

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: P227800

Luminaire Tested: **ISS-AF-450-LED-E1-T4FT-ULG**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P227800
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29760)-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-T4FT-ULG
Description: IMPACT ELITE LED QUATER SPHERE LUMINAIRE WITH UPLIGHT
LIGHT SQUARE WITH ACCULED OPTICS-TYPE IV FORWARD THROW, 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: 4489.9 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.5' x L: 0.5' x H: 0.54')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U5 - G1

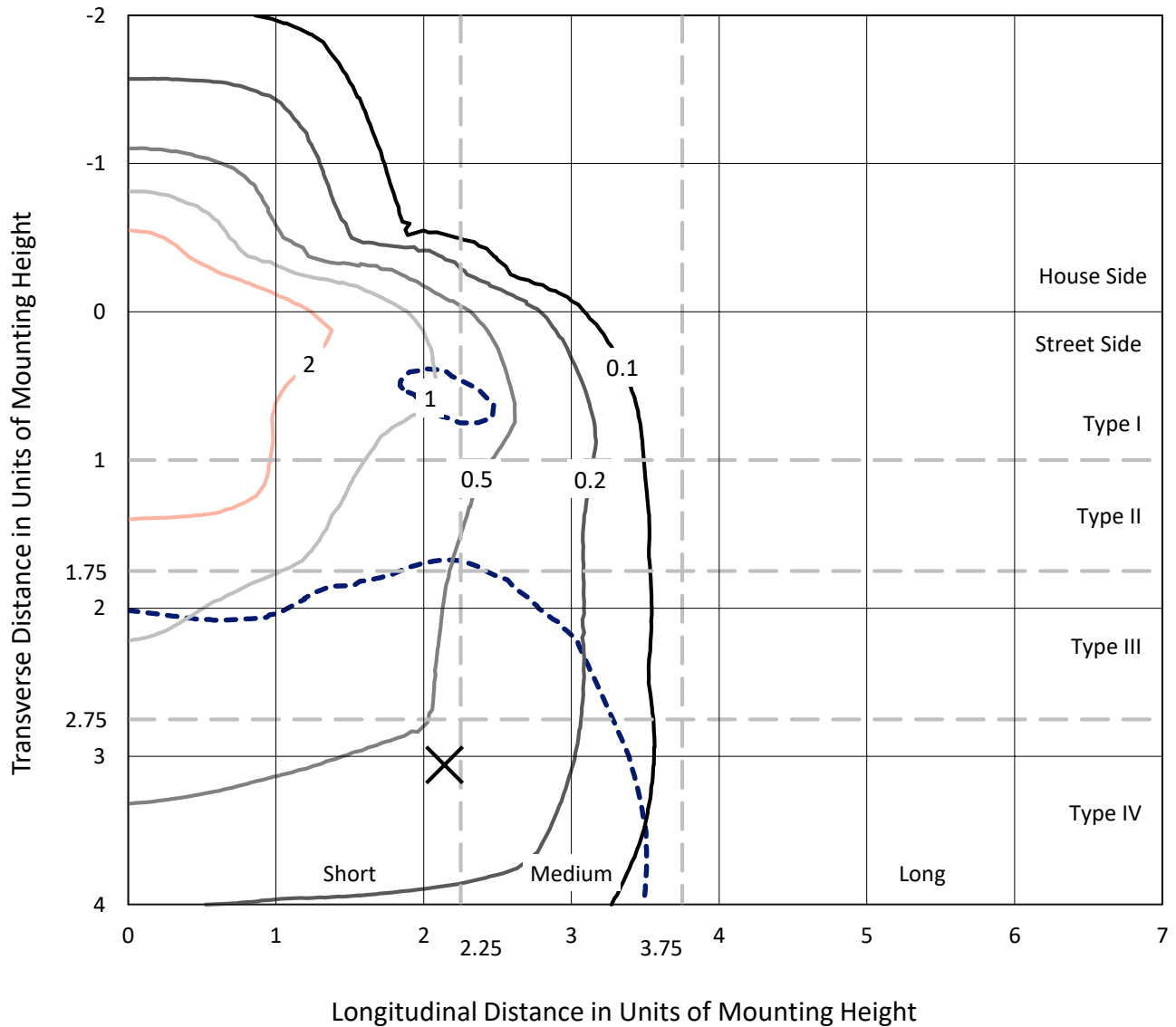
Input Watts (W): 42.01
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

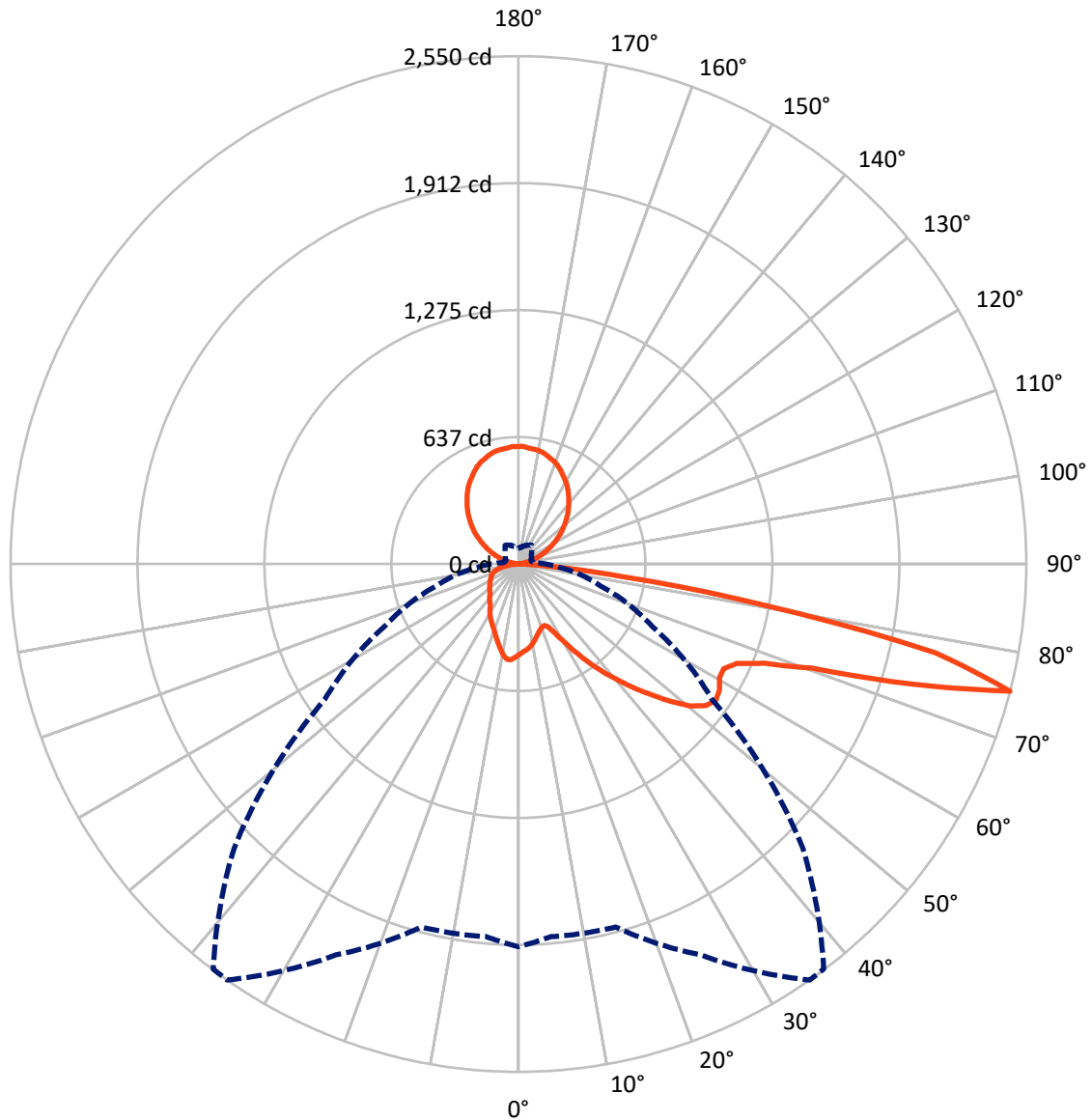
× Max cd
- - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 35-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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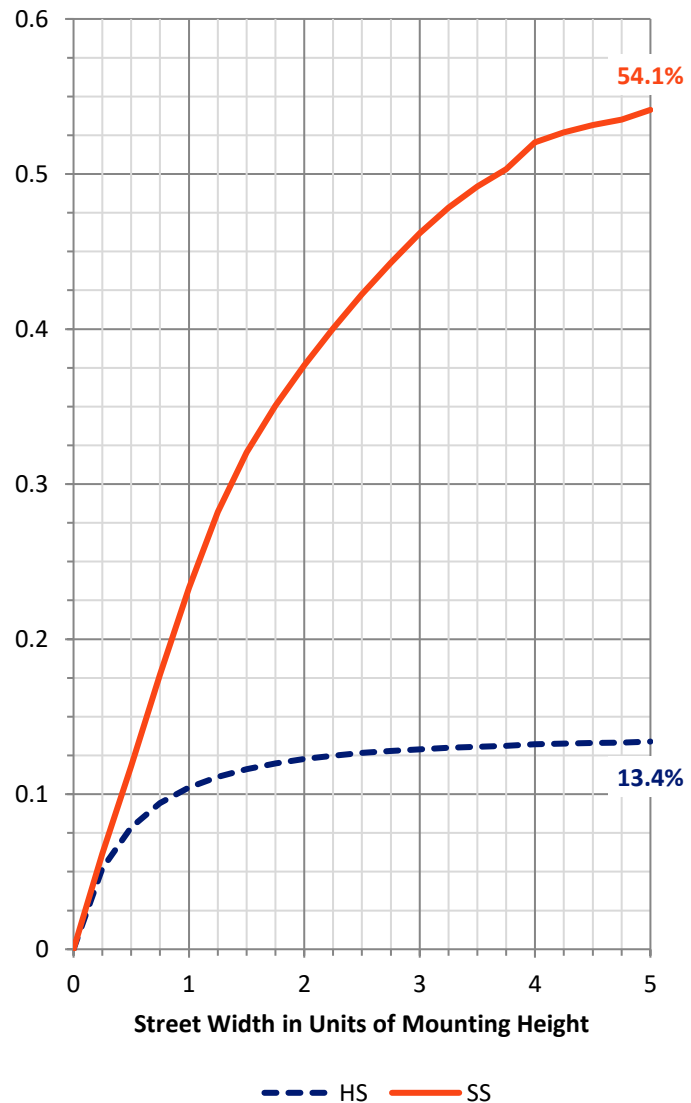
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	608.3	729.4	1337.8
	% Fixture	13.5	16.2	29.8
Street Side	Lumens	2422.7	729.4	3152.1
	% Fixture	54.0	16.2	70.2
Total	Lumens	3031.0	1458.9	4489.9
	% Fixture	67.5	32.5	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.7	1.0
10°-20°	112.8	2.5
20°-30°	178.5	4.0
30°-40°	288.0	6.4
40°-50°	426.1	9.5
50°-60°	547.9	12.2
60°-70°	678.4	15.1
70°-80°	683.6	15.2
80°-90°	73.0	1.6
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	6.1
140°-150°	275.5	6.1
150°-160°	236.4	5.3
160°-170°	158.7	3.5
