

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: P196222

Luminaire Tested: **NAV-AF-04-D-UNV-SLL-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196222
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-04-D-UNV-SLL-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 1200mA 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: 24180.5 lumens
Efficiency: N/A
Efficacy: 93.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B3 - U0 - G4

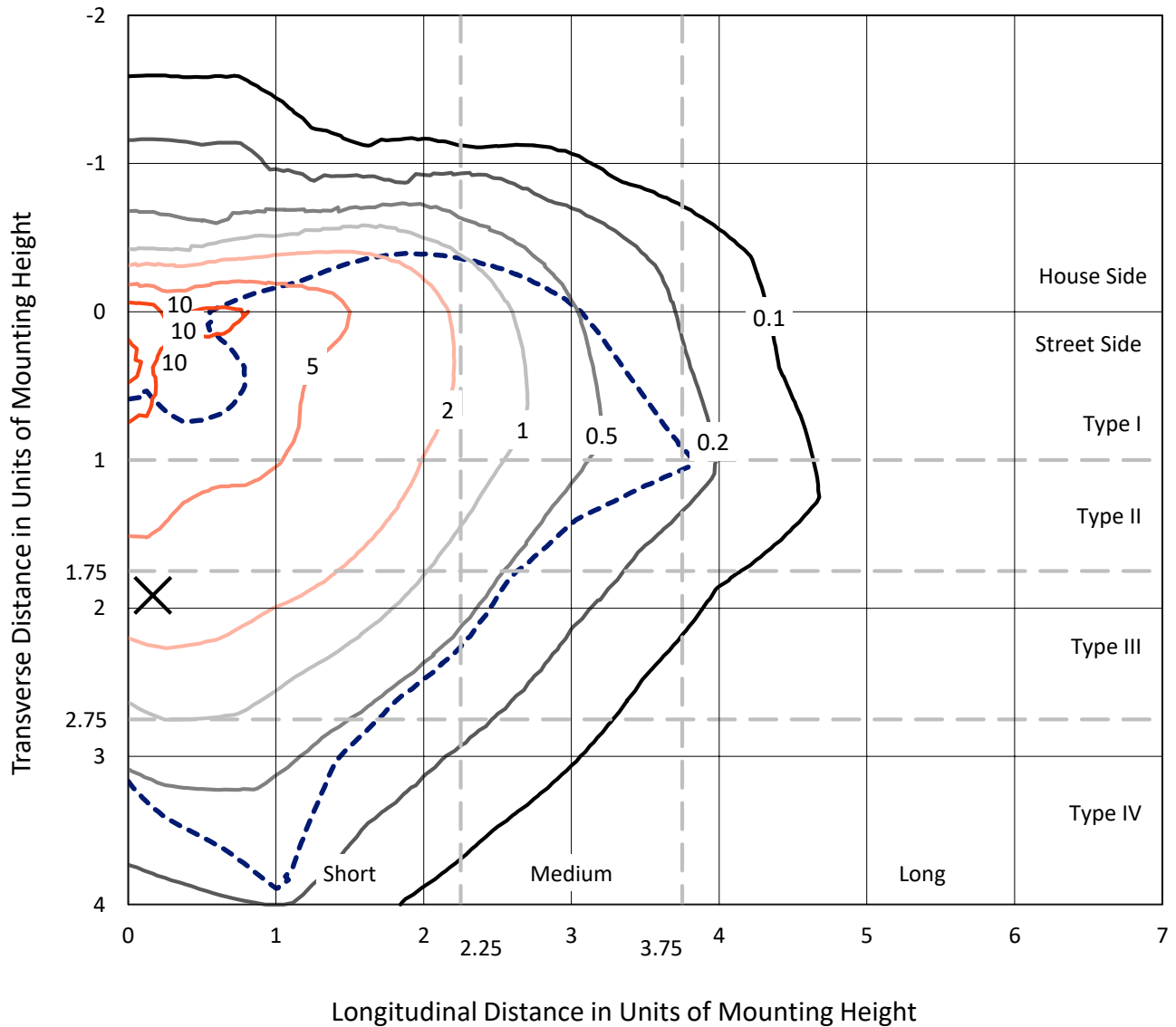
Input Watts (W): 258
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

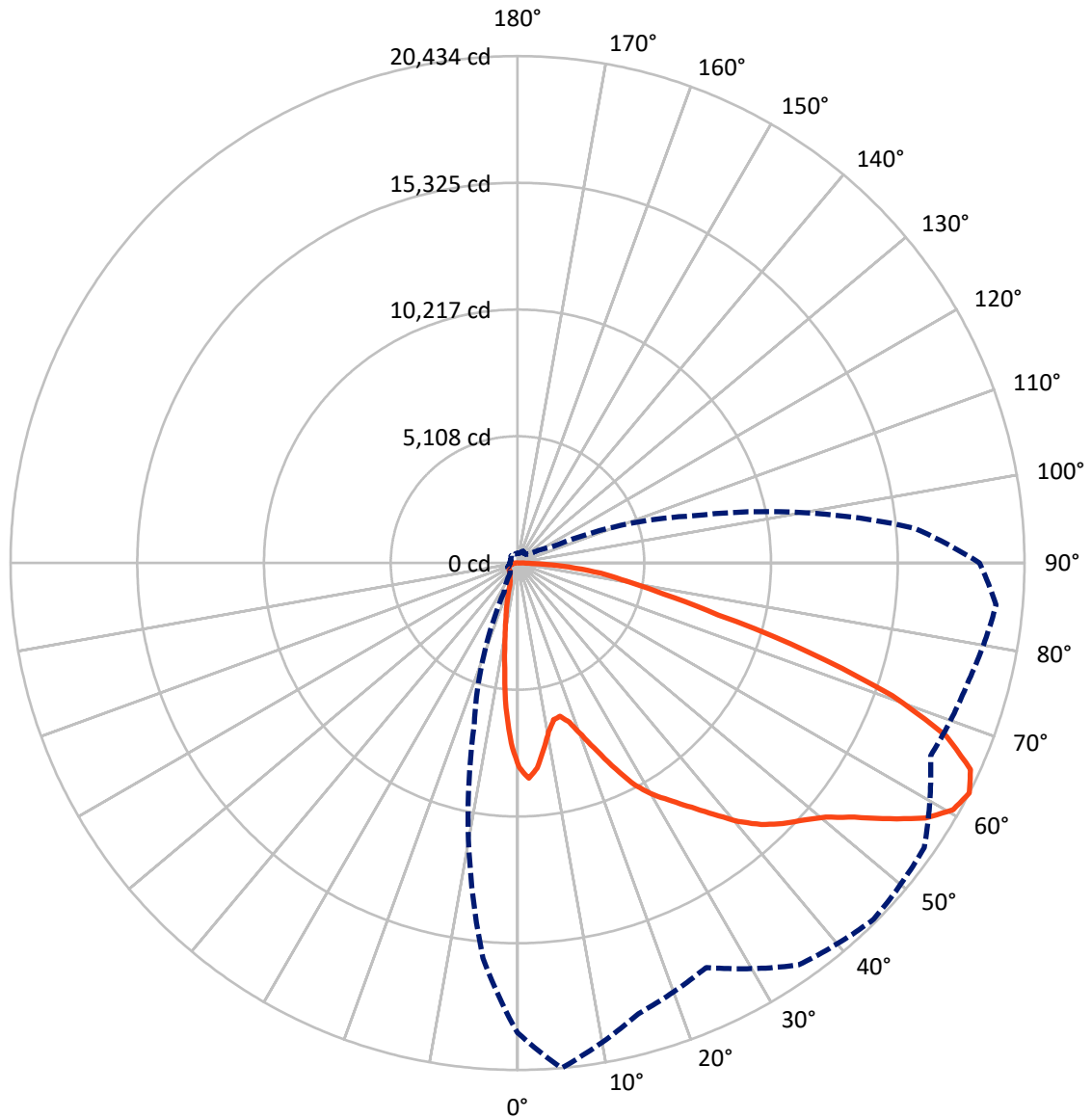
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 15.1 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
House Side	Lumens	4283.6	0.0	4283.6
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	19896.9	0.0	19896.9
	% Fixture	82.3	0.0	82.3
Total	Lumens	24180.5	0.0	24180.5
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	599.5	2.5
10°-20°	1095.0	4.5
20°-30°	1574.9	6.5
30°-40°	2412.1	10.0
40°-50°	3526.6	14.6
50°-60°	5131.3	21.2
60°-70°	5945.2	24.6
70°-80°	3099.2	12.8
80°-90°	796.7	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°	24180.5	100.0
0°-180°	24180.5	100.0



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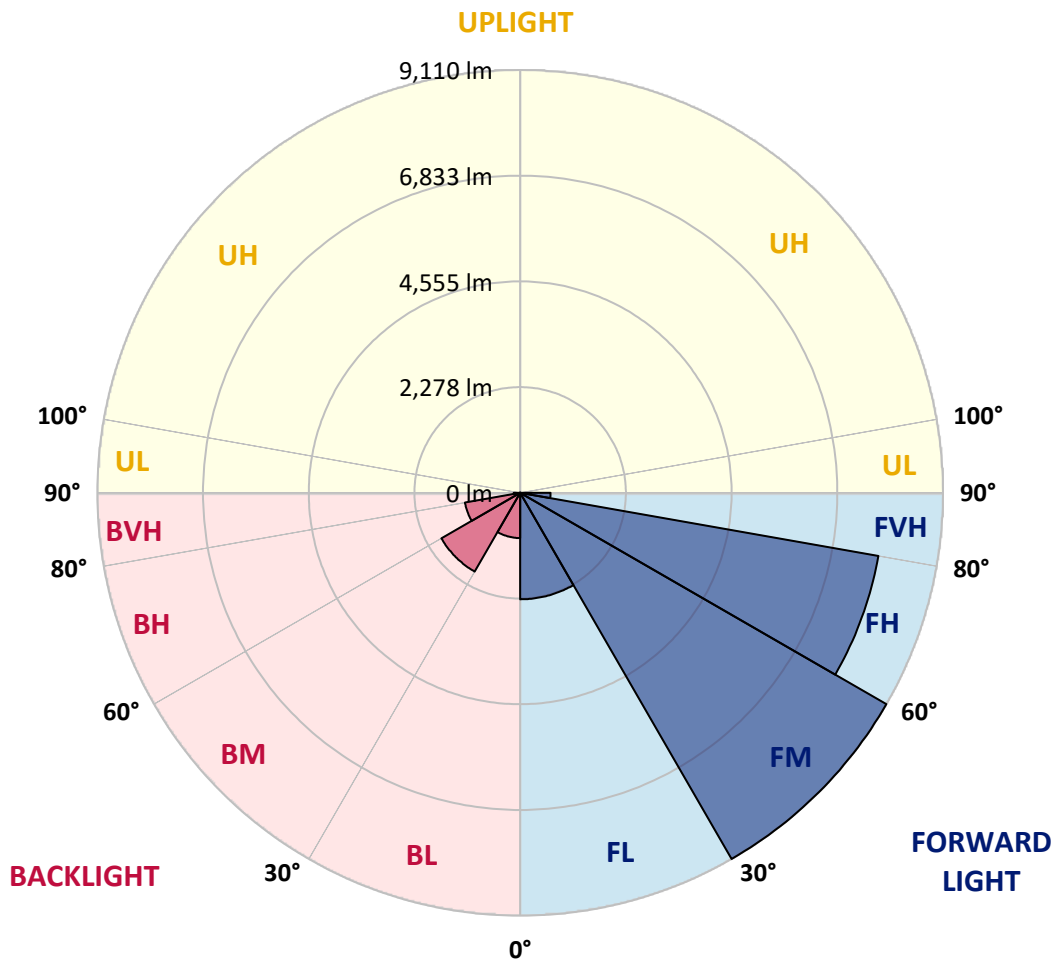
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	2294.8	9.5			
FM	(30°-60°)	9110.1	37.7			
FH	(60°-80°)	7836.6	32.4			G4/12000
FVH	(80°-90°)	655.4	2.7			G4/750
BL	(0°-30°)	974.6	4.0	B2/1000		
BM	(30°-60°)	1959.9	8.1	B2/2500		
