

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: P196215

Luminaire Tested: **NAV-AF-03-D-UNV-SLL**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P196215  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24264)  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-AF-03-D-UNV-SLL  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(3) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT  
ELIMINATOR LEFT OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16366.2 lumens  
Efficiency: N/A  
Efficacy: 98.6 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')  
IES Classification: Type IV - Short - Non-Cutoff  
BUG Rating: B2 - U0 - G3

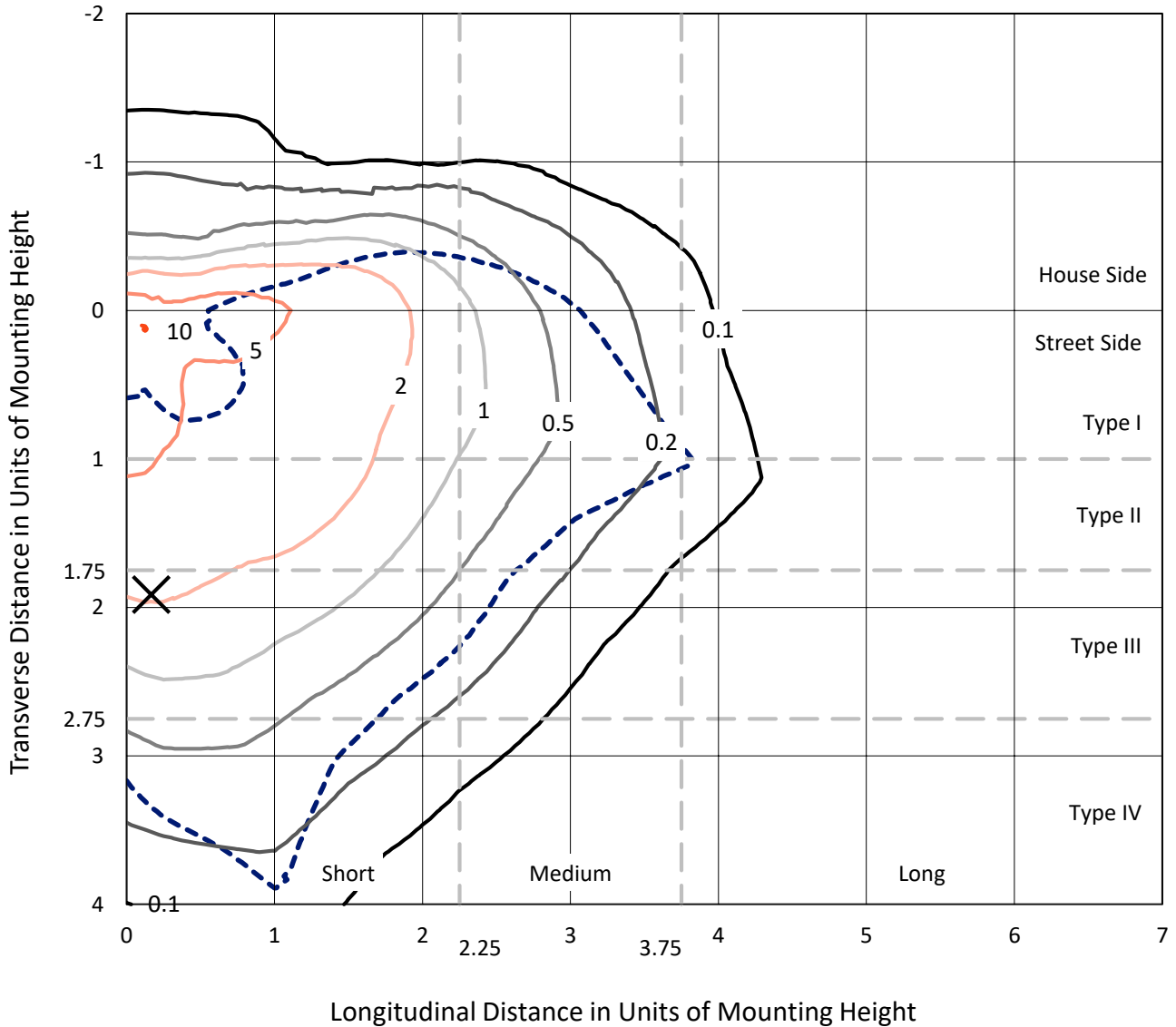
Input Watts (W): 166  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

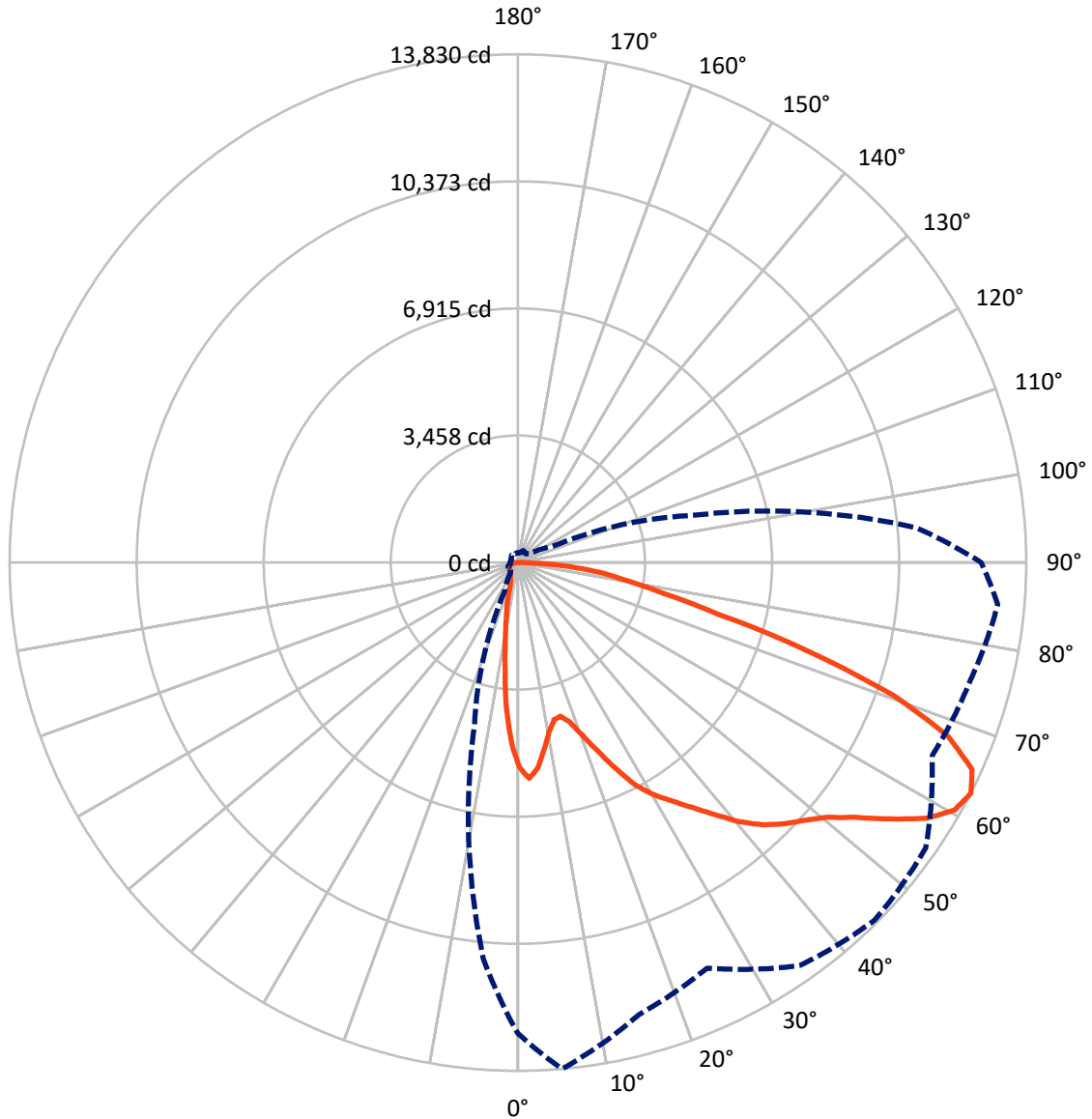
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 10.2 fc  
 Type IV - Short - Non-Cutoff

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### Luminous Intensity Polar Plot



— Vertical Plane Through 5-Deg Lateral      - - - Horizontal Cone Through 62.5-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	2899.3	0.0	2899.3
	% Fixture	17.7	0.0	17.7
<b>Street Side</b>	Lumens	13466.9	0.0	13466.9
	% Fixture	82.3	0.0	82.3
<b>Total</b>	Lumens	16366.2	0.0	16366.2
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	405.8	2.5
10°-20°	741.1	4.5
20°-30°	1066.0	6.5
30°-40°	1632.6	10.0
40°-50°	2386.9	14.6
50°-60°	3473.0	21.2
60°-70°	4023.9	24.6
70°-80°	2097.6	12.8
80°-90°	539.2	3.3
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°	16366.2	100.0
