

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: P226310

Luminaire Tested: **IST-AF-450-LED-E1-T2-ULG**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P226310
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35937)-DOWNLIGHT AND
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: IST-AF-450-LED-E1-T2-ULG
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE WITH UPLIGHT
LIGHT SQUARE WITH ACCULED OPTICS-TYPE II, 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: 4985.9 lumens
Efficiency: N/A
Efficacy: 118.7 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.5' x L: 0.5' x H: 0.54')
IES Classification: Type II - Medium - Non-Cutoff
BUG Rating: B1 - U5 - G1

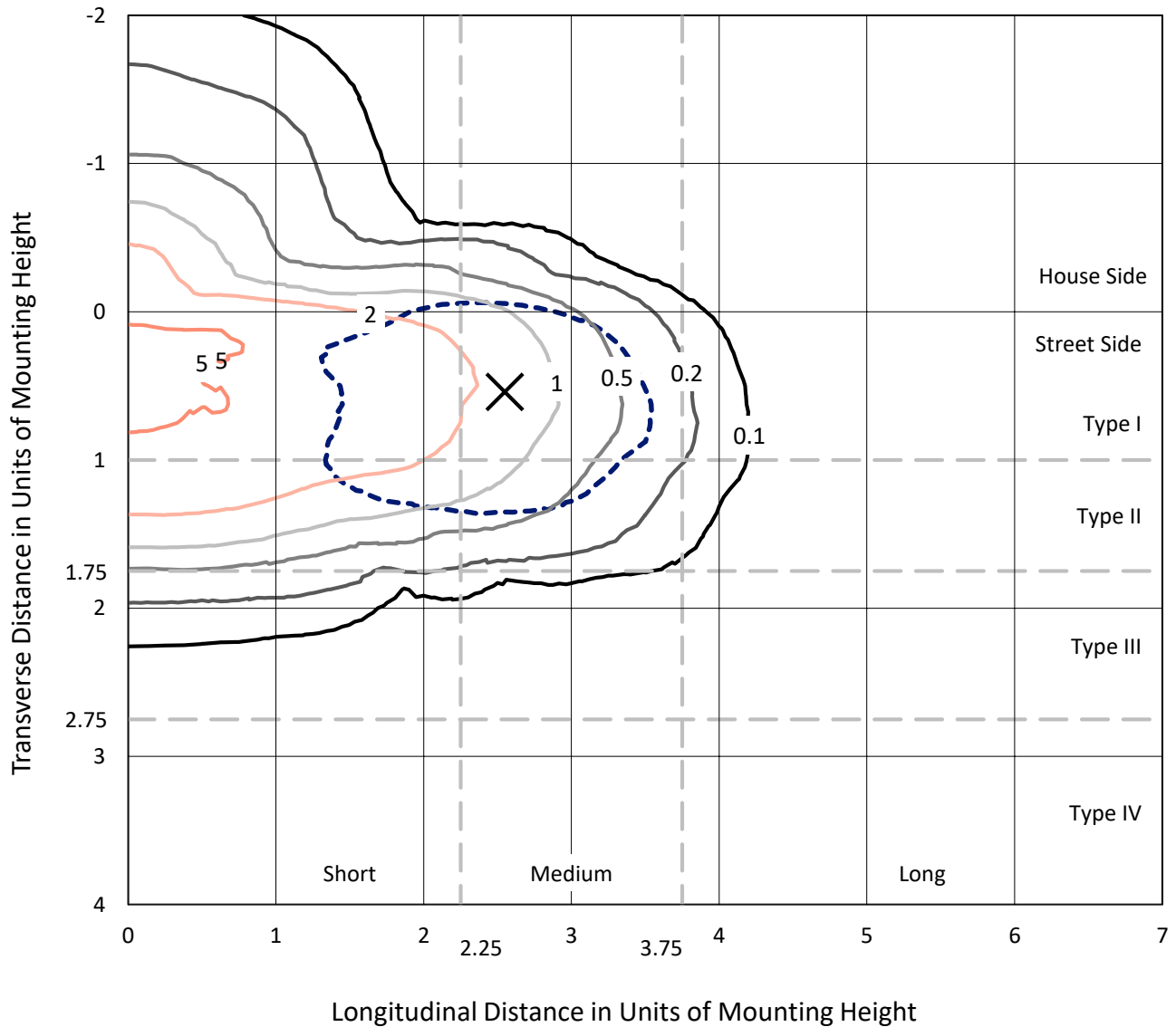
Input Watts (W): 42.01
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P226310
 CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

Iso-Footcandle Lines of Horizontal Illumination

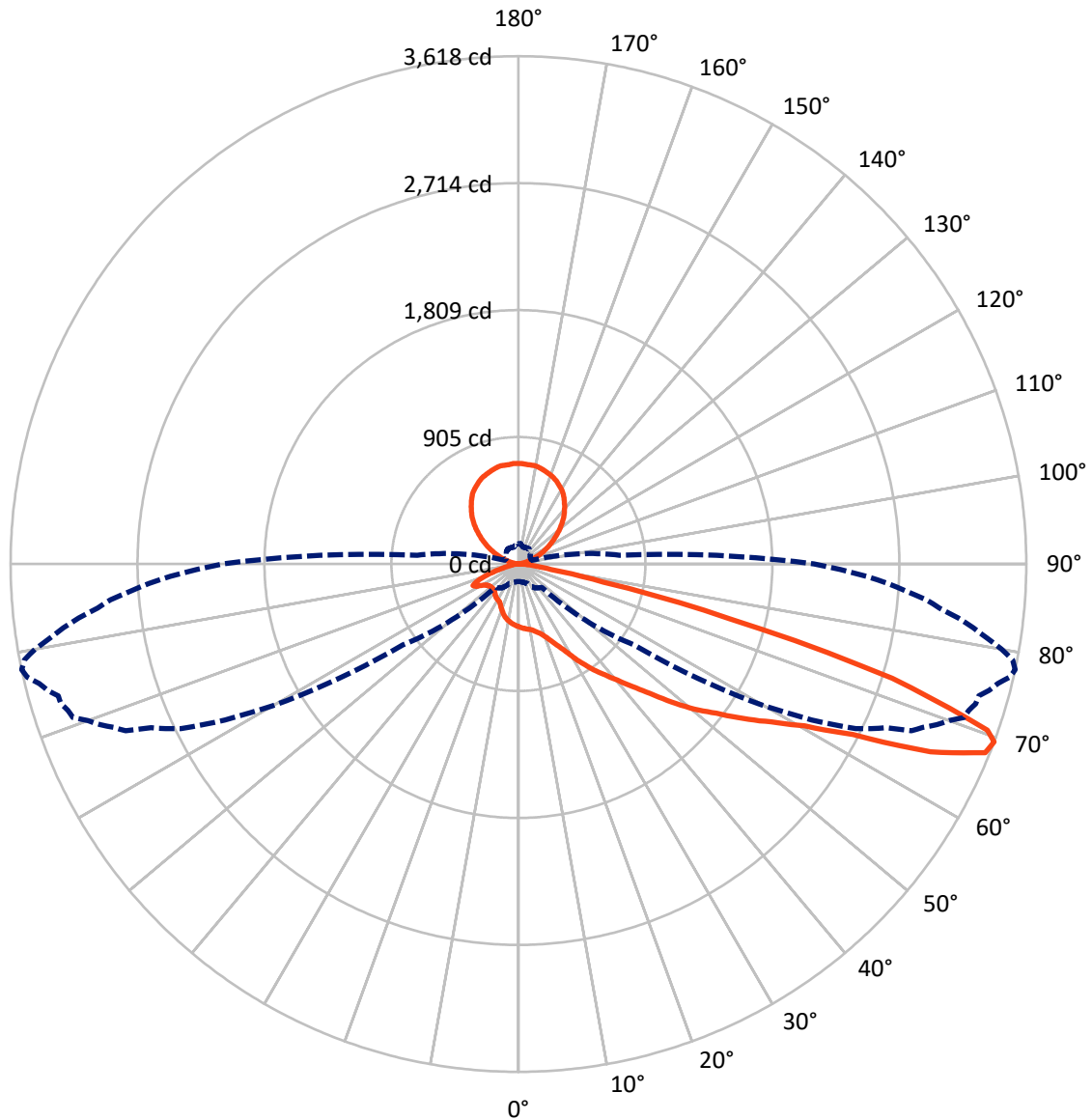
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5.7 fc
 Type II - Medium - Non-Cutoff

