

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: P196295

Luminaire Tested: **NAV-AF-05-D-UNV-T2R-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196295
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-05-D-UNV-T2R-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 4000K, 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: 35359.3 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G4

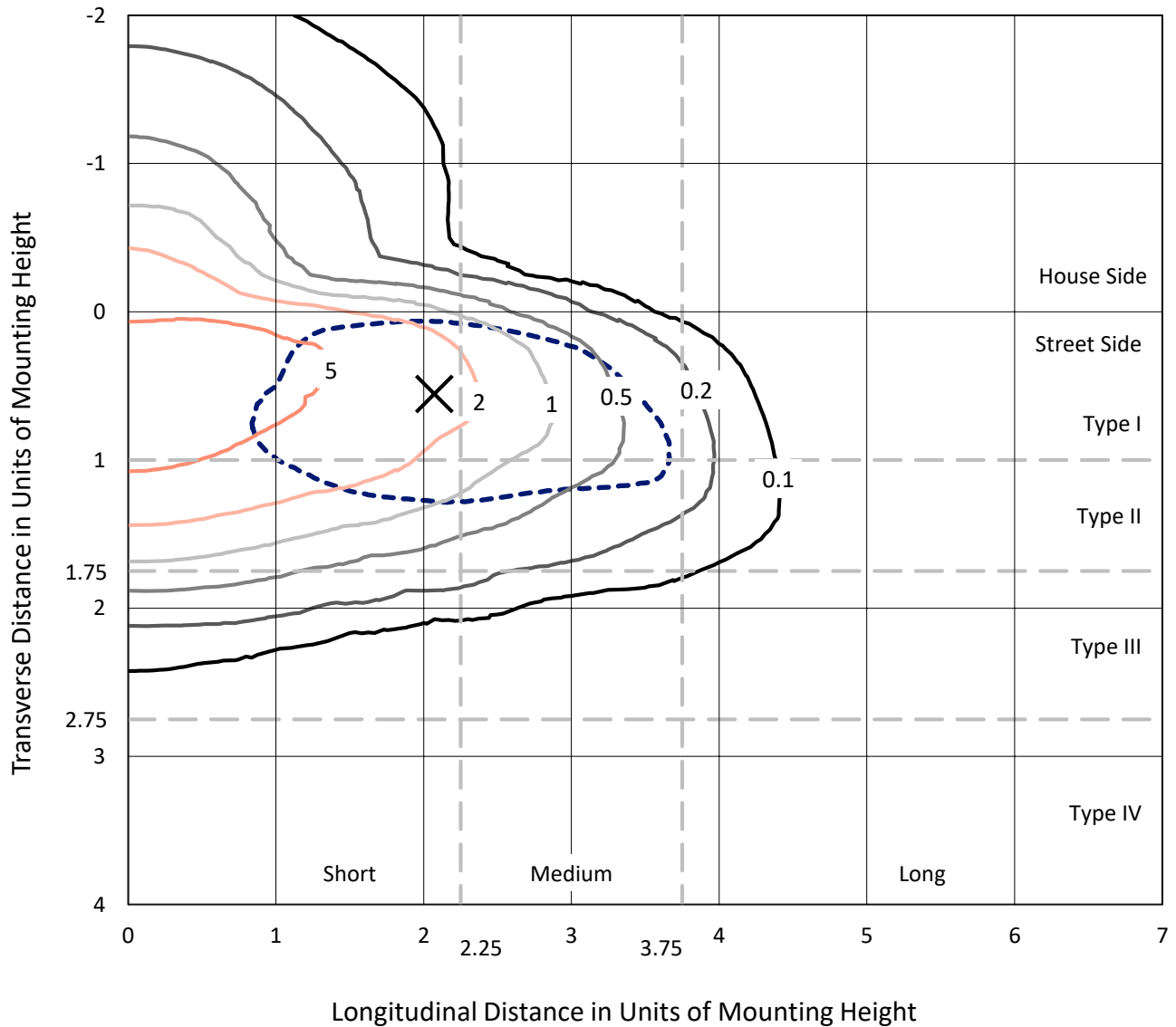
Input Watts (W): 320
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P196295
 CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

