

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: LUMARK

Report Number: P195334

Luminaire Tested: **NAV-AF-04-D-UNV-T2R-7060-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195334
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24459)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-04-D-UNV-T2R-7060-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 5700K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 28046 lumens
Efficiency: N/A
Efficacy: 108.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

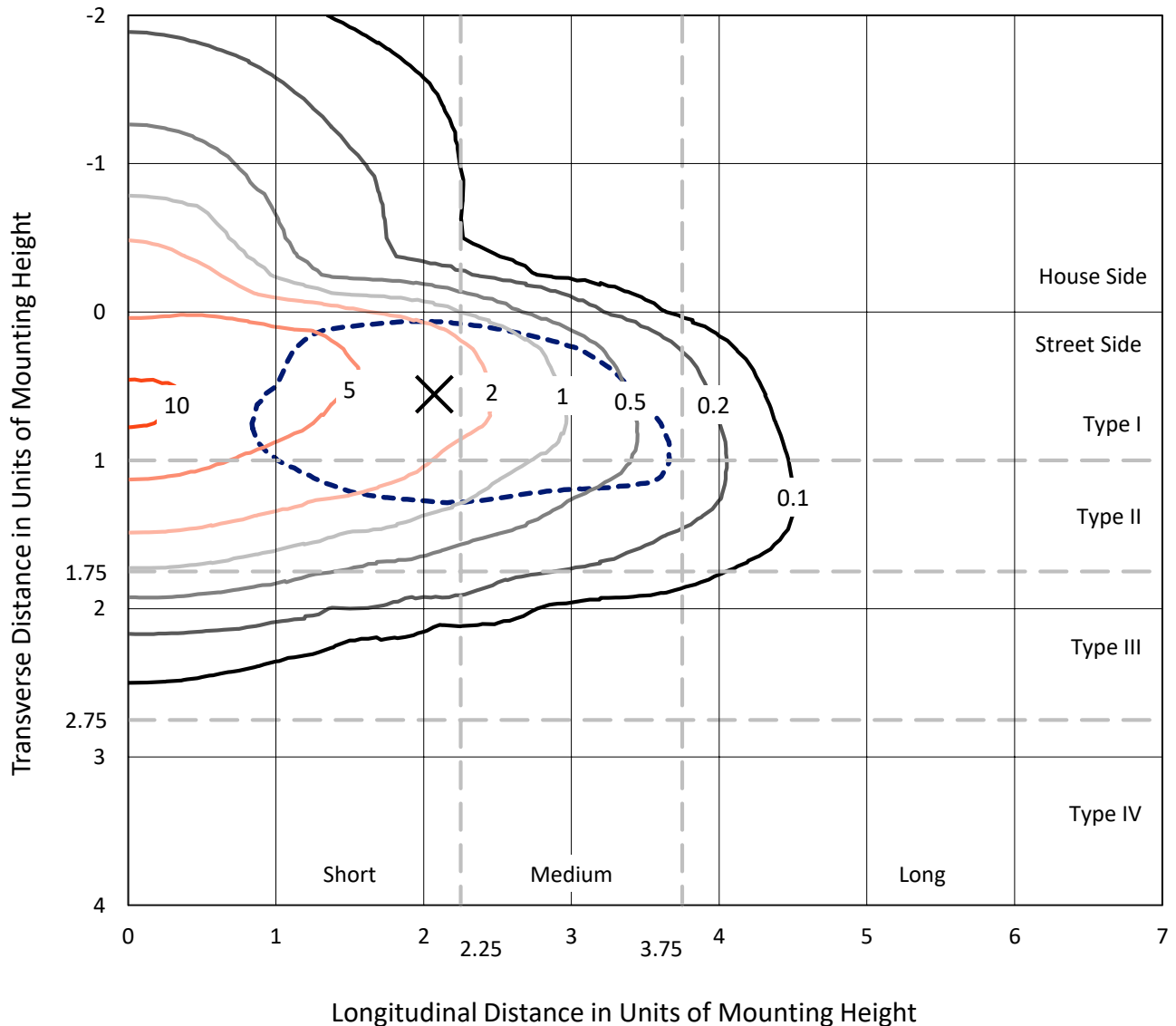
Input Watts (W): 258
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P195334
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Iso-Footcandle Lines of Horizontal Illumination