REPORT NUMBER: P226310
CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

Luminous Intensity Polar Plot



— Vertical Plane Through 78-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

REPORT NUMBER: P226310

CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

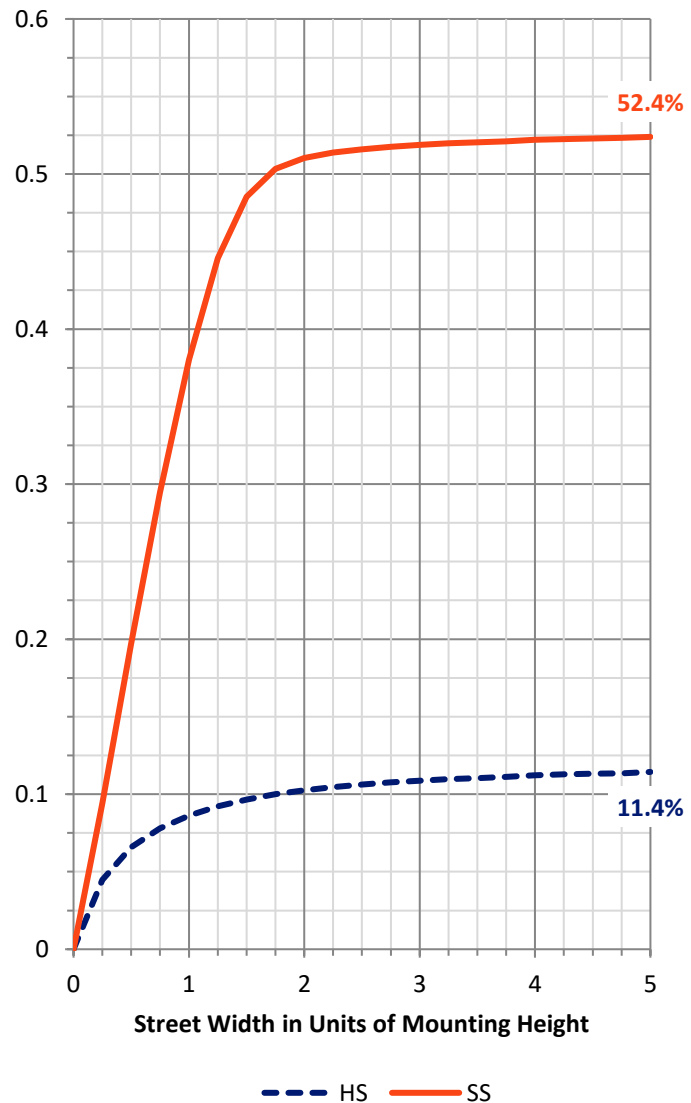
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	587.4	888.6	1476.0
	% Fixture	11.8	17.8	29.6
Street Side	Lumens	2621.9	888.0	3509.9
	% Fixture	52.6	17.8	70.4
Total	Lumens	3209.3	1776.6	4985.9
	% Fixture	64.4	35.6	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	41.5	0.8
10°-20°	125.2	2.5
20°-30°	224.4	4.5
30°-40°	366.3	7.3
40°-50°	541.8	10.9
50°-60°	707.4	14.2
60°-70°	791.2	15.9
70°-80°	355.2	7.1
80°-90°	56.4	1.1
90°-100°	11.1	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°	3209.3	64.4
0°-180°	4985.9	100.0



REPORT NUMBER: P226310

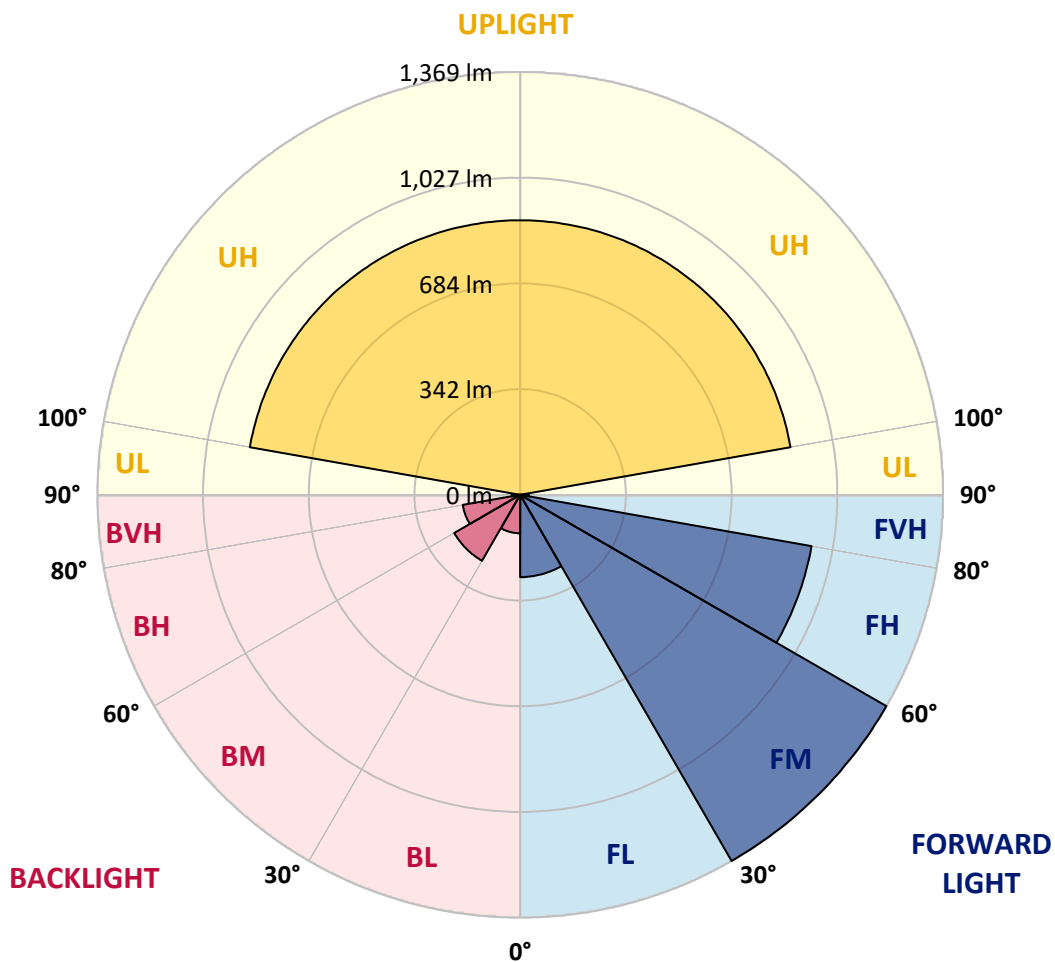
CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	266.4	5.3			
FM (30°-60°)	1368.9	27.5			
FH (60°-80°)	957.7	19.2			G1/1800
FVH (80°-90°)	28.8	0.6			G1/100
BL (0°-30°)	124.6	2.5	B1/500		
BM (30°-60°)	246.6	4.9	B1/1000		
BH (60°-80°)	188.6	3.8	B1/500		G1/500
BVH (80°-90°)	27.6	0.6			G1/100
UL (90°-100°)	11.1	0.2		U2/50	
UH (100°-180°)	888.6	17.8		U4/1000	