Iso-Footcandle Lines of Horizontal Illumination

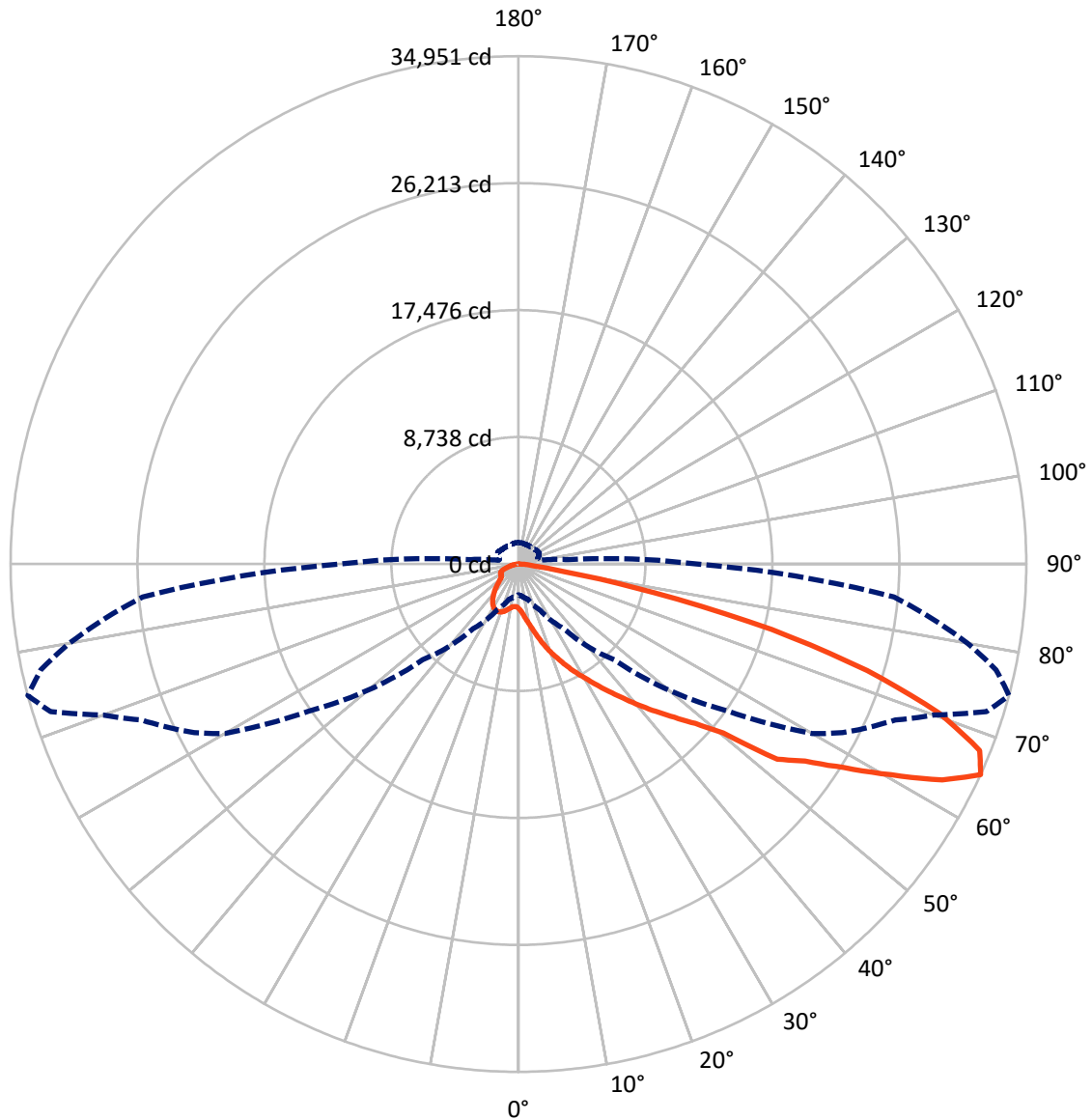
× Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 9.8 fc
 Type II - Short - Semi-Cutoff

