9	166.7	140.1	122.3
87.5°	0.0	0.0	0.0	3.5	1.8	0.0	1.8	0.0	0.0	1.8	3.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

CANDELA DISTRIBUTION (continued):

	50°	52.5°	55°	57.5°	60°	62.5°	65°	67.5°	70°	72.5°	75°
0°	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8
2.5°	799.6	796.1	799.6	789.0	794.3	785.4	789.0	780.1	783.7	776.6	778.3
5°	803.2	794.3	799.6	790.8	792.5	785.4	783.7	780.1	778.3	773.0	769.5
7.5°	794.3	787.2	785.4	781.9	776.6	778.3	771.3	769.5	764.2	764.2	753.5
10°	785.4	787.2	776.6	780.1	771.3	773.0	760.6	764.2	755.3	762.4	746.4
12.5°	792.5	794.3	785.4	790.8	774.8	778.3	767.7	773.0	760.6	769.5	750.0
15°	808.5	806.7	803.2	803.2	787.2	794.3	781.9	785.4	773.0	783.7	762.4
17.5°	822.7	820.9	815.6	813.8	803.2	804.9	792.5	799.6	785.4	794.3	773.0
20°	838.6	829.8	828.0	826.2	813.8	813.8	804.9	808.5	794.3	804.9	780.1
22.5°	851.0	843.9	842.2	835.1	826.2	829.8	817.4	819.1	804.9	815.6	794.3
25°	870.5	861.7	861.7	851.0	845.7	843.9	836.9	842.2	828.0	835.1	815.6
27.5°	897.1	877.6	884.7	874.1	870.5	868.8	865.2	868.8	858.1	863.4	843.9
30°	922.0	897.1	907.8	893.6	900.7	893.6	898.9	893.6	893.6	893.6	884.7
32.5°	955.6	925.5	946.8	925.5	939.7	929.0	946.8	936.1	943.2	941.5	937.9
35°	1003.5	968.1	998.2	969.8	994.6	980.5	1005.3	1000.0	1014.2	1007.1	1014.2
37.5°	1067.3	1030.1	1065.6	1039.0	1069.1	1047.8	1083.3	1079.8	1109.9	1099.3	1109.9
40°	1147.1	1120.5	1147.1	1127.6	1159.5	1150.7	1187.9	1189.7	1223.4	1218.0	1230.5
42.5°	1235.8	1216.3	1242.9	1232.2	1264.1	1271.2	1313.8	1324.4	1356.3	1365.2	1367.0
45°	1331.5	1328.0	1349.2	1359.9	1391.8	1413.1	1450.3	1476.9	1512.4	1531.9	1528.3
47.5°	1443.2	1457.4	1471.6	1498.2	1526.5	1570.9	1608.1	1641.8	1682.6	1695.0	1700.3
50°	1569.1	1593.9	1606.3	1643.6	1671.9	1726.9	1778.3	1820.9	1865.2	1859.9	1863.4
52.5°	1702.1	1734.0	1751.7	1796.0	1833.3	1897.1	1941.4	1982.2	2037.2	2023.0	2017.7
55°	1849.2	1897.1	1911.3	1960.9	1992.8	2058.4	2097.5	2168.4	2191.4	2177.2	2147.1
57.5°	2005.3	2062.0	2077.9	2145.3	2161.3	2232.2	2265.9	2313.8	2333.3	2310.2	2271.2
60°	2182.6	2234.0	2246.4	2306.7	2327.9	2393.5	2418.4	2460.9	2475.1	2418.4	2363.4
62.5°	2359.9	2413.0	2420.1	2473.3	2494.6	2551.3	2579.7	2604.5	2597.4	2514.1	2445.0
65°	2562.0	2613.4	2631.1	2684.3	2696.7	2739.3	2762.3	2734.0	2718.0	2592.1	2514.1
67.5°	2882.9	2937.9	2944.9	2957.4	2955.6	2934.3	2923.7	2826.2	2755.2	2523.0	2411.3
70°	3304.9	3264.1	3184.3	3092.1	3024.7	2904.2	2833.2	2632.9	2484.0	2223.3	2035.4
72.5°	3381.1	3248.1	3051.3	2893.5	2730.4	2540.7	2388.2	2085.0	1875.8	1602.8	1404.2
74°	3164.8	2948.5	2741.0	2519.4	2331.5	2054.9	1900.6	1517.7	1310.2	1033.7	792.5
75°	2904.2	2650.6	2416.6	2134.7	1959.2	1627.6	1482.2	1069.1	861.7	613.5	413.1
77.5°	1852.8	1549.6	1326.2	1000.0	863.4	595.7	436.2	271.3	200.3	175.5	152.5
80°	831.5	592.2	469.8	324.5	271.3	207.4	175.5	141.8	129.4	113.5	108.2
82.5°	265.9	212.8	202.1	180.8	180.8	145.4	124.1	97.5	88.6	76.2	69.1
85°	115.2	108.2	111.7	102.8	104.6	79.8	63.8	47.9	47.9	33.7	30.1
87.5°	3.5	0.0	1.8	0.0	3.5	0.0	1.8	0.0	1.8	0.0	1.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