BUG Rating: B1-U5-G1

Type II Medium





REPORT NUMBER: P226310

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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	60°	61°	62°	64°
0°	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4
2.5°	478.1	478.1	476.7	475.8	474.3	470.7	465.0	464.1	463.6	462.7	461.8
5°	513.0	509.3	510.2	507.9	502.8	496.2	486.0	480.9	478.1	477.6	475.8
7.5°	541.4	542.0	540.5	535.8	528.9	521.0	507.0	499.1	496.7	495.3	492.0
10°	562.0	560.6	559.7	558.7	553.1	546.6	528.9	519.1	517.2	513.5	509.7
12.5°	576.8	576.8	576.8	575.9	572.6	567.5	553.6	543.8	541.4	536.3	533.1
15°	593.2	591.4	589.4	588.1	588.5	588.5	578.3	570.8	567.1	564.3	557.8
17.5°	628.1	623.9	619.7	614.2	605.3	602.9	602.5	602.0	596.9	596.5	589.9
20°	658.0	654.3	650.5	644.9	632.3	618.8	625.8	632.3	631.4	631.9	628.6
22.5°	694.8	691.9	684.6	678.0	661.6	645.4	646.3	660.3	662.2	664.0	664.9
25°	745.1	743.7	731.6	719.0	700.3	685.0	670.5	687.7	691.5	695.7	704.1
27.5°	795.9	792.6	779.6	768.4	745.1	728.8	708.7	718.1	723.6	731.6	744.6
30°	861.6	852.7	848.0	822.9	801.5	777.7	760.5	763.2	762.3	771.6	791.7
32.5°	956.7	942.6	919.3	894.2	869.0	837.4	822.9	822.5	820.1	830.8	842.0
35°	1007.9	1004.6	990.2	965.1	937.5	907.8	898.4	889.6	891.0	896.5	900.7
37.5°	1063.4	1060.6	1049.3	1035.4	1014.5	1030.7	979.0	966.0	959.9	957.1	958.5
40°	1087.6	1090.0	1096.0	1098.3	1086.2	1164.4	1062.4	1019.6	1017.7	1013.5	1009.3
42.5°	1092.7	1098.8	1110.9	1137.4	1149.1	1319.6	1131.4	1079.6	1072.3	1069.0	1069.4
45°	1111.3	1120.6	1123.0	1147.2	1202.2	1327.6	1209.2	1132.8	1127.2	1126.7	1123.9
47.5°	1156.5	1169.1	1169.1	1179.9	1232.0	1342.9	1235.7	1185.9	1182.2	1180.3	1187.7
50°	1163.1	1179.9	1213.4	1247.9	1285.6	1355.5	1266.0	1243.7	1245.1	1249.3	1271.2
52.5°	1052.6	1069.4	1158.0	1259.6	1382.5	1390.0	1311.7	1320.5	1329.9	1350.4	1390.5
55°	902.5	914.7	1019.6	1182.2	1386.3	1520.9	1426.3	1451.1	1470.6	1476.6	1539.5
57.5°	710.6	727.4	834.1	1045.1	1294.4	1558.3	1690.1	1701.3	1679.4	1699.4	1722.2
60°	384.9	383.0	531.6	755.9	1101.6	1489.2	1944.5	2136.5	2141.1	2171.9	2135.1
62.5°	215.3	215.3	258.2	388.1	708.7	1260.0	2066.6	2513.0	2571.3	2620.2	2727.8
65°	162.6	164.0	179.4	233.9	397.9	795.4	1977.2	2641.6	2753.5	2865.8	3054.4
67.5°	135.1	135.1	146.3	174.3	248.8	361.1	1455.7	2383.5	2523.2	2657.4	2918.4
69°	125.3	125.8	134.2	153.3	208.3	234.9	1005.6	2020.9	2180.7	2366.7	2674.2
70°	120.7	119.3	127.3	143.0	188.7	185.5	736.7	1757.2	1881.1	2047.9	2401.7
72.5°	107.2	105.8	110.0	122.0	148.6	132.4	300.5	945.5	1132.3	1319.2	1601.1
75°	95.5	94.1	97.4	103.0	115.6	101.1	151.0	396.1	479.5	619.7	855.1
77.5°	84.3	81.5	84.3	88.1	90.8	75.5	102.5	183.1	224.6	275.9	389.5
80°	76.4	73.7	76.9	75.0	71.3	58.2	68.0	106.7	118.4	141.7	185.5
82.5°	54.5	54.0	73.1	75.5	56.9	42.5	48.5	68.5	76.4	80.6	97.9
85°	33.6	32.1	42.5	54.0	57.8	26.6	31.2	40.5	42.5	46.1	54.5
87.5°	17.3	17.7	22.8	27.9	37.7	15.9	18.6	23.7	23.7	23.7	27.0
90°	9.3	10.2	14.1	18.0	16.1	11.4	14.1	13.8	14.9	14.2	15.5
92.5°	4.1	4.1	5.1	6.1	6.1	6.1	7.2	7.2	7.2	7.2	7.2
95°	5.1	5.1	6.1	7.2	7.2	7.2	7.2	7.7	7.8	7.9	8.1
97.5°	7.2	7.2	8.2	8.2	9.2	9.2	12.3	11.3	11.0	10.8	10.4
100°	8.2	8.2	9.2	10.2	12.3	21.5	29.7	28.1	27.8	27.5	26.9
102.5°	11.3	11.3	13.3	18.4	27.6	40.9	51.1	49.6	49.3	49.0	48.4
105°	21.5	22.5	27.6	36.8	49.1	64.4	73.7	72.6	72.4	72.2	71.8
107.5°	41.9	43.0	50.1	59.3	74.7	90.0	97.2	96.7	96.6	96.5	96.3