REPORT NUMBER: P196295
CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

Luminous Intensity Polar Plot



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

REPORT NUMBER: P196295

CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	5313.3	0.0	5313.3
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	30046.0	0.0	30046.0
	% Fixture	85.0	0.0	85.0
Total	Lumens	35359.3	0.0	35359.3
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	361.7	1.0
10°-20°	1381.5	3.9
20°-30°	2787.9	7.9
30°-40°	4734.7	13.4
40°-50°	6603.7	18.7
50°-60°	8093.7	22.9
60°-70°	7615.1	21.5
70°-80°	3339.1	9.4
80°-90°	441.8	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°	35359.3	100.0
0°-180°	35359.3	100.0

Coefficient of Utilization



REPORT NUMBER: P196295

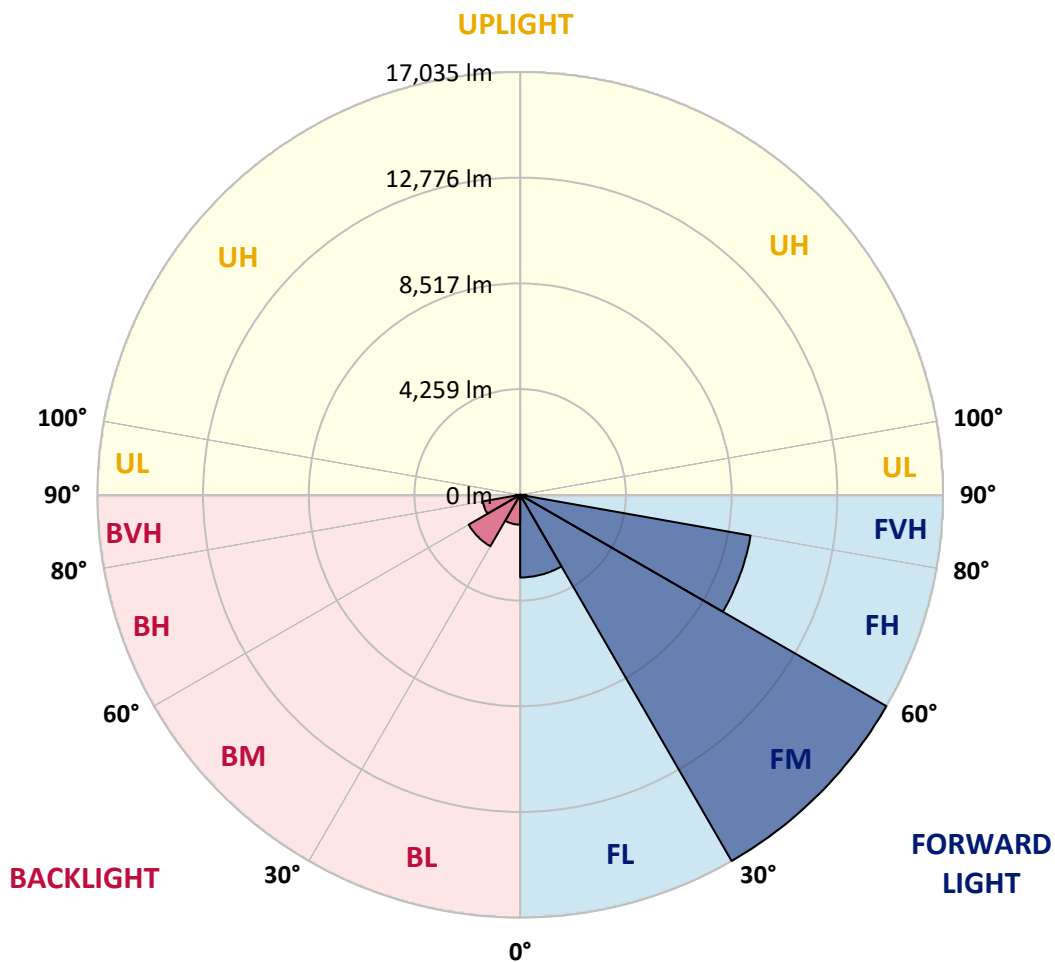
CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	3328.3	9.4			
FM	(30°-60°)	17034.5	48.2			
FH	(60°-80°)	9427.1	26.7			G4/12000
FVH	(80°-90°)	256.1	0.7			G3/500
BL	(0°-30°)	1202.8	3.4	B3/2500		
BM	(30°-60°)	2397.6	6.8	B2/2500		
BH	(60°-80°)	1527.1	4.3	B3/2500		G3/2500
BVH	(80°-90°)	185.7	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-G4