0°-180°	16366.2	100.0



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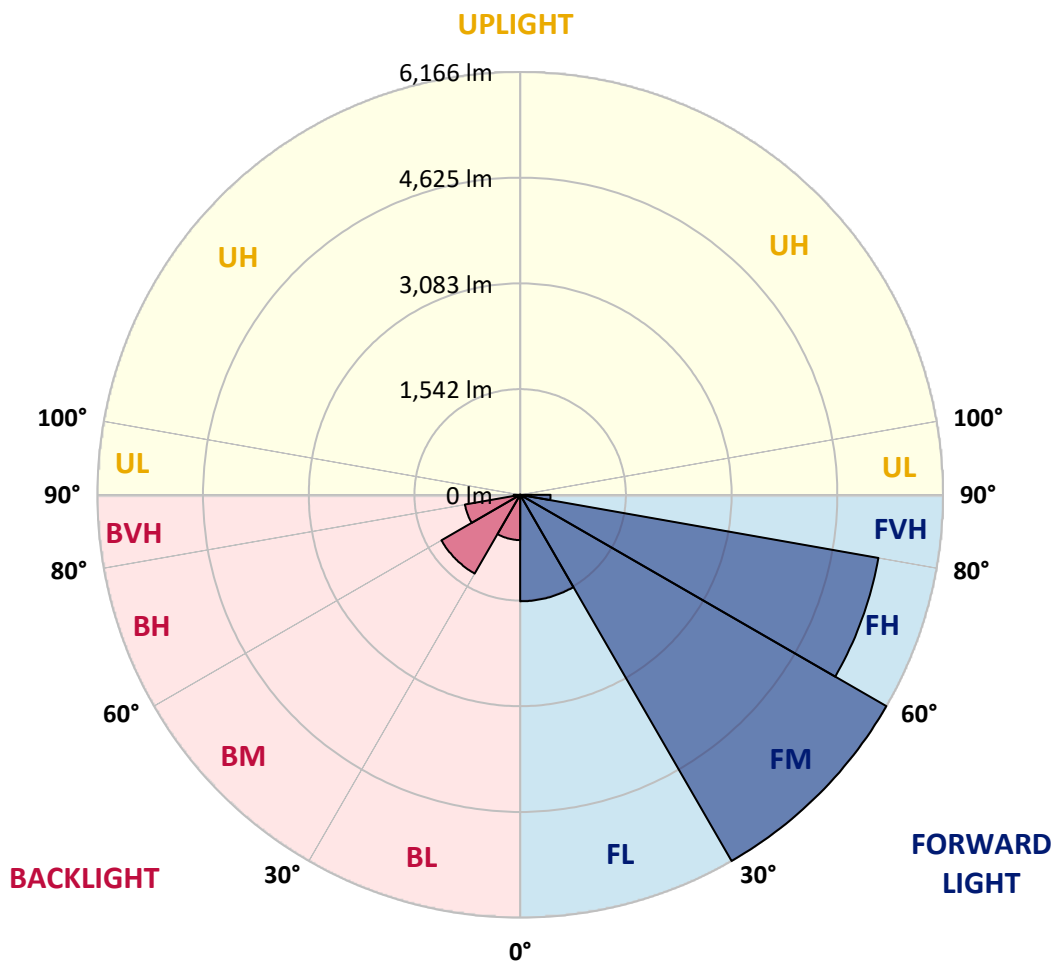
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1553.2	9.5			
FM	(30°-60°)	6166.0	37.7			
FH	(60°-80°)	5304.1	32.4			G3/7500
FVH	(80°-90°)	443.6	2.7			G3/500
BL	(0°-30°)	659.6	4.0	B2/1000		
BM	(30°-60°)	1326.5	8.1	B2/2500		
BH	(60°-80°)	817.5	5.0	B2/1000		G2/1000
BVH	(80°-90°)	95.6	0.6			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G3**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	5759.9	5882.2	6022.2	6204.9	6329.5	6379.3	6420.9	6350.9	6283.3	6156.2	6111.2
5°	5380.2	5615.2	6000.8	6367.5	6690.2	6875.4	6932.3	6803.0	6572.8	6240.5	6064.9
7.5°	4816.6	5126.3	5668.6	6208.5	6671.3	6979.8	7002.3	6746.1	6292.7	5748.1	5463.3
10°	4324.1	4674.2	5301.9	5905.9	6396.0	6711.6	6649.9	6290.3	5743.4	5123.9	4802.3
12.5°	4038.1	4388.2	5027.8	5641.3	6102.8	6222.7	6096.9	5794.3	5275.8	4655.1	4331.2
15°	3977.6	4338.3	4930.5	5447.8	5733.8	5656.7	5532.1	5379.0	5010.0	4502.1	4188.8
17.5°	4160.3	4563.8	5059.8	5343.4	5331.5	5146.5	5042.0	5071.7	5008.8	4668.2	4340.7
20°	4536.5	5013.6	5388.5	5314.9	5011.1	4751.3	4690.7	4923.4	5214.1	5084.8	4725.2
22.5°	5031.4	5574.8	5837.1	5396.8	4843.9	4563.8	4551.9	4915.1	5587.9	5714.8	5277.0
25°	5590.2	6223.9	6289.2	5541.6	4826.1	4547.2	4536.5	5043.2	6037.6	6339.0	5895.2
27.5°	6273.8	6878.9	6666.5	5735.0	4904.3	4595.8	4603.0	5261.5	6506.3	6956.1	6591.8
30°	6788.7	7344.1	6899.1	5924.8	5030.2	4681.2	4699.0	5497.6	6759.0	7384.5	7148.3
32.5°	7270.5	7741.6	7122.2	6112.3	5214.1	4808.3	4870.0	5791.9	7062.9	7752.3	7674.0