170°-180°	55.6	1.2
0°-90°	3031.0	67.5
0°-180°	4489.9	100.0



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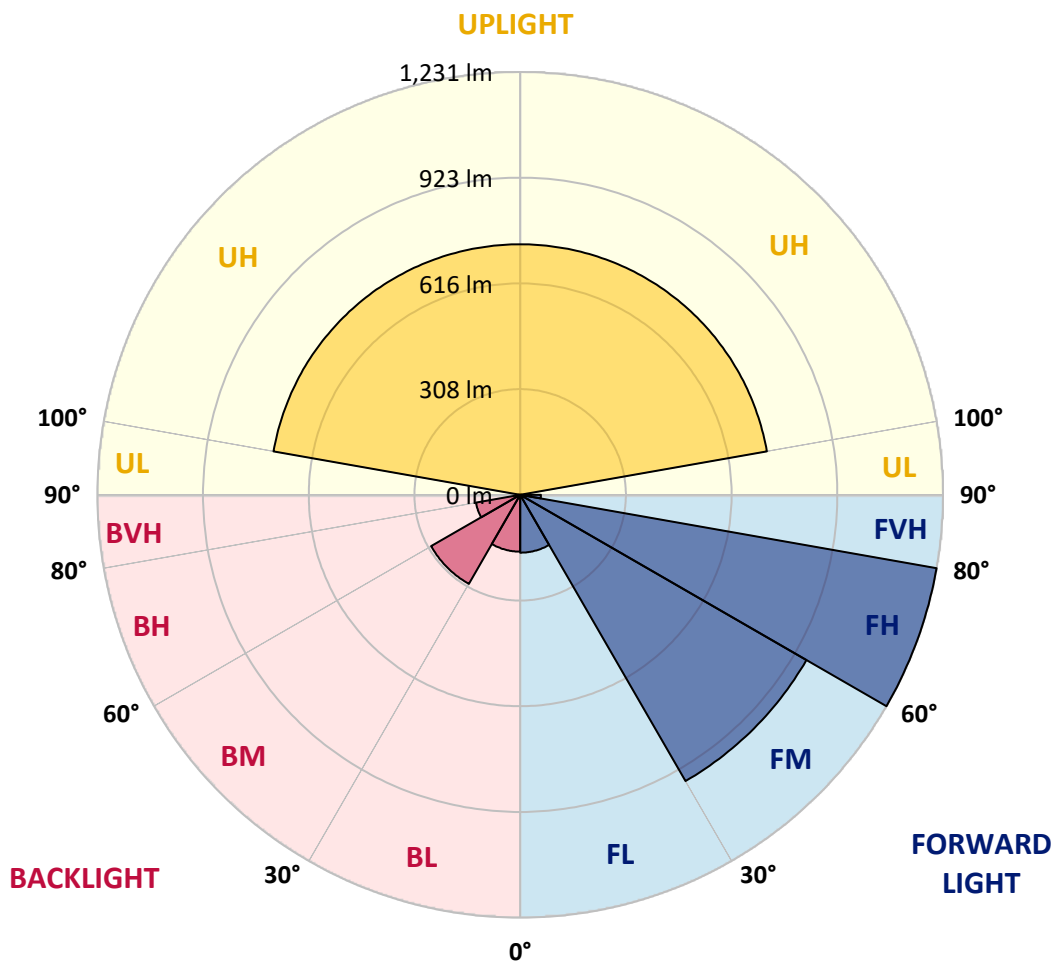
CATALOG NUMBER: ISS-AF-450-LED-E1-T4FT-ULG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	168.5	3.8			
FM (30°-60°)	962.5	21.4			
FH (60°-80°)	1231.3	27.4			G1/1800
FVH (80°-90°)	60.4	1.3			G1/100
BL (0°-30°)	165.5	3.7	B1/500		
BM (30°-60°)	299.6	6.7	B1/1000		
BH (60°-80°)	130.7	2.9	B1/500		G1/500
BVH (80°-90°)	12.6	0.3			G1/100
UL (90°-100°)	4.8	0.1		U1/10	
UH (100°-180°)	729.4	16.2		U4/1000	

BUG Rating: B1-U5-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	37°	45°	55°	65°	75°	85°
0°	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3
2.5°	442.2	441.2	440.2	440.2	442.2	442.2	443.1	444.2	445.2	448.3	452.2
5°	430.0	429.0	428.0	429.0	432.1	432.1	435.1	437.1	439.2	444.2	449.3
7.5°	413.9	413.9	412.9	416.9	419.9	418.9	423.0	424.9	430.0	435.1	443.1
10°	392.6	392.6	392.6	397.6	402.7	402.7	405.7	410.8	414.9	422.0	432.1
12.5°	374.4	373.4	373.4	377.5	383.5	384.5	389.5	396.6	401.7	410.8	422.0
15°	368.4	366.3	361.2	361.2	364.3	364.3	372.4	382.5	390.6	399.7	412.9
17.5°	369.3	366.3	353.1	349.1	349.1	350.1	358.2	369.3	379.4	390.6	407.7
20°	378.4	373.4	349.1	340.0	338.0	339.0	346.1	357.2	369.3	384.5	403.8
22.5°	417.9	409.8	364.3	344.0	334.9	334.9	339.0	351.1	366.3	386.6	410.8
25°	508.9	495.8	414.9	378.4	351.1	348.1	340.9	353.1	371.3	395.7	431.1
27.5°	602.0	588.9	477.6	438.1	395.7	386.6	360.2	363.2	383.5	415.8	461.5
30°	680.0	668.8	556.5	511.0	454.3	444.2	403.8	384.5	404.8	444.2	507.0