Type II Short





REPORT NUMBER: P196295
 CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6
2.5°	3857.8	3812.7	3817.2	3754.2	3662.0	3560.8	3477.5	3432.6	3394.4	3383.1	3320.1
5°	5045.4	4989.1	4968.9	4825.0	4609.0	4352.6	4098.4	3999.4	3918.4	3868.9	3747.5
7.5°	6017.1	5987.8	5960.8	5828.2	5614.5	5286.1	4876.7	4730.4	4595.5	4447.1	4300.8
10°	6678.4	6667.2	6655.9	6563.8	6386.0	6100.4	5659.5	5499.8	5331.0	5142.1	4950.9
12.5°	7177.8	7177.8	7186.8	7110.3	7002.3	6782.0	6381.5	6233.0	6062.1	5864.2	5646.0
15°	7513.0	7522.0	7569.2	7591.7	7535.5	7393.8	7042.8	6912.4	6750.5	6554.8	6338.8
17.5°	7735.7	7753.7	7823.4	7897.6	7969.6	7920.1	7659.1	7537.7	7391.5	7211.5	7009.1
20°	8253.0	8230.6	8232.8	8210.3	8316.0	8354.2	8210.3	8109.0	7992.1	7827.9	7643.4
22.5°	9339.4	9296.7	9186.5	8905.3	8777.1	8763.6	8678.1	8624.2	8534.2	8430.8	8246.2
25°	10756.5	10707.1	10488.9	10025.5	9643.2	9289.9	9132.5	9098.7	9040.3	8970.6	8837.9
27.5°	12220.9	12167.0	11885.8	11300.9	10801.5	10088.5	9598.1	9553.1	9499.1	9470.0	9407.0
30°	13509.8	13451.4	13174.7	12580.9	11978.0	11127.8	10225.7	10068.3	9976.0	9985.0	9949.0
32.5°	14641.3	14589.5	14279.2	13674.0	13062.2	12236.6	11040.0	10794.8	10587.8	10511.4	10538.4
35°	15590.5	15543.3	15203.6	14594.0	13977.7	13291.6	12088.2	11719.3	11381.9	11170.4	11145.8
37.5°	16148.4	16121.4	15882.9	15365.5	14753.7	14249.9	13262.4	12853.0	12355.9	12047.7	11912.8
40°	16116.9	16146.2	16105.6	15871.7	15397.0	15030.4	14486.1	14081.2	13595.3	13136.4	12862.0
42.5°	15658.0	15698.5	15880.7	16002.1	15873.9	15651.2	15554.5	15253.1	14816.7	14330.8	13950.7
45°	15028.2	15064.2	15300.4	15739.0	16105.6	16168.7	16490.3	16339.6	15970.6	15556.7	15138.3
47.5°	14063.2	14132.9	14407.3	15104.7	15977.4	16584.8	17275.3	17345.1	17131.4	16789.5	16398.0
50°	12666.3	12758.5	13143.2	14135.1	15491.6	17012.2	18442.8	18708.1	18622.7	18276.2	17880.4
52.5°	11235.7	11328.0	11840.8	12895.7	14708.8	17187.6	19592.2	20271.5	20761.9	21119.5	21189.2
55°	9746.6	9850.1	10412.4	11627.1	13665.1	16964.9	20413.2	21184.8	21681.9	22055.2	22206.0
57.5°	8066.3	8183.3	8727.6	9955.8	12189.5	16069.6	21326.5	22419.7	23159.7	23735.5	24059.5
60°	6138.6	6284.8	6849.4	8086.5	10250.5	14355.6	21733.6	23350.9	24527.4	25391.1	25904.0
62.5°	3891.4	4039.9	4627.0	5911.4	8043.8	12013.9	20581.9	22941.5	24947.9	26225.6	27165.9
65°	2123.4	2188.7	2514.8	3482.0	5423.3	9321.4	17662.2	20444.7	23335.1	25146.0	26590.1
67.5°	1592.5	1601.5	1635.3	1871.5	2888.2	6293.8	13809.0	16357.6	19567.4	21897.8	23623.1
70°	1394.6	1394.6	1399.1	1401.3	1567.8	3410.1	9355.2	11701.3	14643.5	17000.9	19144.5
72.5°	1250.7	1237.2	1232.7	1205.6	1228.2	1747.8	5092.7	7200.3	9681.4	12326.7	14326.3
75°	1079.7	1077.5	1077.5	1050.5	1064.0	1230.4	2208.9	3455.0	5378.3	7841.3	9809.6
77.5°	933.5	917.8	920.0	904.3	946.9	942.4	1048.2	1423.8	2341.6	4118.6	5751.6
80°	769.3	758.0	764.8	755.8	823.3	697.3	706.3	870.5	1162.9	1806.2	2546.3
82.5°	569.1	573.6	616.3	611.8	692.8	470.1	517.4	650.1	782.8	899.8	978.5
85°	332.9	339.6	443.1	465.6	508.4	247.5	317.1	386.9	436.4	483.7	503.9
87.5°	36.0	47.3	247.5	254.2	227.2	74.3	128.2	161.9	173.2	184.4	161.9
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: P196295
 CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