35°	7803.3	8186.6	7370.2	6312.9	5477.5	5031.4	5120.4	6072.0	7364.2	8120.2	8194.9
37.5°	8407.3	8695.7	7639.6	6596.5	5857.2	5444.2	5494.2	6357.9	7574.3	8527.1	8753.8
40°	9036.2	9266.4	7933.8	6975.1	6409.0	6002.0	6025.7	6724.7	7739.2	8948.5	9296.1
42.5°	9576.1	9755.4	8229.3	7444.9	7042.7	6570.4	6590.6	7119.8	7897.1	9311.5	9730.4
45°	10008.0	10139.8	8508.2	7939.7	7719.1	7280.0	7275.2	7522.1	8108.3	9617.7	10063.9
47.5°	10410.4	10480.3	8819.1	8421.5	8420.3	8193.7	8024.0	7996.7	8389.5	9875.2	10354.6
50°	10870.8	10896.9	9229.7	8908.1	9277.1	9241.5	8928.2	8599.5	8753.8	10164.8	10659.6
52.5°	11511.6	11512.7	9738.7	9382.7	10222.9	10335.6	9971.3	9281.8	9292.6	10728.4	11186.4
55°	12265.1	12317.2	10402.1	9951.2	11212.6	11404.8	11061.8	10092.3	10066.2	11637.3	12040.7
57.5°	12847.8	13124.2	11174.5	10661.9	12136.9	12387.3	12110.8	10932.5	11016.8	12574.8	12745.7
60°	13011.4	13658.1	11944.7	11459.3	12918.9	13295.1	13013.9	11840.2	11947.0	13183.5	12948.6
62.5°	12815.6	13830.2	12729.1	12173.7	13382.9	13743.7	13541.9	12434.8	12705.4	13105.2	12605.6
65°	12235.4	13581.0	13410.2	12477.4	13115.9	13244.0	13190.6	12465.6	13117.1	12364.7	11657.5
67.5°	10880.3	12619.8	13106.4	11828.4	11868.7	11731.1	11661.0	11618.4	12654.3	11169.8	10162.3
70°	8848.7	10843.5	11657.5	9898.9	9599.9	9467.0	9236.7	9806.3	11373.9	9516.8	8363.4
72.5°	6816.0	8295.7	9561.9	7504.3	6882.5	6927.6	6666.5	7498.3	9421.9	7357.2	6385.3
75°	4840.3	5656.7	7632.4	5392.1	4568.5	4566.1	4546.0	5396.8	7434.3	5280.6	4671.8
77.5°	3488.7	4072.6	5979.5	3608.6	3241.9	3283.5	3217.0	3667.9	5795.5	3798.4	3461.5
80°	2782.6	3015.2	3864.9	2406.5	2413.7	2510.9	2496.7	2508.6	3812.6	2750.6	2588.1