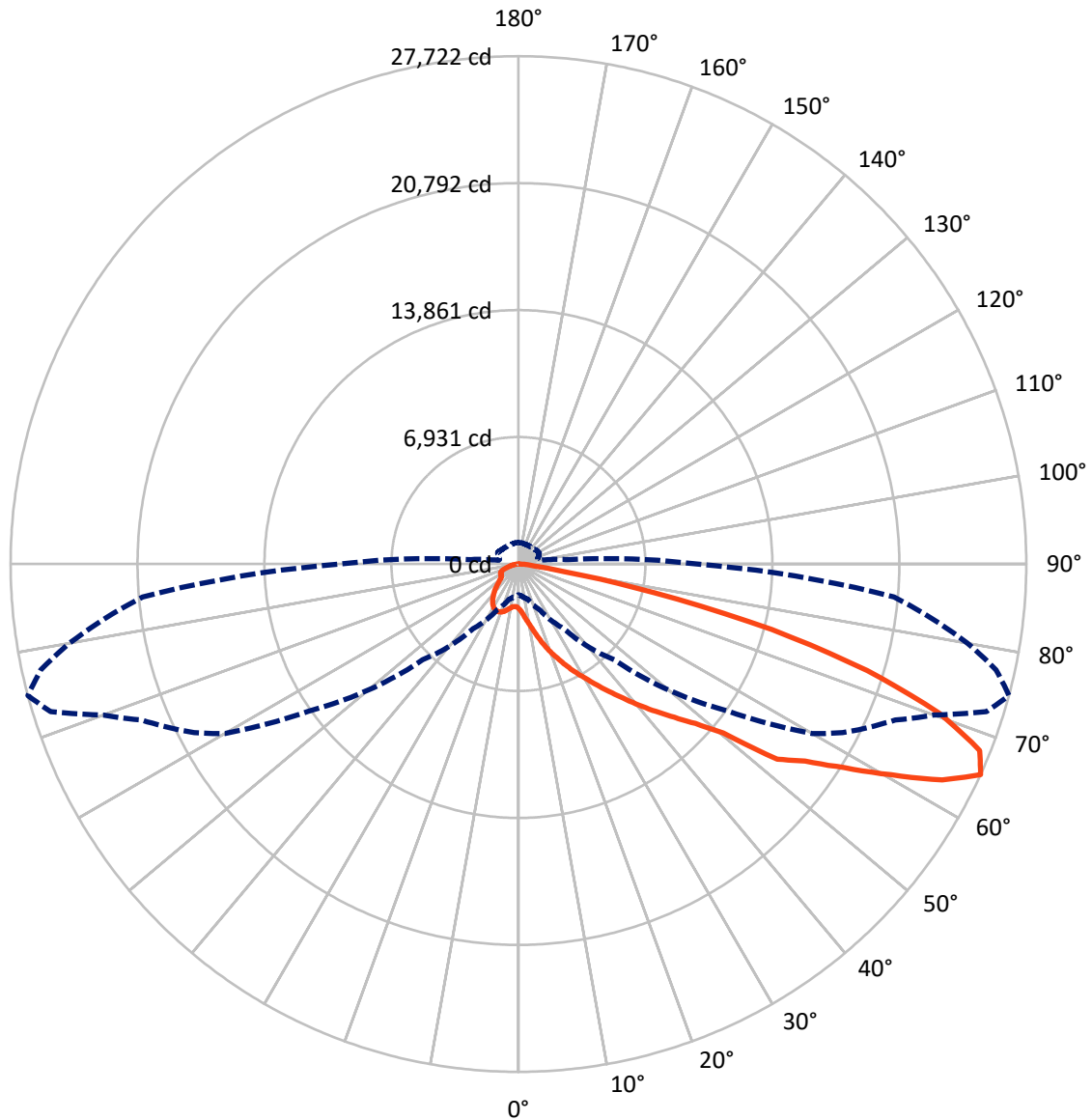
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.2 fc
 Type II - Short - Semi-Cutoff