CANDELA DISTRIBUTION (continued):

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6
2.5°	3299.8	3270.6	3239.1	3221.2	3189.7	3162.7	3113.1	3072.6	3027.6	2996.2	2982.7
5°	3686.7	3617.1	3542.8	3488.8	3421.4	3362.8	3250.3	3115.4	3072.6	2982.7	2960.2
7.5°	4190.6	4064.7	3938.7	3835.2	3718.2	3621.6	3432.6	3189.7	3158.2	3014.2	2982.7
10°	4782.2	4597.8	4411.1	4251.4	4080.3	3931.9	3653.1	3311.1	3277.3	3092.9	3061.4
12.5°	5443.5	5218.6	4977.9	4739.4	4537.0	4327.8	3947.7	3500.0	3446.0	3227.9	3185.2
15°	6125.1	5882.2	5603.2	5315.4	5065.7	4788.9	4309.8	3747.5	3648.6	3392.1	3333.6
17.5°	6797.6	6534.5	6242.0	5920.4	5628.0	5297.4	4701.2	4024.2	3853.3	3554.0	3479.8
20°	7447.7	7180.1	6871.9	6557.0	6192.5	5814.7	5101.7	4296.3	4035.4	3689.0	3592.3
22.5°	8039.3	7809.9	7501.7	7139.6	6770.7	6345.6	5508.8	4568.5	4195.1	3792.5	3668.7
25°	8662.4	8453.3	8147.3	7798.7	7369.0	6896.6	5929.4	4827.2	4323.3	3848.8	3695.7
27.5°	9292.2	9112.2	8824.4	8457.7	7996.6	7472.5	6356.8	5065.7	4426.8	3866.7	3682.2
30°	9964.8	9825.3	9559.9	9150.5	8684.9	8104.5	6822.4	5299.6	4492.0	3842.0	3621.6
32.5°	10601.4	10596.8	10360.7	9935.5	9434.0	8795.1	7312.8	5535.7	4525.7	3772.2	3515.8
35°	11262.7	11355.0	11177.2	10772.3	10243.7	9535.1	7854.8	5787.7	4528.0	3648.6	3378.6
37.5°	12013.9	12178.2	12099.5	11714.8	11159.3	10378.7	8491.4	6071.1	4514.5	3477.5	3178.4
40°	12868.7	13093.7	13091.4	12767.6	12173.7	11323.5	9231.5	6388.2	4483.1	3263.8	2942.2
42.5°	13847.3	14114.9	14189.1	13869.8	13269.1	12355.9	10079.5	6736.9	4433.6	3052.4	2692.5
45°	14967.4	15203.6	15343.1	15046.2	14443.3	13480.5	11053.5	7132.8	4372.8	2780.3	2406.8