BH	(60°-80°)	1207.9	5.0	B3/2500		G3/2500
BVH	(80°-90°)	141.3	0.6			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 IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7
2.5°	8510.1	8690.7	8897.5	9167.6	9351.6	9425.3	9486.6	9383.2	9283.3	9095.7	9029.1
5°	7949.0	8296.2	8866.0	9407.8	9884.7	10158.1	10242.3	10051.2	9711.1	9220.2	8960.6
7.5°	7116.3	7573.9	8375.1	9172.8	9856.5	10312.4	10345.7	9967.0	9297.3	8492.5	8071.8
10°	6388.7	6905.9	7833.3	8725.8	9449.8	9916.2	9825.0	9293.8	8485.6	7570.3	7095.3
12.5°	5966.2	6483.4	7428.4	8334.8	9016.8	9193.9	9008.0	8561.0	7794.8	6877.9	6399.3
15°	5876.8	6409.7	7284.6	8049.0	8471.6	8357.6	8173.5	7947.3	7402.1	6651.7	6188.9
17.5°	6146.8	6742.9	7475.7	7894.7	7877.2	7603.7	7449.4	7493.2	7400.3	6897.1	6413.3
20°	6702.6	7407.3	7961.3	7852.7	7403.8	7019.9	6930.5	7274.1	7703.6	7512.6	6981.3
22.5°	7433.7	8236.6	8624.1	7973.6	7156.7	6742.9	6725.3	7261.8	8255.9	8443.4	7796.5
25°	8259.4	9195.6	9292.1	8187.5	7130.4	6718.3	6702.6	7451.2	8920.3	9365.6	8710.0
27.5°	9269.3	10163.4	9849.6	8473.3	7246.1	6790.2	6800.7	7773.7	9612.9	10277.4	9739.1
30°	10030.1	10850.6	10193.2	8753.8	7431.8	6916.5	6942.8	8122.6	9986.4	10910.3	10561.4
32.5°	10741.9	11438.0	10522.8	9030.8	7703.6	7104.0	7195.2	8557.4	10435.1	11453.8	11338.1
35°	11529.2	12095.5	10889.2	9327.1	8092.9	7433.7	7565.1	8971.2	10880.4	11997.3	12107.7
37.5°	12421.5	12847.5	11287.2	9746.2	8653.9	8043.8	8117.4	9393.8	11190.8	12598.6	12933.5
40°	13350.7	13690.9	11722.0	10305.4	9469.1	8867.8	8902.8	9935.5	11434.4	13221.0	13734.6
42.5°	14148.4	14413.2	12158.6	10999.7	10405.4	9707.6	9737.4	10519.3	11667.7	13757.5	14376.3