32.5°	686.0	681.0	641.5	594.9	526.2	512.0	458.4	428.0	438.1	482.6	556.5
35°	742.7	738.7	717.4	672.9	604.1	587.9	531.2	484.7	481.6	525.2	613.2
37.5°	798.3	793.3	779.1	748.8	685.1	671.9	627.4	552.5	531.2	574.7	668.8
40°	851.0	843.9	825.6	808.4	761.9	761.9	714.3	617.2	578.8	618.3	715.3
42.5°	948.1	925.9	877.3	864.1	851.0	851.0	781.1	661.7	617.2	665.8	760.0
45°	1041.2	1020.0	954.2	927.9	935.0	930.9	834.7	687.0	651.6	710.3	802.4
47.5°	1115.0	1095.8	1029.1	1010.9	1031.0	1014.9	879.3	707.3	695.1	757.9	837.8
50°	1180.8	1135.3	1070.5	1094.9	1120.1	1092.8	918.7	737.6	738.7	808.4	889.5
52.5°	1090.8	1085.8	1099.9	1156.5	1180.8	1150.5	954.2	776.1	785.2	873.2	948.1
55°	982.5	981.5	1064.5	1174.8	1204.1	1175.8	977.4	822.7	833.8	953.2	1021.9
57.5°	961.3	951.1	1007.8	1136.3	1189.9	1169.7	989.6	866.1	880.4	1054.4	1094.9
60°	1030.1	1010.9	1001.8	1094.9	1159.6	1149.5	1004.7	917.8	937.0	1169.7	1162.6
62.5°	1179.8	1153.5	1088.7	1097.8	1156.5	1148.5	1041.2	978.5	1000.8	1285.0	1201.0
65°	1378.1	1358.9	1255.7	1181.8	1204.1	1193.0	1106.9	1055.4	1067.6	1368.0	1157.6
67.5°	1595.7	1569.4	1457.1	1355.9	1327.6	1306.3	1211.2	1146.4	1102.9	1355.9	1041.2
70°	1841.6	1813.3	1716.1	1611.9	1563.3	1540.1	1393.4	1225.4	1089.7	1222.3	821.6
72.5°	2144.1	2105.6	2052.0	2063.2	2055.1	1990.4	1683.7	1251.7	993.6	909.6	490.7
75°	1921.5	1878.0	1887.1	2165.4	2549.9	2546.8	2019.6	1186.9	740.7	429.0	212.5
77.5°	689.1	761.9	1124.1	1622.0	2138.1	2135.0	1563.3	742.7	317.7	183.1	128.5
80°	173.0	176.0	279.3	665.8	1248.6	1238.5	886.4	280.3	132.6	111.3	88.1