REPORT NUMBER: P195334
CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P195334

CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4214.3	0.0	4214.3
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	23831.7	0.0	23831.7
	% Fixture	85.0	0.0	85.0
Total	Lumens	28046.0	0.0	28046.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.9	1.0
10°-20°	1095.7	3.9
20°-30°	2211.3	7.9
30°-40°	3755.4	13.4
40°-50°	5237.9	18.7
50°-60°	6419.7	22.9
60°-70°	6040.1	21.5
70°-80°	2648.5	9.4
80°-90°	350.5	1.2
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°	28046.0	100.0
0°-180°	28046.0	100.0

Coefficient of Utilization



REPORT NUMBER: P195334

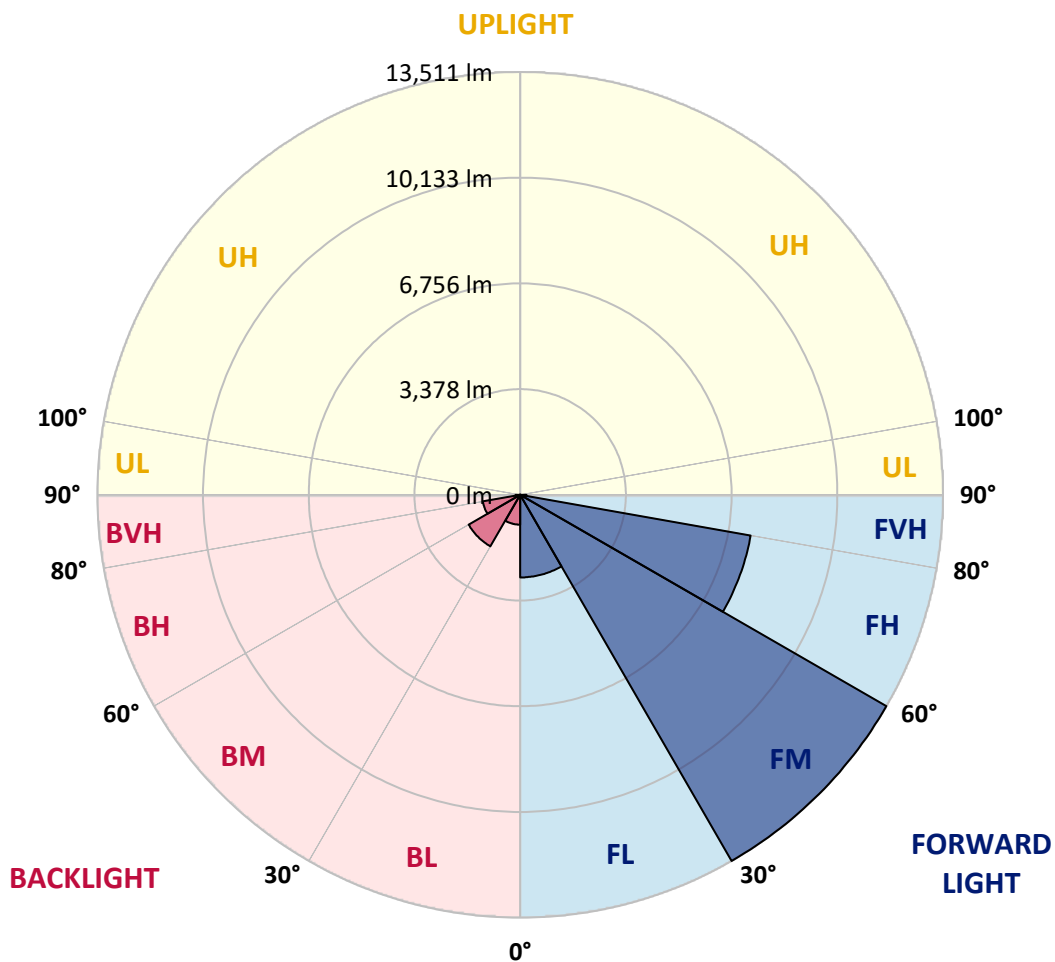
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2639.9	9.4			
FM (30°-60°)	13511.3	48.2			
FH (60°-80°)	7477.3	26.7			G3/7500
FVH (80°-90°)	203.2	0.7			G2/225
BL (0°-30°)	954.0	3.4	B2/1000		
BM (30°-60°)	1901.7	6.8	B2/2500		
BH (60°-80°)	1211.3	4.3	B3/2500		G3/2500
BVH (80°-90°)	147.3	0.5			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type II Short