45°	14786.7	14981.2	12570.5	11730.8	11404.7	10756.0	10749.0	11113.6	11979.7	14209.8	14869.0
47.5°	15381.0	15484.4	13029.9	12442.6	12440.8	12105.9	11855.3	11814.9	12395.2	14590.2	15298.5
50°	16061.2	16099.8	13636.5	13161.4	13706.6	13654.0	13191.2	12705.6	12933.5	15018.0	15749.1
52.5°	17008.0	17009.7	14388.6	13862.7	15104.0	15270.5	14732.2	13713.7	13729.4	15850.8	16527.5
55°	18121.3	18198.4	15368.7	14702.5	16566.2	16850.1	16343.5	14911.1	14872.5	17193.8	17789.8
57.5°	18982.1	19390.5	16510.0	15752.6	17931.9	18301.8	17893.4	16152.4	16276.9	18578.8	18831.3
60°	19224.0	20179.5	17647.8	16930.8	19087.2	19643.0	19227.5	17493.6	17651.3	19478.2	19131.1
62.5°	18934.7	20433.7	18806.7	17986.2	19772.7	20305.8	20007.7	18372.0	18771.7	19362.5	18624.5
65°	18077.4	20065.6	19813.1	18435.1	19378.3	19567.6	19488.7	18417.5	19380.0	18268.5	17223.6
67.5°	16075.3	18645.4	19364.3	17476.1	17535.6	17332.3	17228.8	17165.7	18696.3	16503.1	15014.6
70°	13073.7	16020.8	17223.6	14625.3	14183.5	13987.1	13647.0	14488.6	16804.5	14060.8	12356.6
72.5°	10070.4	12256.7	14127.4	11087.4	10168.6	10235.2	9849.6	11078.6	13920.5	10870.0	9434.1
75°	7151.3	8357.6	11276.7	7966.6	6749.8	6746.4	6716.6	7973.6	10983.9	7801.8	6902.4
77.5°	5154.4	6017.0	8834.4	5331.5	4789.8	4851.1	4752.9	5419.2	8562.7	5612.0	5114.1
80°	4111.2	4455.0	5710.2	3555.5	3566.0	3709.8	3688.8	3706.3	5633.1	4064.0	3823.8
82.5°	2954.2	3382.0	4365.5	2724.5	2358.1	2510.6	2540.4	2749.1	3974.6	2873.5	2521.2
85°	1514.8	2061.8	4016.6	2359.8	1474.5	1222.0	1406.0	2168.8	3452.0	1721.6	1229.0