CANDELA DISTRIBUTION (continued):

	77.5°	80°	85°	90°	95°	100°	102.5°	105°	107.5°	110°	112.5°
0°	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8
2.5°	771.3	774.8	773.0	765.9	764.2	758.8	746.4	748.2	741.1	746.4	737.6
5°	764.2	762.4	755.3	746.4	737.6	726.9	718.1	714.5	707.4	703.9	698.6
7.5°	753.5	746.4	734.0	719.8	707.4	693.2	686.1	673.7	670.2	657.8	656.0
10°	750.0	737.6	723.4	705.7	684.4	663.1	661.3	640.1	638.3	618.8	613.5
12.5°	757.1	741.1	723.4	702.1	677.3	647.1	647.1	615.2	613.5	586.9	578.0
15°	771.3	751.7	728.7	703.9	672.0	634.7	633.0	595.7	592.2	560.3	549.6
17.5°	783.7	757.1	735.8	702.1	664.9	622.3	613.5	576.2	569.1	531.9	517.7
20°	792.5	762.4	737.6	698.6	652.5	602.8	590.4	551.4	535.4	498.2	478.7
22.5°	803.2	774.8	741.1	696.8	645.4	586.9	560.3	524.8	501.8	462.8	436.2
25°	819.1	794.3	753.5	702.1	640.1	570.9	535.4	498.2	466.3	427.3	388.3
27.5°	843.9	819.1	771.3	709.2	638.3	554.9	515.9	469.8	430.8	388.3	344.0
30°	879.4	852.8	801.4	728.7	640.1	542.5	494.7	445.0	398.9	349.3	303.2
32.5°	925.5	904.2	840.4	750.0	647.1	531.9	475.2	418.4	361.7	313.8	273.0
35°	989.3	975.1	895.4	790.8	664.9	526.6	455.7	393.6	329.8	281.9	237.6
37.5°	1083.3	1063.8	975.1	849.3	693.2	523.0	441.5	363.5	303.2	251.8	214.5
40°	1202.1	1175.5	1069.1	920.2	737.6	524.8	429.1	340.4	280.1	225.2	195.0
42.5°	1343.9	1304.9	1184.4	1007.1	781.9	528.4	422.0	319.1	262.4	203.9	180.8
45°	1503.5	1459.2	1320.9	1115.2	845.7	537.2	416.7	301.4	246.4	187.9	172.0
47.5°	1659.5	1615.2	1460.9	1223.4	911.3	553.2	420.2	290.8	235.8	179.1	161.3
50°	1812.0	1765.9	1585.1	1320.9	968.1	574.5	434.4	292.5	234.0	175.5	156.0
52.5°	1946.7	1890.0	1691.4	1397.1	1008.8	588.6	446.8	297.9	235.8	173.8	154.3
55°	2081.5	2008.8	1776.5	1457.4	1033.7	590.4	446.8	299.6	237.6	173.8	152.5
57.5°	2182.6	2099.2	1842.1	1492.9	1042.5	581.5	436.2	290.8	226.9	172.0	148.9
60°	2246.4	2157.7	1888.2	1515.9	1030.1	544.3	379.4	257.1	200.3	159.6	138.3
62.5°	2299.6	2209.2	1902.4	1476.9	925.5	432.6	296.1	209.2	166.7	141.8	127.7
65°	2312.0	2203.8	1803.1	1304.9	723.4	299.6	214.5	164.9	136.5	125.9	115.2
67.5°	2124.0	1994.6	1515.9	1021.2	492.9	205.7	159.6	134.7	117.0	111.7	108.2
70°	1726.9	1585.1	1109.9	668.4	274.8	143.6	122.3	111.7	101.1	101.1	95.7
72.5°	1113.4	966.3	569.1	285.5	140.1	109.9	99.3	95.7	86.9	88.6	83.3
74°	569.1	443.2	232.3	150.7	115.2	97.5	88.6	86.9	78.0	79.8	74.5
75°	289.0	228.7	163.1	125.9	106.4	92.2	81.6	81.6	70.9	72.7	67.4
77.5°	134.7	129.4	111.7	99.3	90.4	78.0	67.4	65.6	55.0	58.5	51.4
80°	94.0	94.0	86.9	83.3	74.5	63.8	51.4	51.4	40.8	42.6	37.2
82.5°	53.2	49.6	49.6	56.7	58.5	47.9	37.2	35.5	30.1	30.1	24.8
85°	23.0	26.6	31.9	39.0	42.6	37.2	26.6	24.8	16.0	16.0	8.9
87.5°	0.0	1.8	1.8	3.5	7.1	7.1	0.0	3.5	0.0	1.8	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



REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

CANDELA DISTRIBUTION (continued):

	115°	117.5°	120°	122.5°	125°	127.5°	130°	135°	145°	155°	165°
0°	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8	774.8
2.5°	741.1	732.2	737.6	728.7	732.2	723.4	726.9	721.6	716.3	709.2	707.4
5°	693.2	686.1	684.4	675.5	677.3	670.2	663.1	654.2	643.6	629.4	624.1
7.5°	640.1	638.3	625.9	620.5	613.5	606.4	594.0	579.8	558.5	539.0	526.6
10°	594.0	588.6	570.9	562.0	551.4	542.5	524.8	505.3	475.2	445.0	429.1
12.5°	554.9	547.9	524.8	514.2	498.2	487.6	466.3	441.5	398.9	356.4	336.9
15°	523.0	512.4	485.8	469.8	448.6	437.9	414.9	379.4	328.0	283.7	257.1
17.5°	485.8	471.6	443.2	423.7	402.5	383.0	359.9	322.7	264.2	223.4	196.8
20°	445.0	427.3	397.2	370.6	347.5	329.8	306.7	269.5	211.0	179.1	164.9
22.5°	402.5	374.1	347.5	324.5	297.9	280.1	257.1	223.4	179.1	161.3	156.0
25°	358.1	326.2	299.6	276.6	251.8	235.8	216.3	189.7	163.1	157.8	157.8
27.5°	313.8	281.9	257.1	234.0	212.8	202.1	184.4	166.7	154.3	156.0	157.8
30°	273.0	241.1	218.1	200.3	180.8	173.8	159.6	148.9	147.2	152.5	154.3
32.5°	237.6	209.2	187.9	173.8	157.8	154.3	141.8	136.5	141.8	148.9	147.2
35°	207.4	184.4	163.1	154.3	140.1	138.3	129.4	125.9	133.0	141.8	141.8
37.5°	184.4	163.1	147.2	140.1	129.4	127.7	120.6	117.0	122.3	134.7	138.3
40°	164.9	152.5	136.5	129.4	122.3	118.8	115.2	111.7	113.5	129.4	131.2
42.5°	152.5	143.6	129.4	125.9	117.0	115.2	109.9	106.4	108.2	120.6	125.9
45°	143.6	136.5	124.1	122.3	113.5	111.7	106.4	102.8	104.6	115.2	120.6
47.5°	136.5	129.4	118.8	115.2	109.9	108.2	104.6	101.1	101.1	111.7	117.0
50°	133.0	125.9	115.2	111.7	106.4	104.6	101.1	97.5	99.3	108.2	111.7
52.5°	131.2	122.3	113.5	108.2	104.6	101.1	97.5	94.0	95.7	104.6	108.2