REPORT NUMBER: P195334

CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0
2.5°	3059.8	3024.1	3027.7	2977.7	2904.6	2824.3	2758.3	2722.6	2692.3	2683.4	2633.4
5°	4001.9	3957.2	3941.2	3827.0	3655.7	3452.3	3250.7	3172.2	3108.0	3068.7	2972.4
7.5°	4772.6	4749.4	4728.0	4622.7	4453.2	4192.8	3868.0	3752.1	3645.0	3527.3	3411.3
10°	5297.1	5288.2	5279.3	5206.2	5065.2	4838.6	4488.9	4362.3	4228.4	4078.6	3926.9
12.5°	5693.2	5693.2	5700.4	5639.7	5554.1	5379.2	5061.6	4943.9	4808.3	4651.3	4478.2
15°	5959.1	5966.2	6003.7	6021.5	5976.9	5864.5	5586.2	5482.7	5354.2	5199.0	5027.7
17.5°	6135.7	6150.0	6205.3	6264.2	6321.2	6282.0	6075.0	5978.7	5862.7	5720.0	5559.4
20°	6546.1	6528.2	6530.0	6512.2	6596.0	6626.3	6512.2	6431.9	6339.1	6208.8	6062.5
22.5°	7407.8	7373.9	7286.5	7063.5	6961.8	6951.1	6883.3	6840.4	6769.1	6687.0	6540.7
25°	8531.8	8492.6	8319.5	7952.0	7648.7	7368.5	7243.7	7216.9	7170.5	7115.2	7009.9
27.5°	9693.3	9650.5	9427.5	8963.6	8567.5	8001.9	7613.0	7577.3	7534.5	7511.3	7461.3
30°	10715.6	10669.2	10449.8	9978.8	9500.6	8826.2	8110.8	7985.9	7912.7	7919.8	7891.3
32.5°	11613.0	11572.0	11325.8	10845.9	10360.6	9705.8	8756.6	8562.1	8398.0	8337.3	8358.7
35°	12366.0	12328.5	12059.1	11575.6	11086.7	10542.6	9588.0	9295.4	9027.8	8860.1	8840.5
37.5°	12808.4	12787.0	12597.9	12187.5	11702.2	11302.6	10519.4	10194.6	9800.3	9555.9	9448.9
40°	12783.4	12806.6	12774.5	12589.0	12212.5	11921.7	11489.9	11168.8	10783.4	10419.4	10201.8
42.5°	12419.5	12451.6	12596.1	12692.5	12590.8	12414.1	12337.4	12098.3	11752.2	11366.8	11065.3
45°	11919.9	11948.5	12135.8	12483.7	12774.5	12824.5	13079.6	12960.1	12667.5	12339.2	12007.3
47.5°	11154.5	11209.8	11427.5	11980.6	12672.8	13154.5	13702.3	13757.6	13588.1	13316.9	13006.5
50°	10046.6	10119.7	10424.8	11211.6	12287.5	13493.5	14628.3	14838.8	14771.0	14496.2	14182.2
52.5°	8911.8	8985.0	9391.8	10228.5	11666.6	13632.7	15540.0	16078.8	16467.7	16751.4	16806.7
55°	7730.7	7812.8	8258.8	9222.3	10838.7	13456.1	16191.2	16803.1	17197.4	17493.6	17613.1
57.5°	6398.0	6490.7	6922.5	7896.7	9668.3	12746.0	16915.5	17782.6	18369.6	18826.4	19083.3
60°	4868.9	4984.9	5432.7	6414.0	8130.4	11386.5	17238.5	18521.3	19454.4	20139.5	20546.3
62.5°	3086.6	3204.3	3670.0	4688.8	6380.1	9529.2	16325.0	18196.6	19788.0	20801.4	21547.2
65°	1684.2	1736.0	1994.7	2761.9	4301.6	7393.5	14009.2	16216.2	18508.8	19945.0	21090.5
67.5°	1263.2	1270.3	1297.1	1484.4	2290.9	4992.1	10952.9	12974.3	15520.3	17368.7	18737.2
70°	1106.2	1106.2	1109.7	1111.5	1243.6	2704.8	7420.3	9281.2	11614.8	13484.6	15184.9
72.5°	992.0	981.3	977.7	956.3	974.1	1386.3	4039.3	5711.1	7679.0	9777.2	11363.3
75°	856.4	854.6	854.6	833.2	843.9	975.9	1752.0	2740.5	4265.9	6219.6	7780.7
77.5°	740.4	727.9	729.7	717.2	751.1	747.6	831.4	1129.4	1857.3	3266.8	4562.1
80°	610.2	601.3	606.6	599.5	653.0	553.1	560.2	690.5	922.4	1432.7	2019.7
82.5°	451.4	455.0	488.9	485.3	549.5	372.9	410.4	515.6	620.9	713.7	776.1
85°	264.1	269.4	351.5	369.3	403.2	196.3	251.6	306.9	346.1	383.6	399.6
87.5°	28.5	37.5	196.3	201.6	180.2	58.9	101.7	128.5	137.4	146.3	128.5
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: P195334

CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

CANDELA DISTRIBUTION (continued):

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0
2.5°	2617.4	2594.2	2569.2	2554.9	2529.9	2508.5	2469.3	2437.2	2401.5	2376.5	2365.8
5°	2924.2	2868.9	2810.0	2767.2	2713.7	2667.3	2578.1	2471.0	2437.2	2365.8	2347.9
7.5°	3323.9	3224.0	3124.0	3042.0	2949.2	2872.5	2722.6	2529.9	2504.9	2390.8	2365.8
10°	3793.1	3646.8	3498.7	3372.0	3236.5	3118.7	2897.5	2626.3	2599.5	2453.2	2428.2
12.5°	4317.6	4139.2	3948.3	3759.2	3598.6	3432.7	3131.2	2776.1	2733.3	2560.3	2526.4
15°	4858.2	4665.6	4444.3	4215.9	4017.9	3798.5	3418.4	2972.4	2893.9	2690.5	2644.1
17.5°	5391.7	5183.0	4951.0	4695.9	4463.9	4201.7	3728.9	3191.8	3056.3	2819.0	2760.1
20°	5907.3	5695.0	5450.6	5200.8	4911.8	4612.0	4046.5	3407.7	3200.8	2926.0	2849.3
22.5°	6376.6	6194.6	5950.1	5662.9	5370.3	5033.1	4369.4	3623.6	3327.4	3008.1	2910.0
25°	6870.8	6704.8	6462.2	6185.7	5844.9	5470.2	4703.0	3828.8	3429.1	3052.7	2931.4
27.5°	7370.3	7227.6	6999.2	6708.4	6342.7	5927.0	5042.0	4017.9	3511.2	3067.0	2920.7
30°	7903.8	7793.2	7582.6	7257.9	6888.6	6428.3	5411.3	4203.5	3563.0	3047.3	2872.5
32.5°	8408.7	8405.1	8217.8	7880.6	7482.7	6976.0	5800.3	4390.8	3589.7	2992.0	2788.6
35°	8933.2	9006.4	8865.4	8544.3	8125.0	7563.0	6230.3	4590.6	3591.5	2893.9	2679.8
37.5°	9529.2	9659.4	9597.0	9291.9	8851.2	8232.1	6735.2	4815.4	3580.8	2758.3	2521.0
40°	10207.1	10385.5	10383.8	10126.8	9655.8	8981.4	7322.2	5067.0	3555.8	2588.8	2333.7
42.5°	10983.2	11195.6	11254.4	11001.1	10524.7	9800.3	7994.8	5343.5	3516.6	2421.1	2135.6
45°	11871.7	12059.1	12169.7	11934.2	11456.0	10692.4	8767.3	5657.5	3468.4	2205.2	1909.0