82.5°	1999.5	2289.1	2954.7	1844.1	1596.0	1699.2	1719.5	1860.6	2690.1	1944.9	1706.4
85°	1025.3	1395.5	2718.6	1597.2	998.0	827.1	951.7	1467.8	2336.5	1165.2	831.9
87.5°	199.4	386.9	1992.4	887.6	448.6	226.7	373.8	621.7	1358.7	211.2	103.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°	185°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	6034.1	5882.2	5739.8	5592.6	5478.7	5339.9	5203.4	5084.8	4969.6	4893.7	4917.4
5°	5886.9	5516.7	5184.4	4875.9	4695.5	4478.4	4284.9	4122.4	3996.6	3915.9	3964.5
7.5°	5216.4	4715.7	4277.8	3870.8	3614.5	3333.3	3107.8	2948.8	2851.5	2796.8	2876.4
10°	4530.5	3968.1	3476.8	3053.2	2800.4	2562.0	2357.8	2189.3	2058.8	1997.1	2029.1
12.5°	4039.3	3414.0	2898.9	2614.2	2397.0	2183.4	1972.1	1775.2	1609.1	1533.1	1517.8
15°	3855.4	3116.1	2590.4	2272.4	2056.4	1823.8	1596.0	1384.8	1227.0	1161.8	1147.4
17.5°	3936.1	3052.1	2407.7	2031.5	1718.3	1435.8	1179.6	980.2	863.9	827.1	830.6
20°	4219.7	3075.8	2260.5	1783.5	1396.6	1062.0	805.7	668.1	618.3	609.9	619.4
22.5°	4608.9	3173.1	2153.7	1569.9	1113.1	772.5	599.2	534.0	520.9	519.8	529.3
25°	5122.7	3363.0	2082.5	1380.1	879.3	612.3	522.1	485.3	474.6	477.0	486.5
27.5°	5727.9	3603.9	2036.3	1216.3	722.6	545.8	487.7	455.6	445.0	447.3	454.5
30°	6280.8	3815.0	1967.4	1092.9	649.1	522.1	468.7	436.7	422.5	422.5	427.2
32.5°	6775.7	3997.8	1886.7	1000.3	581.4	468.7	424.8	399.9	389.2	392.8	395.2
35°	7214.8	4093.8	1823.8	945.7	526.8	431.9	388.0	361.9	347.7	350.1	353.6
37.5°	7646.7	4130.7	1782.3	916.1	487.7	409.4	369.1	347.7	332.3	329.9	328.7
40°	8057.3	4122.4	1743.2	907.8	461.6	392.8	357.2	338.2	322.7	319.2	318.0