REPORT NUMBER: P226310

CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	60°	61°	62°	64°
110°	67.5	69.6	75.7	89.0	104.3	116.6	122.8	123.3	123.4	123.5	123.7
112.5°	101.3	101.3	108.4	123.8	137.1	146.3	151.4	152.4	152.6	152.8	153.2
115°	143.2	142.2	150.4	162.6	171.9	178.0	183.1	184.6	184.9	185.3	185.9
117.5°	188.2	188.2	193.3	201.5	206.6	209.7	215.8	217.9	218.3	218.7	219.5
120°	230.2	228.1	231.2	238.3	242.4	248.6	251.6	253.7	254.1	254.5	255.3
122.5°	269.0	266.0	267.0	273.1	277.2	283.4	285.4	287.4	287.9	288.3	289.1
125°	304.8	300.7	302.8	305.9	312.0	317.1	320.2	321.2	321.4	321.6	322.0
127.5°	337.6	336.6	336.6	340.6	346.8	347.8	352.9	353.4	353.5	353.6	353.8
130°	371.3	369.3	370.3	374.4	378.5	380.5	385.7	387.7	388.1	388.5	389.3
132.5°	405.1	403.0	402.0	410.2	413.3	414.3	420.4	423.0	423.5	424.0	425.0
135°	438.8	435.8	435.8	441.9	445.0	447.0	453.2	455.7	456.2	456.7	457.8
137.5°	470.6	467.5	469.5	470.6	474.6	478.7	483.9	484.9	485.1	485.3	485.7
140°	499.2	496.1	498.2	500.2	502.3	508.4	511.5	512.5	512.7	512.9	513.3
142.5°	529.9	526.8	528.9	529.9	533.0	537.0	539.1	542.2	542.8	543.4	544.6
145°	562.6	558.5	556.5	559.6	562.6	563.6	568.8	571.8	572.4	573.1	574.3
147.5°	588.2	585.1	584.1	587.2	587.2	588.2	593.3	595.9	596.4	596.9	597.9
150°	608.7	605.6	606.6	606.6	606.6	606.6	610.7	612.2	612.5	612.8	613.5
152.5°	625.0	622.0	622.0	623.0	624.0	624.0	625.0	626.6	626.9	627.2	627.8
155°	643.4	639.3	639.3	641.4	644.5	642.4	640.4	642.9	643.4	643.9	645.0
157.5°	660.8	657.8	657.8	658.8	660.8	659.8	658.8	660.8	661.2	661.6	662.5
160°	678.2	675.1	674.1	671.1	670.0	670.0	673.1	676.2	676.8	677.4	678.6
162.5°	688.4	684.4	684.4	680.3	676.2	678.2	682.3	684.4	684.8	685.2	686.0
165°	696.6	693.6	691.5	691.5	688.4	688.4	687.4	690.0	690.5	691.0	692.0
167.5°	705.8	702.8	699.7	701.7	703.8	700.7	693.6	696.6	697.2	697.9	699.1
170°	714.0	711.0	707.9	707.9	708.9	706.9	701.7	703.3	703.6	703.9	704.5
172.5°	715.0	713.0	711.0	708.9	705.8	705.8	704.8	706.3	706.7	707.0	707.6
175°	716.1	714.0	713.0	711.0	706.9	705.8	705.8	708.4	708.9	709.4	710.4
177.5°	723.2	721.2	716.1	715.0	713.0	711.0	709.9	712.5	713.0	713.5	714.5
180°	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1



REPORT NUMBER: P226310

CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

CANDELA DISTRIBUTION (continued):

	65°	66°	67°	68°	69°	70°	71°	72°	73°	74°	75°
0°	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4
2.5°	462.3	460.8	459.0	459.4	458.5	457.2	457.6	457.2	457.6	456.6	455.7
5°	475.8	474.9	472.0	471.6	470.7	469.7	468.3	466.9	466.5	465.5	463.6
7.5°	491.1	488.4	486.9	485.1	482.7	479.0	478.5	476.7	475.3	474.3	472.0
10°	507.0	503.7	501.9	499.5	497.2	494.9	492.6	489.3	486.0	485.1	482.3
12.5°	530.7	526.5	522.8	519.1	516.8	512.6	509.3	505.1	501.9	500.4	495.8
15°	556.8	551.3	547.5	544.7	541.0	537.3	533.1	529.4	524.3	520.1	515.9
17.5°	587.6	582.5	579.7	574.6	569.9	565.7	562.4	557.8	553.6	546.2	542.4
20°	628.1	623.9	620.7	615.1	610.0	605.8	602.9	593.2	587.6	581.0	575.0
22.5°	665.8	666.4	663.1	659.4	656.1	650.5	645.9	638.8	631.9	623.9	615.5
25°	706.9	710.6	711.1	710.1	708.3	701.7	699.4	692.4	686.8	673.8	670.0
27.5°	752.6	756.8	761.9	768.4	769.8	762.8	766.1	759.0	749.3	743.7	731.6
30°	796.8	808.4	819.2	826.6	831.2	834.5	832.3	829.9	823.4	814.1	803.3
32.5°	853.7	865.8	876.5	892.8	901.2	911.4	909.6	910.5	908.2	898.9	886.3
35°	910.9	921.7	935.7	946.4	966.9	978.0	987.4	986.9	986.9	981.3	969.2
37.5°	961.8	967.8	979.5	997.2	1010.7	1028.4	1043.3	1049.3	1059.2	1059.7	1046.6
40°	1014.9	1020.9	1029.8	1042.9	1057.7	1078.7	1098.8	1118.3	1127.7	1137.4	1132.3
42.5°	1072.3	1078.7	1085.2	1093.6	1115.1	1131.4	1158.4	1185.0	1204.1	1224.2	1221.8
45°	1129.0	1136.5	1145.8	1158.4	1177.5	1204.1	1230.2	1260.0	1303.8	1327.6	1343.9
47.5°	1193.4	1205.4	1222.7	1242.8	1258.1	1285.6	1318.7	1364.8	1409.1	1450.1	1475.7
50°	1290.2	1295.0	1322.9	1342.5	1371.9	1399.8	1432.8	1473.5	1530.7	1572.7	1613.7
52.5°	1404.4	1422.1	1450.1	1472.4	1495.8	1523.8	1557.7	1594.1	1650.9	1698.0	1751.1
55°	1551.7	1576.9	1601.1	1613.2	1645.8	1671.0	1698.5	1734.3	1795.4	1846.6	1909.1
57.5°	1727.4	1752.5	1764.2	1781.9	1795.9	1823.8	1861.1	1885.3	1939.4	1992.5	2058.7
60°	2088.0	2072.2	2086.2	2058.7	2054.5	2056.8	2064.7	2083.3	2113.6	2163.0	2233.0
62.5°	2739.1	2716.1	2655.6	2633.7	2591.3	2534.0	2479.9	2472.5	2456.6	2493.9	2537.7
65°	3119.3	3202.1	3211.0	3234.4	3217.6	3172.8	3109.5	3088.9	3037.7	3001.8	2999.5
67.5°	3027.9	3152.3	3230.2	3328.5	3383.0	3436.1	3450.1	3468.2	3435.2	3418.9	3423.5
69°	2773.9	2866.2	3040.5	3107.6	3193.8	3264.6	3357.8	3374.1	3406.3	3410.9	3472.9
70°	2522.3	2657.9	2757.7	2858.3	2977.6	3055.3	3097.3	3166.3	3246.0	3285.1	3352.2
72.5°	1813.6	1857.9	1928.7	2059.1	2092.2	2172.8	2255.3	2314.0	2407.7	2473.9	2631.8
75°	978.6	1005.2	1116.4	1190.6	1210.2	1236.7	1297.3	1311.7	1346.7	1368.1	1520.0
77.5°	446.8	487.4	501.9	542.4	519.6	530.7	545.2	542.0	551.7	598.3	651.4
80°	205.9	213.9	219.5	236.2	237.2	233.4	234.9	232.5	230.7	238.1	243.7
82.5°	100.1	112.3	112.3	122.5	127.7	126.2	129.1	128.2	130.0	128.2	134.2
85°	58.7	58.7	63.4	68.9	68.0	69.9	69.9	73.7	74.1	75.0	75.0
87.5°	27.5	30.3	31.7	34.1	35.0	36.3	37.2	37.2	37.7	36.8	37.7
90°	16.2	16.2	20.9	20.9	21.8	23.2	21.3	22.3	25.5	21.3	24.6
92.5°	7.2	7.1	7.0	6.9	6.8	6.6	6.5	6.4	6.3	6.2	6.1
95°	8.2	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.2
97.5°	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2
100°	26.6	26.3	26.0	25.7	25.4	25.1	24.8	24.4	24.1	23.8	23.5
102.5°	48.1	47.6	47.1	46.5	46.0	45.5	45.0	44.5	44.0	43.5	43.0
105°	71.6	71.1	70.6	70.1	69.6	69.0	68.5	68.0	67.5	67.0	66.5
107.5°	96.2	95.7	95.3	94.9	94.5	94.1	93.7	93.3	92.9	92.5	92.1