47.5°	12822.7	13040.4	13206.3	13004.7	12494.4	11709.4	9682.6	6062.5	3450.5	1959.0	1664.6
50°	14002.0	14226.8	14585.4	14494.4	14214.3	13582.7	11618.4	7018.9	3457.7	1725.3	1459.4
52.5°	16928.0	17443.6	17896.8	17695.2	17029.7	15946.7	13192.0	7550.5	3307.8	1534.4	1316.7
55°	17811.2	18396.4	19065.4	18981.6	18342.9	17251.0	14435.6	7994.8	3163.3	1395.2	1223.9
57.5°	19356.3	20046.7	20981.6	20963.8	20180.5	18951.3	16036.0	8526.5	3100.9	1314.9	1177.5
60°	20992.3	21871.9	23163.6	23365.2	22514.2	21235.0	17927.2	9179.5	3109.8	1270.3	1150.8
62.5°	22187.7	23477.6	25356.4	25959.4	24956.7	23547.2	19889.7	9832.5	3056.3	1218.6	1118.7
65°	22260.9	24118.2	26783.7	27722.1	26707.0	24896.0	20582.0	9704.0	2735.1	1149.0	1066.9
67.5°	20476.7	22896.0	26134.3	27163.7	26125.3	24064.6	19368.7	8483.6	2223.1	1027.7	977.7
70°	17054.7	19863.0	23224.3	24371.5	23513.3	21427.7	16856.7	6776.2	1661.0	867.1	843.9
72.5°	13179.5	15798.7	18851.3	19912.9	19256.3	17422.2	13295.5	4938.5	1186.5	703.0	685.1
75°	9422.1	11652.3	13868.2	14273.2	13625.6	11941.3	8626.4	3084.8	831.4	576.3	551.3
77.5°	5834.2	7284.7	8080.4	7559.4	6733.4	5596.9	3511.2	1523.7	553.1	469.2	444.3
80°	2588.8	3038.4	2836.8	2528.1	1996.5	1641.4	1072.3	676.2	356.8	362.2	347.9
82.5°	870.7	920.6	895.6	890.3	802.9	703.0	455.0	292.6	199.8	231.9	226.6
85°	424.6	444.3	446.0	462.1	401.4	312.2	123.1	116.0	85.6	124.9	130.2
87.5°	128.5	130.2	117.8	128.5	103.5	71.4	23.2	32.1	16.1	30.3	30.3
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: P195334

CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

CANDELA DISTRIBUTION (continued):