55°	131.2	120.6	113.5	108.2	102.8	97.5	95.7	90.4	94.0	101.1	106.4
57.5°	131.2	120.6	113.5	108.2	104.6	99.3	95.7	92.2	94.0	101.1	106.4
60°	127.7	118.8	115.2	109.9	108.2	102.8	101.1	97.5	97.5	106.4	115.2
62.5°	122.3	117.0	115.2	111.7	111.7	108.2	108.2	104.6	104.6	115.2	124.1
65°	115.2	111.7	113.5	111.7	111.7	111.7	109.9	109.9	109.9	118.8	129.4
67.5°	108.2	106.4	108.2	108.2	109.9	108.2	109.9	108.2	108.2	117.0	127.7
70°	97.5	97.5	99.3	97.5	99.3	99.3	101.1	101.1	101.1	106.4	117.0
72.5°	85.1	83.3	85.1	83.3	86.9	83.3	86.9	88.6	86.9	88.6	94.0
74°	76.2	74.5	76.2	74.5	78.0	74.5	76.2	76.2	74.5	60.3	51.4
75°	69.1	67.4	69.1	67.4	70.9	67.4	70.9	69.1	65.6	44.3	42.6
77.5°	55.0	49.6	55.0	49.6	53.2	47.9	51.4	44.3	33.7	31.9	31.9
80°	40.8	35.5	39.0	33.7	31.9	24.8	26.6	24.8	23.0	24.8	24.8
82.5°	24.8	17.7	21.3	16.0	19.5	14.2	17.7	16.0	14.2	14.2	14.2
85°	12.4	8.9	12.4	7.1	10.6	7.1	8.9	8.9	5.3	5.3	5.3
87.5°	1.8	0.0	3.5	0.0	3.5	0.0	1.8	1.8	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

REPORT NUMBER: P228366

CATALOG NUMBER: ISS-AF-1200-LED-E1-SL4-8030

CANDELA DISTRIBUTION (continued):

	175°	180°
0°	774.8	774.8
2.5°	702.1	703.9
5°	615.2	620.5
7.5°	519.5	523.0
10°	418.4	422.0
12.5°	322.7	326.2
15°	242.9	239.4
17.5°	186.2	182.6
20°	157.8	157.8
22.5°	154.3	152.5
25°	156.0	154.3
27.5°	156.0	154.3
30°	152.5	150.7
32.5°	147.2	145.4
35°	141.8	141.8
37.5°	138.3	140.1
40°	133.0	134.7
42.5°	127.7	129.4
45°	122.3	124.1
47.5°	117.0	117.0
50°	109.9	109.9
52.5°	108.2	108.2
55°	108.2	108.2
57.5°	111.7	111.7
60°	122.3	124.1
62.5°	143.6	145.4
65°	164.9	168.4
67.5°	166.7	172.0
70°	161.3	166.7
72.5°	111.7	111.7
74°	49.6	47.9
75°	42.6	40.8
77.5°	31.9	31.9
80°	23.0	21.3
82.5°	12.4	12.4
85°	3.5	3.5
87.5°	0.0	0.0
90°	0.0	0.0

(END OF REPORT)