82.5°	55.6	59.7	102.2	229.7	534.3	522.1	275.2	92.1	83.0	71.8	53.6
85°	18.2	18.2	36.4	79.0	176.0	169.0	55.6	33.3	45.5	37.4	24.2
87.5°	0.0	0.0	1.0	2.0	4.1	2.0	0.0	2.0	6.0	7.1	5.0
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	5.1	9.2	13.3	7.2	5.1	4.1
100°	8.2	8.2	10.2	14.3	22.5	24.1	30.7	32.7	30.7	27.6	26.6
102.5°	28.6	28.6	32.7	38.9	46.0	47.1	51.1	52.2	51.1	49.1	50.1
105°	55.2	55.2	57.3	62.4	67.5	68.3	71.6	72.6	72.6	70.6	72.6
107.5°	79.8	78.8	81.8	85.9	90.0	90.6	93.1	95.1	94.1	93.1	94.1
110°	103.3	104.3	105.4	108.4	112.5	112.9	114.6	116.6	116.6	115.6	116.6



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CATALOG NUMBER: ISS-AF-450-LED-E1-T4FT-ULG

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	37°	45°	55°	65°	75°	85°
112.5°	126.8	126.8	128.9	132.0	135.0	135.4	137.1	139.1	139.1	138.1	140.1
115°	149.4	150.4	152.4	154.5	157.5	157.9	159.6	161.6	161.6	161.6	163.7
117.5°	172.9	173.9	175.9	178.0	181.1	181.5	183.1	184.1	185.2	184.1	186.2
120°	197.4	199.5	200.5	202.5	205.6	205.8	206.6	208.7	208.7	208.7	210.7
122.5°	224.0	225.0	226.1	228.1	231.2	231.4	232.2	233.2	233.2	234.3	238.3
125°	249.6	251.6	252.7	253.7	256.8	257.0	257.8	258.8	259.8	259.8	262.9
127.5°	273.1	275.2	276.2	278.2	280.3	280.7	282.3	284.4	283.4	284.4	287.4
130°	296.7	298.7	299.7	300.7	304.8	305.0	305.9	307.9	307.9	308.9	312.0
132.5°	320.2	321.2	324.3	325.3	328.4	328.6	329.4	332.5	332.5	333.5	336.6
135°	343.7	344.7	346.8	348.8	352.9	352.9	352.9	356.0	356.0	357.0	359.1
137.5°	367.2	368.3	371.3	372.4	375.4	375.4	375.4	377.5	377.5	378.5	382.6