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0
2.5°	2346.2	2339.0	2326.5	2312.3	2308.7	2290.9	2285.5	2276.6	2271.2	2262.3	2255.2
5°	2324.7	2312.3	2298.0	2281.9	2281.9	2257.0	2246.2	2235.5	2235.5	2219.5	2212.3
7.5°	2346.2	2330.1	2314.0	2299.8	2305.1	2276.6	2265.9	2255.2	2253.4	2237.3	2230.2
10°	2406.8	2390.8	2371.1	2356.9	2351.5	2328.3	2315.8	2299.8	2289.1	2278.4	2267.7
12.5°	2499.6	2478.2	2453.2	2422.9	2410.4	2390.8	2371.1	2349.7	2324.7	2314.0	2298.0
15°	2610.2	2574.5	2540.6	2503.2	2469.3	2449.6	2422.9	2389.0	2355.1	2340.8	2319.4
17.5°	2701.2	2663.7	2615.6	2571.0	2510.3	2494.2	2456.8	2415.7	2360.4	2355.1	2323.0
20°	2777.9	2720.8	2662.0	2608.4	2515.7	2506.7	2460.3	2412.2	2333.7	2333.7	2294.4
22.5°	2820.7	2742.2	2672.7	2601.3	2485.3	2478.2	2424.7	2367.6	2271.2	2274.8	2226.6
25°	2827.9	2733.3	2645.9	2560.3	2426.4	2414.0	2346.2	2283.7	2178.4	2171.3	2121.4
27.5°	2799.3	2688.7	2587.0	2483.5	2339.0	2312.3	2237.3	2162.4	2058.9	2041.1	1987.5
30°	2733.3	2603.1	2488.9	2369.4	2217.7	2174.9	2096.4	2019.7	1914.4	1891.2	1841.2
32.5°	2628.1	2480.0	2353.3	2233.8	2066.0	2012.5	1934.0	1857.3	1755.6	1737.8	1691.4
35°	2488.9	2323.0	2189.2	2062.5	1894.8	1839.5	1764.5	1696.7	1604.0	1596.8	1564.7
37.5°	2314.0	2141.0	1998.2	1876.9	1718.1	1689.6	1612.9	1562.9	1486.2	1493.3	1477.3
40°	2116.0	1939.4	1803.8	1696.7	1559.3	1534.4	1488.0	1450.5	1384.5	1404.1	1405.9
42.5°	1916.2	1739.5	1616.4	1520.1	1402.3	1386.3	1354.2	1332.8	1282.8	1322.1	1338.1
45°	1689.6	1525.4	1420.2	1347.0	1259.6	1259.6	1243.6	1241.8	1207.9	1263.2	1279.2
47.5°	1470.1	1341.7	1268.5	1223.9	1163.3	1191.8	1186.5	1200.7	1175.8	1232.8	1247.1
50°	1304.2	1215.0	1170.4	1149.0	1106.2	1150.8	1161.5	1181.1	1159.7	1209.7	1220.4
52.5°	1198.9	1140.1	1115.1	1109.7	1079.4	1134.7	1152.6	1170.4	1145.4	1191.8	1190.0
55°	1140.1	1100.8	1091.9	1102.6	1079.4	1132.9	1150.8	1163.3	1141.9	1174.0	1172.2
57.5°	1118.7	1097.3	1102.6	1118.7	1102.6	1147.2	1156.1	1170.4	1149.0	1163.3	1170.4
60°	1116.9	1116.9	1138.3	1159.7	1149.0	1181.1	1186.5	1184.7	1165.1	1166.8	1170.4
62.5°	1106.2	1132.9	1168.6	1202.5	1198.9	1238.2	1241.8	1218.6	1202.5	1184.7	1179.3
65°	1072.3	1116.9	1168.6	1215.0	1222.1	1282.8	1289.9	1266.7	1256.0	1225.7	1202.5
67.5°	997.3	1054.4	1115.1	1172.2	1184.7	1266.7	1282.8	1291.7	1297.1	1277.5	1247.1
70°	870.7	929.5	992.0	1058.0	1075.8	1166.8	1200.7	1241.8	1273.9	1302.4	1291.7
72.5°	708.3	761.8	815.4	876.0	902.8	997.3	1041.9	1113.3	1163.3	1236.4	1266.7
75°	562.0	594.1	626.2	663.7	685.1	777.9	833.2	918.8	986.6	1088.3	1156.1
77.5°	442.5	458.5	474.6	490.6	499.6	551.3	595.9	681.5	760.0	888.5	988.4
80°	340.8	349.7	351.5	356.8	353.3	378.2	394.3	446.0	513.8	640.5	758.3
82.5°	219.5	226.6	230.2	239.1	221.2	253.3	264.1	269.4	305.1	397.9	481.7
85°	123.1	124.9	126.7	130.2	105.3	137.4	139.2	130.2	126.7	164.1	185.6
87.5°	30.3	28.5	30.3	30.3	12.5	28.5	28.5	19.6	14.3	26.8	21.4
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: P195334