47.5°	16166.4	16440.8	16650.0	16395.8	15752.5	14762.7	12207.5	7643.4	4350.3	2469.8	2098.7
50°	17653.2	17936.6	18388.8	18274.0	17920.9	17124.6	14648.0	8849.1	4359.3	2175.2	1840.0
52.5°	21342.2	21992.3	22563.6	22309.4	21470.4	20105.1	16632.0	9519.4	4170.4	1934.5	1660.0
55°	22455.6	23193.5	24037.0	23931.2	23126.0	21749.4	18199.8	10079.5	3988.2	1759.1	1543.1
57.5°	24403.6	25274.1	26452.8	26430.3	25442.8	23893.1	20217.5	10749.9	3909.4	1657.8	1484.6
60°	26466.3	27575.3	29203.8	29458.0	28385.0	26772.3	22601.9	11573.2	3920.7	1601.5	1450.9
62.5°	27973.4	29599.7	31968.3	32728.6	31464.4	29687.5	25076.2	12396.4	3853.3	1536.4	1410.3
65°	28065.7	30407.2	33767.8	34951.1	33671.1	31388.0	25949.0	12234.4	3448.3	1448.6	1345.2
67.5°	25816.2	28866.4	32949.0	34247.0	32937.8	30339.8	24419.4	10695.9	2802.8	1295.7	1232.7
70°	21501.9	25042.4	29280.3	30726.7	29644.7	27015.2	21252.2	8543.2	2094.2	1093.2	1064.0
72.5°	16616.2	19918.4	23767.0	25105.5	24277.7	21965.3	16762.5	6226.3	1495.9	886.3	863.8
75°	11879.0	14690.8	17484.5	17995.1	17178.6	15055.2	10875.8	3889.2	1048.2	726.6	695.1
77.5°	7355.5	9184.3	10187.5	9530.6	8489.2	7056.3	4426.8	1921.0	697.3	591.6	560.1
80°	3263.8	3830.7	3576.5	3187.4	2517.1	2069.4	1351.9	852.5	449.9	456.6	438.6
82.5°	1097.7	1160.6	1129.2	1122.5	1012.2	886.3	573.6	368.9	252.0	292.5	285.7
85°	535.3	560.1	562.3	582.6	506.2	393.6	155.2	146.2	107.9	157.4	164.2
87.5°	161.9	164.2	148.4	161.9	130.4	90.0	29.3	40.5	20.3	38.3	38.3
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: P196295

CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

CANDELA DISTRIBUTION (continued):