REPORT NUMBER: P226310

CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

CANDELA DISTRIBUTION (continued):

	65°	66°	67°	68°	69°	70°	71°	72°	73°	74°	75°
110°	123.8	123.6	123.4	123.2	123.0	122.8	122.5	122.3	122.1	121.9	121.7
112.5°	153.4	153.3	153.2	153.1	153.0	152.9	152.8	152.7	152.6	152.5	152.4
115°	186.2	185.9	185.6	185.3	184.9	184.6	184.3	184.0	183.7	183.4	183.1
117.5°	219.9	219.4	218.9	218.4	217.9	217.4	216.9	216.4	215.8	215.3	214.8
120°	255.7	255.2	254.7	254.2	253.7	253.2	252.7	252.2	251.6	251.1	250.6
122.5°	289.5	289.0	288.5	288.0	287.4	286.9	286.4	285.9	285.4	284.9	284.4
125°	322.2	321.7	321.2	320.7	320.2	319.7	319.2	318.6	318.1	317.6	317.1
127.5°	353.9	353.9	353.9	353.9	353.9	353.9	353.9	353.9	353.9	353.9	353.9
130°	389.7	389.7	389.7	389.7	389.7	389.7	389.7	389.7	389.7	389.7	389.7
132.5°	425.5	425.3	425.1	424.9	424.7	424.5	424.3	424.1	423.9	423.7	423.5
135°	458.3	458.2	458.1	458.0	457.9	457.8	457.7	457.6	457.5	457.4	457.3
137.5°	485.9	486.0	486.1	486.2	486.3	486.4	486.5	486.6	486.7	486.8	486.9
140°	513.5	513.7	513.9	514.1	514.3	514.5	514.7	515.0	515.2	515.4	515.6
142.5°	545.2	545.2	545.2	545.2	545.2	545.2	545.2	545.2	545.2	545.2	545.2
145°	574.9	574.8	574.7	574.6	574.5	574.4	574.3	574.2	574.1	574.0	573.9
147.5°	598.4	598.5	598.6	598.7	598.8	598.9	599.0	599.1	599.2	599.3	599.4
150°	613.8	614.1	614.4	614.7	615.0	615.3	615.6	615.9	616.2	616.5	616.8
152.5°	628.1	628.5	628.9	629.3	629.7	630.1	630.5	631.0	631.4	631.8	632.2
155°	645.5	646.0	646.5	647.0	647.5	648.0	648.6	649.1	649.6	650.1	650.6
157.5°	662.9	663.1	663.3	663.5	663.7	663.9	664.1	664.3	664.5	664.7	664.9
160°	679.2	678.9	678.6	678.3	678.0	677.7	677.4	677.1	676.8	676.5	676.2
162.5°	686.4	686.3	686.2	686.1	686.0	685.9	685.8	685.7	685.6	685.5	685.4
165°	692.5	692.8	693.2	693.5	693.8	694.1	694.4	694.7	695.0	695.3	695.6
167.5°	699.7	700.1	700.5	700.9	701.3	701.7	702.2	702.6	703.0	703.4	703.8
170°	704.8	705.3	705.8	706.3	706.9	707.4	707.9	708.4	708.9	709.4	709.9
172.5°	707.9	708.1	708.3	708.5	708.7	708.9	709.1	709.3	709.5	709.7	709.9
175°	711.0	711.1	711.2	711.3	711.4	711.5	711.6	711.7	711.8	711.9	712.0
177.5°	715.0	715.2	715.5	715.7	715.9	716.1	716.3	716.5	716.7	716.9	717.1
180°	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1



REPORT NUMBER: P226310

CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

CANDELA DISTRIBUTION (continued):