CATALOG NUMBER: NAV-AF-04-D-UNV-T2R-7060-1200

CANDELA DISTRIBUTION (continued):

	135°	145°	155°	165°	175°	180°
0°	2430.0	2430.0	2430.0	2430.0	2430.0	2430.0
2.5°	2239.1	2235.5	2237.3	2228.4	2224.8	2226.6
5°	2203.4	2196.3	2196.3	2190.9	2183.8	2183.8
7.5°	2219.5	2205.2	2199.9	2189.2	2178.4	2180.2
10°	2244.5	2219.5	2201.6	2185.6	2173.1	2173.1
12.5°	2260.5	2215.9	2189.2	2167.7	2153.5	2153.5
15°	2264.1	2196.3	2157.0	2133.8	2119.6	2119.6
17.5°	2242.7	2157.0	2107.1	2076.8	2060.7	2064.3
20°	2189.2	2083.9	2025.0	1992.9	1976.8	1978.6
22.5°	2105.3	1984.0	1916.2	1878.7	1862.7	1862.7
25°	1991.1	1859.1	1785.9	1755.6	1741.3	1741.3
27.5°	1860.9	1725.3	1661.0	1637.9	1628.9	1628.9
30°	1714.6	1602.2	1555.8	1539.7	1525.4	1525.4
32.5°	1591.5	1511.2	1495.1	1473.7	1436.2	1434.5
35°	1493.3	1484.4	1471.9	1407.7	1354.2	1347.0
37.5°	1439.8	1493.3	1414.8	1304.2	1261.4	1259.6
40°	1411.3	1461.2	1325.6	1272.1	1266.7	1266.7
42.5°	1343.5	1379.1	1320.3	1289.9	1289.9	1291.7
45°	1272.1	1302.4	1332.8	1306.0	1314.9	1316.7
47.5°	1222.1	1282.8	1332.8	1309.6	1327.4	1338.1
50°	1175.8	1265.0	1306.0	1306.0	1325.6	1327.4
52.5°	1165.1	1240.0	1281.0	1300.6	1302.4	1293.5
55°	1166.8	1220.4	1261.4	1286.4	1275.7	1275.7
57.5°	1165.1	1209.7	1245.3	1254.3	1259.6	1259.6
60°	1166.8	1195.4	1223.9	1220.4	1238.2	1238.2
62.5°	1172.2	1175.8	1190.0	1186.5	1213.2	1213.2
65°	1184.7	1150.8	1141.9	1145.4	1177.5	1175.8
67.5°	1207.9	1116.9	1088.3	1090.1	1136.5	1129.4
70°	1241.8	1070.5	1027.7	1017.0	1095.5	1083.0
72.5°	1252.5	1017.0	949.2	938.5	984.9	949.2
75°	1202.5	974.1	865.3	829.6	810.0	799.3
77.5°	1072.3	947.4	777.9	703.0	672.6	665.5
80°	888.5	892.1	663.7	574.5	667.3	665.5
82.5°	670.8	770.8	531.7	497.8	483.5	403.2
85°	324.7	579.8	408.6	342.6	205.2	194.5
87.5°	28.5	242.6	235.5	153.4	69.6	66.0
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)