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6
2.5°	2958.0	2949.0	2933.2	2915.2	2910.7	2888.2	2881.4	2870.2	2863.4	2852.2	2843.2
5°	2931.0	2915.2	2897.2	2876.9	2876.9	2845.4	2831.9	2818.4	2818.4	2798.3	2789.3
7.5°	2958.0	2937.7	2917.5	2899.5	2906.2	2870.2	2856.7	2843.2	2840.9	2820.7	2811.8
10°	3034.4	3014.2	2989.5	2971.5	2964.7	2935.5	2919.7	2899.5	2885.9	2872.4	2858.9
12.5°	3151.4	3124.4	3092.9	3054.6	3038.9	3014.2	2989.5	2962.5	2931.0	2917.5	2897.2
15°	3290.8	3245.8	3203.2	3155.9	3113.1	3088.4	3054.6	3012.0	2969.2	2951.2	2924.2
17.5°	3405.6	3358.3	3297.6	3241.3	3164.9	3144.7	3097.4	3045.6	2976.0	2969.2	2928.7
20°	3502.3	3430.4	3356.1	3288.6	3171.7	3160.4	3101.9	3041.1	2942.2	2942.2	2892.7
22.5°	3556.3	3457.3	3369.6	3279.6	3133.4	3124.4	3056.9	2985.0	2863.4	2867.9	2807.3
25°	3565.3	3446.0	3335.8	3227.9	3059.1	3043.4	2958.0	2879.2	2746.5	2737.5	2674.5
27.5°	3529.3	3389.9	3261.6	3131.2	2949.0	2915.2	2820.7	2726.3	2595.8	2573.3	2505.8
30°	3446.0	3281.8	3137.9	2987.2	2796.0	2742.0	2643.0	2546.3	2413.6	2384.4	2321.4
32.5°	3313.3	3126.6	2967.0	2816.3	2604.8	2537.3	2438.3	2341.6	2213.4	2191.0	2132.4
35°	3137.9	2928.7	2760.0	2600.3	2388.9	2319.1	2224.6	2139.2	2022.2	2013.2	1972.8
37.5°	2917.5	2699.3	2519.3	2366.4	2166.2	2130.2	2033.4	1970.5	1873.7	1882.7	1862.5
40°	2667.8	2445.1	2274.1	2139.2	1966.0	1934.5	1876.0	1828.7	1745.6	1770.3	1772.6
42.5°	2415.8	2193.1	2037.9	1916.5	1768.1	1747.8	1707.3	1680.3	1617.3	1666.8	1687.1
45°	2130.2	1923.2	1790.5	1698.3	1588.0	1588.0	1567.8	1565.6	1522.9	1592.5	1612.8
47.5°	1853.5	1691.6	1599.3	1543.1	1466.6	1502.6	1495.9	1513.9	1482.4	1554.4	1572.3
50°	1644.3	1531.9	1475.6	1448.6	1394.6	1450.9	1464.4	1489.1	1462.1	1525.1	1538.6
52.5°	1511.6	1437.3	1405.8	1399.1	1360.8	1430.6	1453.1	1475.6	1444.1	1502.6	1500.4
55°	1437.3	1387.8	1376.6	1390.1	1360.8	1428.3	1450.9	1466.6	1439.6	1480.1	1477.9
57.5°	1410.3	1383.3	1390.1	1410.3	1390.1	1446.4	1457.6	1475.6	1448.6	1466.6	1475.6
60°	1408.1	1408.1	1435.1	1462.1	1448.6	1489.1	1495.9	1493.6	1468.9	1471.1	1475.6
62.5°	1394.6	1428.3	1473.4	1516.1	1511.6	1561.1	1565.6	1536.4	1516.1	1493.6	1486.9
65°	1351.9	1408.1	1473.4	1531.9	1540.9	1617.3	1626.3	1597.0	1583.5	1545.4	1516.1
67.5°	1257.4	1329.4	1405.8	1477.9	1493.6	1597.0	1617.3	1628.5	1635.3	1610.5	1572.3
70°	1097.7	1171.9	1250.7	1333.9	1356.4	1471.1	1513.9	1565.6	1606.0	1642.0	1628.5
72.5°	893.0	960.4	1028.0	1104.5	1138.2	1257.4	1313.7	1403.6	1466.6	1558.9	1597.0
75°	708.6	749.0	789.5	836.8	863.8	980.7	1050.5	1158.4	1243.9	1372.1	1457.6
77.5°	557.8	578.1	598.3	618.6	629.8	695.1	751.3	859.3	958.2	1120.2	1246.2
80°	429.6	440.9	443.1	449.9	445.4	476.9	497.2	562.3	647.8	807.5	955.9
82.5°	276.7	285.7	290.2	301.5	279.0	319.4	332.9	339.6	384.6	501.7	607.3
85°	155.2	157.4	159.7	164.2	132.7	173.2	175.4	164.2	159.7	206.9	233.9
87.5°	38.3	36.0	38.3	38.3	15.8	36.0	36.0	24.8	18.0	33.8	27.0
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: P196295