140°	390.8	391.8	393.8	394.9	396.9	397.1	397.9	399.0	399.0	401.0	405.1
142.5°	413.3	415.3	417.4	416.3	419.4	419.4	419.4	421.5	421.5	422.5	425.5
145°	434.8	435.8	437.8	437.8	440.9	441.1	441.9	444.0	442.9	444.0	447.0
147.5°	454.2	454.2	457.3	458.3	462.4	462.6	463.4	464.4	462.4	463.4	466.5
150°	471.6	472.6	474.6	475.7	479.8	480.0	480.8	481.8	479.8	479.8	483.9
152.5°	490.0	491.0	494.1	493.1	496.1	496.3	497.2	498.2	497.2	497.2	500.2
155°	510.5	511.5	513.5	512.5	514.5	514.5	514.5	515.6	514.5	515.6	518.6
157.5°	524.8	526.8	528.9	527.8	530.9	530.9	530.9	530.9	528.9	529.9	535.0
160°	537.0	539.1	541.1	541.1	544.2	544.2	544.2	544.2	542.2	542.2	545.2
162.5°	547.3	548.3	551.4	550.3	553.4	553.4	553.4	554.4	552.4	550.3	552.4
165°	558.5	559.6	561.6	560.6	564.7	564.7	564.7	565.7	562.6	560.6	562.6
167.5°	567.7	568.8	571.8	570.8	573.9	573.7	572.9	572.9	570.8	571.8	575.9
170°	574.9	575.9	579.0	578.0	580.0	579.8	579.0	578.0	576.9	579.0	584.1
172.5°	578.0	579.0	582.1	580.0	582.1	581.9	581.0	582.1	580.0	581.0	584.1
175°	580.0	582.1	583.1	582.1	585.1	585.1	585.1	586.2	583.1	581.0	584.1
177.5°	585.1	586.2	588.2	587.2	591.3	591.1	590.2	590.2	587.2	587.2	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



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3	455.3
2.5°	455.3	454.3	458.4	461.5	462.4	465.4	468.5	470.6	469.5	468.5	468.5
5°	454.3	455.3	462.4	468.5	473.5	478.6	482.6	484.7	483.7	483.7	483.7
7.5°	448.3	452.2	460.4	470.6	477.6	480.6	481.6	478.6	476.6	473.5	473.5
10°	438.1	444.2	457.4	468.5	471.5	467.5	461.5	455.3	447.2	442.2	442.2