87.5°	294.5	571.5	2943.6	1311.4	662.7	334.9	552.3	918.7	2007.4	312.1	152.5
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°	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7
2.5°	8915.1	8690.7	8480.3	8262.9	8094.6	7889.5	7687.9	7512.6	7342.4	7230.2	7265.3
5°	8697.7	8150.7	7659.8	7203.9	6937.4	6616.7	6330.8	6090.6	5904.8	5785.6	5857.5
7.5°	7707.1	6967.3	6320.3	5719.0	5340.3	4924.8	4591.7	4356.7	4213.0	4132.3	4249.7
10°	6693.8	5862.7	5137.0	4511.0	4137.6	3785.2	3483.7	3234.7	3041.8	2950.7	2998.0
12.5°	5967.9	5044.0	4283.1	3862.4	3541.5	3225.9	2913.9	2622.8	2377.3	2265.1	2242.4
15°	5696.2	4603.9	3827.3	3357.4	3038.4	2694.7	2358.1	2046.0	1812.9	1716.4	1695.3
17.5°	5815.4	4509.3	3557.3	3001.5	2538.7	2121.4	1742.7	1448.2	1276.3	1222.0	1227.2
20°	6234.5	4544.4	3339.8	2635.1	2063.5	1569.1	1190.4	987.0	913.4	901.1	915.1
22.5°	6809.5	4688.1	3182.1	2319.5	1644.5	1141.3	885.4	788.9	769.7	767.9	781.9
25°	7568.6	4968.6	3076.9	2038.9	1299.1	904.7	771.4	717.1	701.3	704.8	718.8
27.5°	8462.8	5324.6	3008.5	1797.0	1067.8	806.5	720.6	673.2	657.5	660.9	671.5
30°	9279.8	5636.6	2906.8	1614.7	959.0	771.4	692.5	645.2	624.1	624.1	631.2
32.5°	10010.9	5906.6	2787.6	1478.0	859.1	692.5	627.7	590.9	575.1	580.3	583.8
35°	10659.6	6048.6	2694.7	1397.4	778.5	638.2	573.3	534.7	513.7	517.2	522.4
37.5°	11297.7	6102.9	2633.3	1353.5	720.6	604.9	545.2	513.7	490.9	487.4	485.6
40°	11904.3	6090.6	2575.5	1341.2	682.0	580.3	527.7	499.7	476.9	471.6	469.8
42.5°	12428.5	6050.3	2521.2	1307.9	655.7	562.8	513.7	489.2	466.4	459.3	455.8