CATALOG NUMBER: NAV-AF-05-D-UNV-T2R-1200

CANDELA DISTRIBUTION (continued):

	135°	145°	155°	165°	175°	180°
0°	3063.6	3063.6	3063.6	3063.6	3063.6	3063.6
2.5°	2822.9	2818.4	2820.7	2809.5	2805.0	2807.3
5°	2778.0	2769.0	2769.0	2762.3	2753.3	2753.3
7.5°	2798.3	2780.3	2773.5	2760.0	2746.5	2748.8
10°	2829.7	2798.3	2775.8	2755.5	2739.8	2739.8
12.5°	2849.9	2793.8	2760.0	2733.0	2715.0	2715.0
15°	2854.4	2769.0	2719.5	2690.3	2672.3	2672.3
17.5°	2827.4	2719.5	2656.5	2618.2	2598.1	2602.6
20°	2760.0	2627.2	2553.1	2512.6	2492.3	2494.6
22.5°	2654.3	2501.3	2415.8	2368.6	2348.4	2348.4
25°	2510.3	2343.9	2251.6	2213.4	2195.4	2195.4
27.5°	2346.1	2175.2	2094.2	2064.9	2053.7	2053.7
30°	2161.7	2019.9	1961.5	1941.3	1923.2	1923.2
32.5°	2006.4	1905.2	1885.0	1858.0	1810.7	1808.5
35°	1882.7	1871.5	1855.7	1774.7	1707.3	1698.3
37.5°	1815.2	1882.7	1783.7	1644.3	1590.3	1588.0
40°	1779.2	1842.2	1671.3	1603.8	1597.0	1597.0
42.5°	1693.8	1738.8	1664.5	1626.3	1626.3	1628.5
45°	1603.8	1642.0	1680.3	1646.5	1657.8	1660.0
47.5°	1540.9	1617.3	1680.3	1651.0	1673.5	1687.1
50°	1482.4	1594.8	1646.5	1646.5	1671.3	1673.5
52.5°	1468.9	1563.4	1615.0	1639.8	1642.0	1630.8
55°	1471.1	1538.6	1590.3	1621.8	1608.3	1608.3
57.5°	1468.9	1525.1	1570.0	1581.3	1588.0	1588.0
60°	1471.1	1507.1	1543.1	1538.6	1561.1	1561.1
62.5°	1477.9	1482.4	1500.4	1495.9	1529.6	1529.6
65°	1493.6	1450.9	1439.6	1444.1	1484.6	1482.4
67.5°	1522.9	1408.1	1372.1	1374.3	1432.8	1423.8
70°	1565.6	1349.7	1295.7	1282.2	1381.1	1365.3
72.5°	1579.0	1282.2	1196.6	1183.1	1241.7	1196.6
75°	1516.1	1228.2	1091.0	1046.0	1021.2	1007.7
77.5°	1351.9	1194.4	980.7	886.3	848.0	839.0
80°	1120.2	1124.7	836.8	724.4	841.3	839.0
82.5°	845.8	971.7	670.3	627.6	609.6	508.4
85°	409.4	731.0	515.2	431.9	258.7	245.2
87.5°	36.0	306.0	297.0	193.4	87.8	83.3
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)