42.5°	8412.0	4095.1	1706.4	885.3	443.8	380.9	347.7	331.0	315.7	310.9	308.5
45°	8736.0	4078.5	1666.1	843.7	453.3	376.1	342.9	325.1	310.9	304.9	302.6
47.5°	9095.6	4137.8	1621.0	798.6	450.9	377.4	342.9	322.7	308.5	302.6	300.2
50°	9524.0	4338.3	1565.2	736.9	429.5	403.5	341.8	319.2	306.2	302.6	297.9
52.5°	10129.2	4663.4	1488.1	657.3	413.0	430.8	340.5	313.2	302.6	296.7	290.7
55°	10958.6	4988.6	1388.3	573.2	386.9	411.7	342.9	306.2	294.3	288.4	281.2
57.5°	11638.5	5235.5	1262.6	503.1	363.1	389.2	339.4	297.9	284.8	278.9	272.9
60°	11594.6	5259.2	1142.7	458.1	348.8	350.1	347.7	292.0	276.5	271.7	267.0
62.5°	10876.7	4966.1	1031.2	435.5	338.2	319.2	354.8	284.8	268.2	263.4	259.8
65°	9681.7	4283.7	971.9	435.5	328.7	302.6	309.7	275.3	259.8	255.1	252.8
67.5°	8166.4	3442.4	916.1	445.0	315.7	290.7	281.2	265.8	251.5	246.8	244.5
70°	6545.5	2709.1	876.9	440.3	303.8	277.6	265.8	252.8	238.6	237.3	235.0
72.5°	5134.6	2176.3	859.1	440.3	286.0	262.3	250.4	240.9	226.7	225.5	221.9
75°	4114.1	1634.0	785.5	431.9	268.2	242.0	231.4	223.1	208.9	210.0	207.7
77.5°	3186.1	1155.8	656.2	389.2	245.6	219.5	211.2	205.3	188.6	189.9	189.9
80°	2491.9	752.3	509.0	322.7	219.5	193.4	187.5	182.7	164.9	167.4	167.4
82.5°	1707.6	447.3	369.1	259.8	188.6	164.9	163.8	156.6	137.7	138.8	141.2
85°	932.7	294.3	245.6	192.2	148.3	134.1	131.8	128.2	110.4	110.4	111.5
87.5°	172.1	157.8	144.7	126.9	99.6	96.2	92.6	96.2	83.1	80.7	80.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





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**CANDELA DISTRIBUTION (continued):**