	76°	77°	78°	79°	80°	81°	82°	83°	84°	85°	86°
0°	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4
2.5°	454.8	455.7	455.2	453.4	453.0	453.0	452.0	451.5	450.6	450.1	451.0
5°	463.2	463.2	461.8	459.9	458.1	457.6	457.2	454.8	453.9	453.0	452.0
7.5°	471.1	470.1	468.3	465.0	463.2	462.7	460.8	458.5	456.2	454.3	453.4
10°	479.5	478.5	474.9	472.5	468.8	468.3	465.0	462.3	459.9	457.6	455.7
12.5°	491.6	490.7	486.5	480.9	478.1	476.2	472.0	468.8	465.5	462.7	459.4
15°	510.2	506.6	503.7	498.2	494.0	490.2	485.1	480.4	475.8	471.1	468.3
17.5°	536.3	531.2	523.8	520.5	515.0	508.8	501.9	498.6	492.6	486.9	481.4
20°	570.4	565.2	553.6	549.4	541.4	532.7	527.0	520.1	515.0	506.1	500.0
22.5°	608.1	603.4	592.3	581.0	573.6	566.6	557.8	548.9	539.1	530.7	524.3
25°	657.0	650.1	640.3	629.1	617.9	608.1	596.0	583.4	575.0	563.3	554.0
27.5°	723.6	711.6	695.2	683.1	674.2	659.4	644.5	633.3	620.2	604.9	594.5
30°	795.9	782.4	770.3	756.3	741.3	726.9	706.4	690.1	676.2	659.8	643.0
32.5°	876.1	864.4	847.1	829.0	812.6	794.5	779.6	762.3	738.1	720.9	703.2
35°	956.7	943.2	925.5	910.0	891.4	872.8	856.0	833.2	811.3	786.5	761.9
37.5°	1034.5	1022.8	1003.2	980.0	963.6	943.6	926.4	902.1	876.1	848.5	829.9
40°	1121.2	1102.5	1089.0	1061.9	1045.1	1022.8	998.1	979.5	954.3	924.5	897.9
42.5°	1220.4	1207.4	1192.9	1171.0	1153.3	1126.7	1095.5	1071.7	1048.4	1013.0	976.2
45°	1346.2	1337.8	1314.1	1296.4	1272.6	1244.6	1217.6	1188.7	1151.8	1110.9	1077.4
47.5°	1497.2	1490.6	1469.3	1444.1	1412.8	1375.1	1349.9	1310.3	1279.1	1227.8	1187.7
50°	1634.2	1637.4	1625.8	1587.1	1559.2	1521.4	1481.8	1447.3	1399.3	1346.2	1295.0
52.5°	1797.7	1794.5	1765.1	1743.7	1710.6	1665.0	1621.6	1577.3	1524.7	1469.7	1405.8
55°	1954.3	1964.1	1943.6	1913.3	1873.2	1809.4	1765.6	1708.2	1652.8	1592.2	1518.6
57.5°	2106.3	2137.5	2121.6	2085.7	2044.7	1998.5	1940.7	1876.5	1819.2	1739.9	1657.0
60°	2295.4	2336.8	2343.4	2320.1	2275.3	2221.7	2145.8	2095.5	2016.7	1943.6	1879.8
62.5°	2586.6	2680.7	2675.1	2686.4	2654.7	2621.6	2532.6	2478.5	2376.0	2323.3	2234.3
65°	3073.1	3142.5	3226.0	3223.1	3201.2	3122.0	3029.8	2939.3	2871.8	2767.9	2675.1
67.5°	3481.3	3538.6	3588.0	3562.4	3512.1	3423.1	3315.0	3189.2	3086.1	2971.6	2849.9
69°	3519.5	3589.4	3618.3	3586.6	3496.2	3380.1	3274.4	3157.4	3015.8	2917.5	2769.3
70°	3417.0	3486.0	3544.2	3462.7	3379.7	3266.5	3150.9	3029.3	2902.5	2796.7	2647.2
72.5°	2714.3	2792.1	2784.2	2775.4	2709.2	2595.9	2489.7	2424.5	2335.5	2207.8	2099.7
75°	1578.2	1614.1	1551.2	1617.4	1538.2	1424.0	1438.9	1365.3	1300.1	1226.4	1169.6
77.5°	619.7	651.4	618.4	607.6	572.2	564.3	505.1	512.1	482.7	424.9	398.4
80°	234.9	239.1	233.4	221.8	219.5	205.9	202.2	189.1	183.1	164.0	157.0
82.5°	126.2	128.6	124.9	121.1	118.4	110.5	105.3	95.5	89.9	83.9	83.4
85°	72.7	70.8	68.9	67.1	62.9	58.2	54.5	50.8	46.6	43.4	40.1
87.5°	38.3	38.7	39.2	37.2	34.5	30.8	28.4	27.0	23.7	22.4	21.0
90°	21.6	18.1	19.3	21.9	20.8	18.2	17.6	16.0	14.3	14.1	12.8
92.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
95°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
97.5°	9.1	9.0	8.9	8.8	8.7	8.6	8.5	8.4	8.3	8.2	8.2
100°	23.1	22.7	22.3	21.9	21.5	21.1	20.7	20.3	19.8	19.4	19.4
102.5°	42.7	42.4	42.0	41.7	41.4	41.1	40.8	40.5	40.2	39.9	39.7
105°	66.1	65.7	65.3	64.9	64.4	64.0	63.6	63.2	62.8	62.4	62.4
107.5°	91.8	91.5	91.1	90.8	90.5	90.2	89.9	89.6	89.3	89.0	88.8



REPORT NUMBER: P226310
 CATALOG NUMBER: IST-AF-450-LED-E1-T2-ULG

REPORT N
 CATALOG

CANDELA DISTRIBUTION (continued):

CANDELA

	76°	77°	78°	79°	80°	81°	82°	83°	84°	85°	86°	
110°	121.4	121.1	120.8	120.5	120.2	119.9	119.6	119.3	119.0	118.7	118.9	0°
112.5°	152.2	152.0	151.8	151.6	151.4	151.2	151.0	150.8	150.6	150.4	150.4	2.5°
115°	182.9	182.7	182.5	182.3	182.1	181.9	181.7	181.5	181.3	181.1	181.3	5°
117.5°	214.6	214.4	214.2	214.0	213.8	213.6	213.4	213.2	213.0	212.8	213.0	7.5°
120°	250.4	250.2	250.0	249.8	249.6	249.4	249.2	249.0	248.8	248.6	248.6	10°
122.5°	284.2	284.0	283.8	283.6	283.4	283.2	282.9	282.7	282.5	282.3	282.5	12.5°
125°	317.1	317.1	317.1	317.1	317.1	317.1	317.1	317.1	317.1	317.1	317.1	15°
127.5°	353.8	353.7	353.6	353.5	353.4	353.3	353.2	353.1	353.0	352.9	353.3	17.5°
130°	389.5	389.3	389.1	388.9	388.7	388.5	388.3	388.1	387.9	387.7	387.9	20°
132.5°	423.5	423.5	423.5	423.5	423.5	423.5	423.5	423.5	423.5	423.5	423.7	22.5°
135°	457.6	457.9	458.2	458.5	458.8	459.1	459.4	459.7	460.0	460.3	460.5	25°
137.5°	487.4	487.9	488.5	489.0	489.5	490.0	490.5	491.0	491.5	492.0	492.2	27.5°
140°	516.1	516.6	517.1	517.6	518.1	518.6	519.1	519.7	520.2	520.7	521.1	30°
142.5°	545.3	545.4	545.5	545.6	545.7	545.8	545.9	546.1	546.2	546.3	546.7	32.5°
145°	573.6	573.3	573.0	572.6	572.3	572.0	571.7	571.4	571.1	570.8	571.2	35°
147.5°	599.1	598.8	598.5	598.2	597.9	597.6	597.3	597.0	596.7	596.4	596.8	37.5°
150°	617.1	617.5	617.8	618.1	618.4	618.7	619.0	619.3	619.6	619.9	620.7	40°
152.5°	632.7	633.2	633.7	634.2	634.7	635.3	635.8	636.3	636.8	637.3	638.3	42.5°
155°	650.8	651.0	651.2	651.4	651.6	651.8	652.0	652.2	652.4	652.6	653.3	45°
157.5°	664.9	664.9	664.9	664.9	664.9	664.9	664.9	664.9	664.9	664.9	665.9	47.5°
160°	676.1	676.0	675.9	675.8	675.7	675.6	675.5	675.4	675.2	675.1	676.4	50°
162.5°	685.2	685.0	684.8	684.6	684.4	684.1	683.9	683.7	683.5	683.3	684.6	52.5°
165°	695.4	695.2	695.0	694.8	694.6	694.4	694.2	694.0	693.8	693.6	694.4	55°
167.5°	703.8	703.8	703.8	703.8	703.8	703.8	703.8	703.8	703.8	703.8	705.0	57.5°
170°	710.1	710.3	710.5	710.7	711.0	711.2	711.4	711.6	711.8	712.0	713.0	60°
172.5°	710.1	710.3	710.5	710.7	711.0	711.2	711.4	711.6	711.8	712.0	713.0	62.5°
175°	711.8	711.6	711.4	711.2	711.0	710.7	710.5	710.3	710.1	709.9	711.0	65°
177.5°	716.8	716.5	716.2	715.9	715.6	715.2	714.9	714.6	714.3	714.0	714.8	67.5°
180°	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	69°
												70°
												72.5°
												75°
												77.5°
												80°
												82.5°
												85°
												87.5°
												90°
												92.5°
												95°
												97.5°
												100°
												102.5°
												105°
												107.5°