12.5°	430.0	437.1	453.3	462.4	458.4	448.3	435.1	424.9	416.9	410.8	409.8
15°	423.0	432.1	449.3	451.3	442.2	424.9	407.7	396.6	387.5	383.5	383.5
17.5°	417.9	430.0	445.2	439.2	420.9	398.6	382.5	373.4	366.3	362.2	361.2
20°	418.9	434.0	441.2	424.0	397.6	374.4	359.2	354.1	349.1	347.1	347.1
22.5°	430.0	444.2	440.2	410.8	376.4	350.1	340.0	339.0	337.0	334.9	333.9
25°	454.3	464.4	443.1	397.6	354.1	327.9	322.7	325.8	324.8	322.7	322.7
27.5°	487.7	489.7	448.3	384.5	329.9	306.6	306.6	311.7	309.6	306.6	308.6
30°	528.1	517.1	450.3	363.2	301.6	286.3	289.4	292.5	290.4	286.3	286.3
32.5°	571.7	545.4	450.3	335.9	274.3	268.1	269.1	270.2	266.1	261.1	261.1
35°	614.2	572.8	445.2	303.5	253.0	249.9	248.9	253.0	249.9	242.8	242.8
37.5°	654.7	593.9	432.1	270.2	236.8	235.8	238.8	236.8	232.7	222.6	220.5
40°	683.0	608.1	405.7	242.8	223.6	229.7	227.7	216.6	210.4	203.4	203.4
42.5°	708.3	615.2	373.4	221.6	214.5	222.6	214.5	200.4	192.2	191.2	192.2
45°	731.6	621.2	342.0	204.4	203.4	214.5	204.4	189.2	180.1	180.1	181.2
47.5°	753.8	627.4	310.7	188.2	190.3	202.3	196.3	181.2	172.1	165.9	165.9
50°	789.2	641.5	265.1	171.0	175.0	192.2	190.3	173.0	163.0	153.9	151.8
52.5°	831.8	665.8	215.5	152.8	163.9	183.1	183.1	165.9	154.8	142.7	140.7
55°	888.4	692.1	173.0	139.6	152.8	173.0	176.0	163.0	146.7	135.5	133.6
57.5°	945.1	701.2	139.6	126.4	138.6	163.0	171.0	156.8	137.6	129.5	128.5
60°	984.5	671.9	117.3	115.4	128.5	150.8	163.9	149.8	131.6	123.5	123.5
62.5°	978.5	582.9	105.3	108.2	120.4	141.7	157.8	143.7	127.5	122.4	121.4
65°	892.4	440.2	95.1	102.2	113.3	132.6	151.8	140.7	125.5	120.4	118.4