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	4861.7	4779.7	4722.8	4672.9	4553.2	4561.4	4578.0	4601.7	4527.0	4566.1	4614.8
5°	3915.9	3848.2	3797.2	3717.7	3550.5	3491.1	3453.1	3436.5	3325.0	3348.7	3400.9
7.5°	2887.1	2885.8	2868.0	2779.1	2577.3	2455.2	2374.5	2349.5	2280.7	2306.9	2386.3
10°	2032.7	2054.1	2045.8	1966.2	1785.9	1698.1	1680.3	1730.1	1731.3	1782.3	1918.7
12.5°	1469.1	1457.2	1446.6	1381.3	1246.0	1231.7	1272.0	1340.9	1357.6	1412.1	1554.5
15°	1096.5	1068.0	1062.0	1011.0	922.0	935.1	964.7	1000.3	1001.6	1039.5	1157.0
17.5°	822.4	822.4	831.9	798.6	734.5	728.5	713.2	703.7	689.5	704.8	769.0
20°	638.4	668.1	691.8	672.8	614.7	586.2	556.5	537.6	526.8	528.0	547.1
22.5°	547.1	570.8	601.6	592.1	543.5	506.7	487.7	474.6	466.4	466.4	477.0
25°	500.7	516.2	544.6	539.9	498.4	468.7	453.3	440.3	430.8	429.5	440.3
27.5°	464.0	473.4	492.4	490.1	447.3	428.4	418.9	410.6	404.7	403.5	414.1
30°	430.8	435.5	445.0	441.4	409.4	390.4	386.9	383.3	379.7	380.9	396.3
32.5°	401.1	404.7	410.6	405.8	375.0	358.3	352.4	347.7	344.1	347.7	365.5
35°	367.9	378.5	385.7	383.3	350.1	329.9	316.8	304.9	300.2	303.8	324.0
37.5°	339.4	357.2	366.6	364.3	329.9	306.2	289.5	287.1	287.1	292.0	312.1
40°	328.7	341.8	350.1	346.5	312.1	288.4	278.9	275.3	276.5	281.2	302.6
42.5°	319.2	331.0	333.5	326.3	292.0	276.5	270.6	265.8	268.2	274.2	295.4
45°	310.9	320.4	319.2	308.5	275.3	264.6	264.6	261.1	262.3	267.0	289.5
47.5°	304.9	309.7	307.3	296.7	263.4	255.1	258.7	258.7	261.1	264.6	287.1
50°	295.4	299.0	296.7	287.1	253.9	246.8	250.4	255.1	257.5	261.1	281.2
52.5°	286.0	288.4	287.1	277.6	244.5	239.7	239.7	244.5	249.2	253.9	271.7
55°	276.5	278.9	280.1	272.9	237.3	232.6	231.4	231.4	236.1	243.3	262.3