45°	12907.2	6025.8	2461.5	1246.6	669.7	555.8	506.7	480.4	459.3	450.6	447.0
47.5°	13438.4	6113.5	2394.9	1179.9	666.2	557.5	506.7	476.9	455.8	447.0	443.6
50°	14071.3	6409.7	2312.5	1088.7	634.6	596.1	504.9	471.6	452.3	447.0	440.1
52.5°	14965.5	6890.1	2198.5	971.3	610.1	636.4	503.2	462.9	447.0	438.3	429.5
55°	16191.0	7370.6	2051.2	846.8	571.5	608.3	506.7	452.3	434.8	426.1	415.5
57.5°	17195.5	7735.1	1865.5	743.4	536.4	575.1	501.5	440.1	420.7	412.0	403.2
60°	17130.6	7770.2	1688.4	676.8	515.5	517.2	513.7	431.3	408.5	401.5	394.4
62.5°	16069.9	7337.2	1523.6	643.4	499.7	471.6	524.3	420.7	396.2	389.2	383.9
65°	14304.4	6329.1	1435.9	643.4	485.6	447.0	457.6	406.7	383.9	377.0	373.5
67.5°	12065.6	5086.1	1353.5	657.5	466.4	429.5	415.5	392.7	371.6	364.7	361.2
70°	9670.8	4002.6	1295.7	650.4	448.9	410.2	392.7	373.5	352.4	350.7	347.1
72.5°	7586.2	3215.4	1269.3	650.4	422.5	387.5	369.9	355.9	334.9	333.1	327.9
75°	6078.4	2414.2	1160.6	638.2	396.2	357.6	341.9	329.6	308.5	310.4	306.8
77.5°	4707.4	1707.6	969.6	575.1	362.9	324.4	312.1	303.3	278.8	280.5	280.5
80°	3681.7	1111.5	752.2	476.9	324.4	285.8	277.0	270.0	243.7	247.2	247.2
82.5°	2522.9	660.9	545.2	383.9	278.8	243.7	241.9	231.4	203.4	205.1	208.7
85°	1378.0	434.8	362.9	284.0	219.1	198.1	194.6	189.3	163.1	163.1	164.8
87.5°	254.2	233.1	213.9	187.6	147.3	142.0	136.8	142.0	122.8	119.2	119.2
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):

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7
2.5°	7183.0	7061.9	6977.8	6904.2	6727.1	6739.4	6764.0	6798.9	6688.6	6746.4	6818.3