67.5°	751.8	292.5	88.1	96.2	106.3	125.5	146.7	136.6	119.4	116.4	114.4
70°	544.4	171.0	80.9	90.0	99.1	117.3	139.6	128.5	112.3	110.3	105.3
72.5°	294.4	107.2	72.8	81.9	90.0	107.2	128.5	118.4	103.2	95.1	92.1
75°	134.6	77.9	64.8	72.8	79.0	94.1	115.4	104.2	92.1	81.9	79.9
77.5°	90.0	58.7	54.6	62.7	65.8	79.0	102.2	83.0	71.8	64.8	62.7
80°	61.7	43.5	44.5	51.6	50.6	62.7	76.9	66.8	56.7	58.7	53.6
82.5°	39.5	30.4	34.4	36.4	35.4	47.6	59.7	50.6	42.5	35.4	30.4
85°	17.2	16.2	20.3	21.3	21.3	26.3	31.4	25.3	19.2	14.1	14.1
87.5°	1.0	2.0	2.0	3.1	2.0	1.0	0.0	0.0	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
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°	4.1	4.1	5.1	7.2	13.3	9.2	4.1	3.1	2.0	2.0	2.0
100°	25.6	26.6	27.6	30.7	32.7	30.7	22.5	14.3	10.2	8.2	8.2
102.5°	49.1	50.1	49.1	51.1	52.2	51.1	46.0	38.9	32.7	28.6	28.6
105°	70.6	72.6	70.6	72.6	72.6	71.6	67.5	62.4	57.3	55.2	55.2
107.5°	93.1	94.1	93.1	94.1	95.1	93.1	90.0	85.9	81.8	78.8	79.8
110°	115.6	116.6	115.6	116.6	116.6	114.6	112.5	108.4	105.4	104.3	103.3



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	138.1	140.1	138.1	139.1	139.1	137.1	135.0	132.0	128.9	126.8	126.8
115°	162.6	163.7	161.6	161.6	161.6	159.6	157.5	154.5	152.4	150.4	149.4
117.5°	184.1	186.2	184.1	185.2	184.1	183.1	181.1	178.0	175.9	173.9	172.9
120°	208.7	210.7	208.7	208.7	208.7	206.6	205.6	202.5	200.5	199.5	197.4
122.5°	237.3	238.3	234.3	233.2	233.2	232.2	231.2	228.1	226.1	225.0	224.0
125°	261.9	262.9	259.8	259.8	258.8	257.8	256.8	253.7	252.7	251.6	249.6
127.5°	284.4	287.4	284.4	283.4	284.4	282.3	280.3	278.2	276.2	275.2	273.1