57.5°	269.3	269.3	271.7	267.0	230.2	224.2	218.3	219.5	225.5	231.4	250.4
60°	261.1	262.3	265.8	261.1	220.8	211.2	206.4	212.4	214.8	220.8	240.9
62.5°	253.9	253.9	256.4	252.8	212.4	203.0	199.4	205.3	205.3	211.2	231.4
65°	248.0	246.8	246.8	245.6	204.1	194.6	192.2	194.6	195.8	201.7	221.9
67.5°	243.3	237.3	237.3	239.7	195.8	186.3	185.2	185.2	186.3	193.4	211.2
70°	232.6	227.8	226.7	235.0	187.5	175.6	175.6	173.3	175.6	179.2	198.1
72.5°	220.8	217.2	215.9	227.8	179.2	163.8	161.4	160.2	161.4	164.9	182.7
75°	205.3	203.0	205.3	223.1	170.8	150.7	147.1	146.0	146.0	147.1	166.1
77.5°	187.5	185.2	203.0	207.7	166.1	135.2	131.8	129.3	126.9	126.9	148.3
80°	166.1	164.9	195.8	175.6	159.0	118.7	112.7	109.1	106.8	105.6	126.9
82.5°	144.7	142.4	167.4	137.7	131.8	97.3	89.0	81.8	78.4	78.4	97.3
85°	118.7	117.4	131.8	100.9	91.3	71.2	59.3	53.4	48.7	48.7	62.9
87.5°	86.6	84.3	81.8	60.6	46.2	32.0	22.5	21.4	19.0	17.8	26.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: NAV-AF-03-D-UNV-SLL

**CANDELA DISTRIBUTION (continued):**

	295°	305°	315°	325°	335°	345°	355°	360°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	4687.2	4785.7	4972.1	5125.1	5329.2	5492.9	5679.2	5759.9
5°	3497.1	3652.4	3937.2	4180.5	4517.6	4829.7	5185.6	5380.2
7.5°	2508.6	2738.7	2954.7	3258.5	3679.8	4098.7	4559.1	4816.6
10°	2075.5	2286.6	2471.8	2687.7	3012.9	3484.0	4033.4	4324.1
12.5°	1719.5	1947.3	2143.1	2374.5	2647.4	3073.4	3699.9	4038.1
15°	1318.4	1566.3	1801.3	2080.2	2414.8	2901.3	3600.3	3977.6
17.5°	903.1	1168.8	1458.4	1799.0	2202.4	2829.0	3695.2	4160.3
20°	613.5	808.1	1122.6	1526.0	2011.3	2794.5	3904.0	4536.5