NUMBER: P226310
 NUMBER: IST-AF-450-LED-E1-T2-ULG

REPORT NUMBER: P
 CATALOG NUMBER:

DISTRIBUTION (continued):

CANDELA DISTRIBUTION

87°	88°	89°	90°	95°	105°	115°	125°	135°	145°	155°	110°	87°
446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	446.4	110°	119.1
449.7	449.7	448.3	447.3	444.1	438.4	432.9	427.8	420.7	418.0	414.3	112.5°	150.4
451.0	450.1	448.8	446.8	440.4	427.3	413.8	399.4	384.4	370.9	355.1	115°	181.5
452.0	450.1	448.3	445.9	436.6	416.5	389.5	361.1	334.6	314.6	306.2	117.5°	213.2
452.5	451.0	448.8	445.5	432.4	402.6	359.3	318.2	294.9	287.0	285.6	120°	248.6
457.6	455.2	451.5	447.8	430.6	387.2	325.3	286.1	276.8	280.5	287.0	122.5°	282.7
464.1	461.4	456.6	453.0	429.6	367.2	292.2	267.9	271.2	281.4	292.2	125°	317.1
475.8	471.1	466.0	462.3	431.5	342.5	265.6	258.6	268.4	281.4	295.9	127.5°	353.7
493.0	486.5	480.4	473.9	434.2	311.7	249.8	252.6	264.2	278.1	294.0	130°	388.1
514.4	507.0	498.6	488.8	437.5	285.2	240.9	246.0	256.8	268.8	281.9	132.5°	423.9
543.3	533.1	522.3	510.2	442.2	256.2	233.0	238.6	245.1	252.1	258.6	135°	460.7
579.7	565.7	554.0	537.8	446.8	236.7	226.5	228.3	229.8	230.7	230.2	137.5°	492.4
628.1	606.7	593.2	573.2	452.0	226.5	219.0	216.7	214.3	211.1	207.4	140°	521.5
679.3	661.6	640.3	614.6	455.2	219.5	212.1	204.6	198.0	194.8	194.8	142.5°	547.1
739.1	717.1	690.1	658.0	451.0	212.1	202.7	192.9	189.1	193.3	192.0	145°	571.6
798.7	768.4	738.6	701.7	440.8	203.7	192.4	187.3	190.2	184.5	181.3	147.5°	597.2
864.4	830.8	789.4	746.4	425.9	194.8	187.3	190.2	180.3	173.8	176.6	150°	621.5
938.0	898.4	853.7	795.4	416.1	189.1	179.4	181.8	173.4	168.7	167.3	152.5°	639.3
1038.2	981.8	927.3	858.8	423.6	180.3	164.0	173.4	168.7	164.5	160.8	155°	653.9
1136.5	1076.5	1012.1	931.5	436.6	173.8	151.9	164.5	167.8	160.8	153.7	157.5°	667.0
1235.3	1171.5	1096.4	1006.5	452.5	169.6	142.6	153.7	165.4	157.0	151.4	160°	677.6
1339.2	1258.6	1181.7	1084.8	473.0	165.4	135.1	144.4	161.2	157.0	148.6	162.5°	685.8
1448.3	1353.2	1276.3	1171.5	508.8	159.4	125.8	137.0	157.0	156.6	145.9	165°	695.2
1575.0	1490.2	1391.4	1284.7	558.7	152.4	117.4	131.4	153.3	154.7	142.6	167.5°	706.2
1790.8	1703.1	1583.8	1482.3	657.5	143.0	112.3	125.8	147.2	151.0	139.8	170°	714.0
2140.7	2021.4	1911.9	1816.9	826.6	130.0	108.5	119.8	140.8	146.3	137.5	172.5°	714.0
2541.9	2425.4	2293.0	2133.3	920.8	117.8	103.4	112.3	134.2	141.7	135.1	175°	712.0
2712.5	2560.0	2399.3	2209.7	830.8	108.1	97.9	105.3	126.7	135.1	131.9	177.5°	715.7
2634.2	2479.9	2293.0	2107.2	722.7	103.0	94.6	101.6	121.1	130.9	128.6	180°	716.1
2498.0	2343.0	2176.1	1952.9	645.4	100.1	92.3	99.2	118.9	128.6	126.7		
1975.7	1837.3	1683.6	1513.5	439.9	90.8	84.8	92.3	109.5	120.2	119.8		
1047.1	1006.5	892.8	793.1	227.8	81.1	76.9	84.3	101.1	112.3	112.3		
377.0	342.1	327.1	271.7	121.1	70.8	68.9	74.6	91.8	102.5	102.1		
142.6	138.8	124.4	116.5	76.9	57.8	58.2	63.8	80.6	90.8	90.4		
80.6	73.1	70.8	68.5	48.9	45.6	48.0	53.6	68.9	77.8	79.2		
38.7	35.9	35.0	32.6	32.1	35.0	37.7	42.5	55.0	65.7	64.3		
18.6	17.7	17.3	16.8	22.8	22.4	27.5	29.4	36.8	52.2	47.1		
13.2	13.2	12.8	11.9	13.7	16.7	18.1	19.7	22.5	38.5	32.8		
6.1	6.1	6.1	6.1	6.1	6.1	7.2	7.2	6.1	6.1	6.1		
7.2	7.2	7.2	7.2	7.2	7.2	8.2	7.2	7.2	7.2	7.2		
8.2	8.2	8.2	8.2	8.2	9.2	10.2	12.3	9.2	9.2	8.2		
19.4	19.4	19.4	19.4	19.4	23.5	26.6	29.7	21.5	12.3	10.2		
39.5	39.3	39.1	38.9	39.9	43.0	48.1	51.1	40.9	27.6	18.4		
62.4	62.4	62.4	62.4	62.4	66.5	71.6	73.7	64.4	49.1	36.8		
88.6	88.4	88.2	88.0	89.0	92.1	96.2	97.2	90.0	74.7	59.3		