130°	310.0	312.0	308.9	307.9	307.9	305.9	304.8	300.7	299.7	298.7	296.7
132.5°	334.5	336.6	333.5	332.5	332.5	329.4	328.4	325.3	324.3	321.2	320.2
135°	358.0	359.1	357.0	356.0	356.0	352.9	352.9	348.8	346.8	344.7	343.7
137.5°	380.5	382.6	378.5	377.5	377.5	375.4	375.4	372.4	371.3	368.3	367.2
140°	403.0	405.1	401.0	399.0	399.0	397.9	396.9	394.9	393.8	391.8	390.8
142.5°	424.5	425.5	422.5	421.5	421.5	419.4	419.4	416.3	417.4	415.3	413.3
145°	445.0	447.0	444.0	442.9	444.0	441.9	440.9	437.8	437.8	435.8	434.8
147.5°	463.4	466.5	463.4	462.4	464.4	463.4	462.4	458.3	457.3	454.2	454.2
150°	480.8	483.9	479.8	479.8	481.8	480.8	479.8	475.7	474.6	472.6	471.6
152.5°	497.2	500.2	497.2	497.2	498.2	497.2	496.1	493.1	494.1	491.0	490.0
155°	516.6	518.6	515.6	514.5	515.6	514.5	514.5	512.5	513.5	511.5	510.5
157.5°	531.9	535.0	529.9	528.9	530.9	530.9	530.9	527.8	528.9	526.8	524.8
160°	543.2	545.2	542.2	542.2	544.2	544.2	544.2	541.1	541.1	539.1	537.0
162.5°	549.3	552.4	550.3	552.4	554.4	553.4	553.4	550.3	551.4	548.3	547.3
165°	560.6	562.6	560.6	562.6	565.7	564.7	564.7	560.6	561.6	559.6	558.5
167.5°	573.9	575.9	571.8	570.8	572.9	572.9	573.9	570.8	571.8	568.8	567.7
170°	582.1	584.1	579.0	576.9	578.0	579.0	580.0	578.0	579.0	575.9	574.9
172.5°	581.0	584.1	581.0	580.0	582.1	581.0	582.1	580.0	582.1	579.0	578.0
175°	581.0	584.1	581.0	583.1	586.2	585.1	585.1	582.1	583.1	582.1	580.0
177.5°	587.2	590.2	587.2	587.2	590.2	590.2	591.3	587.2	588.2	586.2	585.1
180°	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2	589.2

(END OF REPORT)