22.5°	504.3	592.1	828.3	1269.7	1854.7	2832.4	4243.4	5031.4
25°	462.8	510.2	644.4	1044.2	1734.8	2933.4	4702.6	5590.2
27.5°	436.7	477.0	564.9	882.8	1624.5	3071.0	5261.5	6273.8
30°	421.3	459.2	532.8	799.7	1523.7	3189.7	5742.1	6788.7
32.5°	386.9	415.3	475.9	752.3	1451.3	3285.8	6165.7	7270.5
35°	345.3	379.7	429.5	721.5	1448.9	3330.9	6564.5	7803.3
37.5°	329.9	363.1	399.9	704.8	1463.1	3368.9	7052.2	8407.3
40°	320.4	350.1	379.7	702.5	1475.0	3398.5	7529.2	9036.2
42.5°	312.1	341.8	376.1	685.9	1470.3	3438.9	7951.6	9576.1
45°	309.7	339.4	384.4	660.9	1469.1	3501.8	8287.4	10008.0
47.5°	307.3	352.4	382.1	633.6	1464.4	3634.6	8666.0	10410.4
50°	304.9	376.1	365.5	595.7	1428.8	3861.3	9175.1	10870.8
52.5°	303.8	379.7	347.7	543.5	1364.6	4197.2	9920.3	11511.6
55°	299.0	360.7	316.8	474.6	1272.0	4559.1	10718.9	12265.1
57.5°	288.4	321.6	299.0	407.0	1139.2	4811.8	11308.6	12847.8
60°	314.5	276.5	287.1	372.6	980.2	4856.9	11334.7	13011.4
62.5°	300.2	251.5	275.3	360.7	868.6	4562.6	10816.2	12815.6
65°	239.7	238.6	264.6	372.6	852.0	3904.0	9940.4	12235.4
67.5°	218.3	229.0	253.9	386.9	862.7	3075.8	8651.7	10880.3
70°	204.1	217.2	239.7	399.9	881.7	2423.1	6965.6	8848.7
72.5°	189.9	200.5	225.5	413.0	868.6	1911.7	5574.8	6816.0
75°	172.1	181.6	205.3	378.5	745.2	1405.0	4429.7	4840.3
77.5°	151.9	160.2	180.3	299.0	560.1	977.8	3317.8	3488.7
80°	130.5	134.1	149.6	218.3	365.5	585.0	2525.2	2782.6
82.5°	103.2	104.4	114.0	160.2	227.8	373.8	1751.5	1999.5
85°	66.5	68.8	73.6	112.7	153.0	239.7	894.7	1025.3
87.5°	22.5	26.1	26.1	54.6	74.8	132.9	274.2	199.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)