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 IST-AF-450-LED-E1-T2-ULG

REPORT NUMBER: P226310
 CATALOG NUMBER: IST-AF-450

TION (continued):

CANDELA DISTRIBUTION (con

88°	89°	90°	95°	105°	115°	125°	135°	145°	155°		165°	175°
119.3	119.5	119.7	118.7	121.7	123.8	122.8	116.6	104.3	89.0	0°	446.4	446.4
150.4	150.4	150.4	150.4	152.4	153.4	151.4	146.3	137.1	123.8	2.5°	411.0	404.5
181.7	181.9	182.1	181.1	183.1	186.2	183.1	178.0	171.9	162.6	5°	343.4	342.5
213.4	213.6	213.8	212.8	214.8	219.9	215.8	209.7	206.6	201.5	7.5°	301.1	294.9
248.6	248.6	248.6	248.6	250.6	255.7	251.6	248.6	242.4	238.3	10°	287.0	286.5
282.9	283.2	283.4	282.3	284.4	289.5	285.4	283.4	277.2	273.1	12.5°	293.1	294.5
317.1	317.1	317.1	317.1	317.1	322.2	320.2	317.1	312.0	305.9	15°	301.1	303.8
354.1	354.6	355.0	352.9	353.9	353.9	352.9	347.8	346.8	340.6	17.5°	306.2	311.3
388.3	388.5	388.7	387.7	389.7	389.7	385.7	380.5	378.5	374.4	20°	304.7	310.8
424.1	424.3	424.5	423.5	423.5	425.5	420.4	414.3	413.3	410.2	22.5°	289.4	292.2
460.9	461.1	461.4	460.3	457.3	458.3	453.2	447.0	445.0	441.9	25°	261.9	262.8
492.7	492.9	493.1	492.0	486.9	485.9	483.9	478.7	474.6	470.6	27.5°	228.8	227.8
521.9	522.3	522.7	520.7	515.6	513.5	511.5	508.4	502.3	500.2	30°	205.5	199.5
547.5	547.9	548.3	546.3	545.2	545.2	539.1	537.0	533.0	529.9	32.5°	194.8	191.1
572.0	572.4	572.9	570.8	573.9	574.9	568.8	563.6	562.6	559.6	35°	187.3	181.3
597.6	598.0	598.4	596.4	599.4	598.4	593.3	588.2	587.2	587.2	37.5°	194.4	193.8
622.4	623.2	624.0	619.9	616.8	613.8	610.7	606.6	606.6	606.6	40°	200.8	199.9
640.4	641.4	642.4	637.3	632.2	628.1	625.0	624.0	624.0	623.0	42.5°	189.7	181.3
654.5	655.1	655.7	652.6	650.6	645.5	640.4	642.4	644.5	641.4	45°	169.2	159.4
668.0	669.0	670.0	664.9	664.9	662.9	658.8	659.8	660.8	658.8	47.5°	155.2	149.6
678.8	680.1	681.3	675.1	676.2	679.2	673.1	670.0	670.0	671.1	50°	148.6	146.8
687.0	688.2	689.5	683.3	685.4	686.4	682.3	678.2	676.2	680.3	52.5°	146.8	151.4
696.0	696.8	697.7	693.6	695.6	692.5	687.4	688.4	688.4	691.5	55°	145.9	151.0
707.5	708.7	709.9	703.8	703.8	699.7	693.6	700.7	703.8	701.7	57.5°	139.3	148.2
715.0	716.1	717.1	712.0	709.9	704.8	701.7	706.9	708.9	707.9	60°	134.6	145.4
715.0	716.1	717.1	712.0	709.9	707.9	704.8	705.8	705.8	708.9	62.5°	131.9	144.0
713.0	714.0	715.0	709.9	712.0	711.0	705.8	705.8	706.9	711.0	65°	129.5	145.0
716.5	717.3	718.1	714.0	717.1	715.0	709.9	711.0	713.0	715.0	67.5°	125.8	147.7
716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	716.1	69°	124.0	147.2
										70°	122.0	145.9
										72.5°	115.6	134.6
										75°	107.6	118.9
										77.5°	97.4	102.1
										80°	86.2	89.0
										82.5°	75.0	85.7
										85°	58.7	72.7
										87.5°	43.4	40.1
										90°	31.8	23.3
										92.5°	5.1	4.1
										95°	6.1	5.1
										97.5°	8.2	7.2
										100°	9.2	8.2
										102.5°	13.3	11.3
										105°	27.6	22.5
										107.5°	50.1	43.0



REPORT NUMBER: P226310

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

0-LED-E1-T2-ULG

tinued):

180°
446.4
405.9
339.7
295.4
288.0
293.6
304.7
313.1
312.2
294.5
263.7
231.6
204.1
195.3
184.0
196.2
201.7
183.1
159.4
148.6
145.9
152.8
150.5
148.6
145.9
143.5
143.0
144.0
142.1
139.8
125.8
113.2
102.1
89.9
75.9
56.9
43.4
20.5
4.1
5.1
7.2
8.2
11.3
21.5
41.9

CANDELA DISTRIBUTION (continued):

	165°	175°	180°
110°	75.7	69.6	67.5
112.5°	108.4	101.3	101.3
115°	150.4	142.2	143.2
117.5°	193.3	188.2	188.2
120°	231.2	228.1	230.2
122.5°	267.0	266.0	269.0
125°	302.8	300.7	304.8
127.5°	336.6	336.6	337.6
130°	370.3	369.3	371.3
132.5°	402.0	403.0	405.1
135°	435.8	435.8	438.8
137.5°	469.5	467.5	470.6
140°	498.2	496.1	499.2
142.5°	528.9	526.8	529.9
145°	556.5	558.5	562.6
147.5°	584.1	585.1	588.2
150°	606.6	605.6	608.7
152.5°	622.0	622.0	625.0
155°	639.3	639.3	643.4
157.5°	657.8	657.8	660.8
160°	674.1	675.1	678.2
162.5°	684.4	684.4	688.4
165°	691.5	693.6	696.6
167.5°	699.7	702.8	705.8
170°	707.9	711.0	714.0
172.5°	711.0	713.0	715.0
175°	713.0	714.0	716.1
177.5°	716.1	721.2	723.2
180°	716.1	716.1	716.1

(END OF F

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

Scaled Data Report