5°	5785.6	5685.7	5610.3	5492.8	5245.6	5157.9	5101.9	5077.3	4912.5	4947.6	5024.7
7.5°	4265.6	4263.9	4237.5	4106.0	3807.9	3627.4	3508.2	3471.4	3369.7	3408.3	3525.7
10°	3003.3	3034.8	3022.5	2905.1	2638.6	2508.9	2482.6	2556.1	2558.0	2633.3	2834.9
12.5°	2170.5	2152.9	2137.1	2040.8	1840.9	1819.8	1879.5	1981.1	2005.7	2086.3	2296.7
15°	1619.9	1577.9	1569.1	1493.7	1362.3	1381.5	1425.4	1478.0	1479.7	1535.9	1709.4
17.5°	1215.0	1215.0	1229.0	1179.9	1085.2	1076.5	1053.6	1039.6	1018.7	1041.4	1136.1
20°	943.3	987.0	1022.1	994.1	908.2	866.1	822.2	794.2	778.5	780.2	808.2
22.5°	808.2	843.3	888.8	874.8	803.0	748.6	720.6	701.3	689.1	689.1	704.8
25°	739.9	762.6	804.8	797.7	736.3	692.5	669.7	650.4	636.4	634.6	650.4
27.5°	685.5	699.5	727.6	724.0	660.9	632.9	618.9	606.6	597.8	596.1	611.8
30°	636.4	643.4	657.5	652.2	604.9	576.8	571.5	566.3	561.0	562.8	585.5
32.5°	592.6	597.8	606.6	599.6	554.0	529.5	520.7	513.7	508.4	513.7	540.0
35°	543.5	559.2	569.8	566.3	517.2	487.4	468.1	450.6	443.6	448.9	478.6
37.5°	501.5	527.7	541.8	538.3	487.4	452.3	427.8	424.3	424.3	431.3	461.1
40°	485.6	504.9	517.2	512.0	461.1	426.1	412.0	406.7	408.5	415.5	447.0
42.5°	471.6	489.2	492.7	482.1	431.3	408.5	399.8	392.7	396.2	405.0	436.6
45°	459.3	473.3	471.6	455.8	406.7	391.0	391.0	385.8	387.5	394.4	427.8
47.5°	450.6	457.6	454.1	438.3	389.2	377.0	382.2	382.2	385.8	391.0	424.3
50°	436.6	441.8	438.3	424.3	375.2	364.7	369.9	377.0	380.4	385.8	415.5
52.5°	422.5	426.1	424.3	410.2	361.2	354.1	354.1	361.2	368.2	375.2	401.5
55°	408.5	412.0	413.8	403.2	350.7	343.6	341.9	341.9	348.9	359.4	387.5
57.5°	398.0	398.0	401.5	394.4	340.1	331.3	322.6	324.4	333.1	341.9	369.9
60°	385.8	387.5	392.7	385.8	326.1	312.1	305.0	313.8	317.3	326.1	355.9
62.5°	375.2	375.2	378.7	373.5	313.8	299.8	294.5	303.3	303.3	312.1	341.9
65°	366.4	364.7	364.7	362.9	301.6	287.6	284.0	287.6	289.3	298.1	327.9
67.5°	359.4	350.7	350.7	354.1	289.3	275.3	273.5	273.5	275.3	285.8	312.1
70°	343.6	336.7	334.9	347.1	277.0	259.5	259.5	255.9	259.5	264.7	292.8
72.5°	326.1	320.8	319.1	336.7	264.7	241.9	238.4	236.7	238.4	243.7	270.0
75°	303.3	299.8	303.3	329.6	252.5	222.7	217.4	215.6	215.6	217.4	245.4
77.5°	277.0	273.5	299.8	306.8	245.4	199.9	194.6	191.1	187.6	187.6	219.1
80°	245.4	243.7	289.3	259.5	235.0	175.3	166.5	161.3	157.7	156.0	187.6
82.5°	213.9	210.4	247.2	203.4	194.6	143.7	131.4	121.0	115.7	115.7	143.7
85°	175.3	173.6	194.6	149.0	135.0	105.2	87.7	78.9	71.9	71.9	92.9
87.5°	128.0	124.5	121.0	89.4	68.3	47.4	33.3	31.5	28.0	26.3	38.6
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-04-D-UNV-SLL-1200

CANDELA DISTRIBUTION (continued):

	295°	305°	315°	325°	335°	345°	355°	360°
0°	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7	8243.7
2.5°	6925.2	7070.7	7346.0	7572.1	7873.7	8115.7	8390.9	8510.1
5°	5166.7	5396.4	5817.2	6176.6	6674.4	7135.6	7661.6	7949.0
7.5°	3706.3	4046.4	4365.5	4814.3	5436.7	6055.6	6735.8	7116.3
10°	3066.4	3378.4	3651.9	3971.0	4451.4	5147.5	5959.2	6388.7
12.5°	2540.4	2877.0	3166.3	3508.2	3911.5	4540.8	5466.5	5966.2
15°	1947.8	2314.2	2661.4	3073.4	3567.7	4286.6	5319.2	5876.8
17.5°	1334.2	1726.9	2154.7	2657.8	3254.0	4179.7	5459.5	6146.8
20°	906.4	1194.0	1658.5	2254.7	2971.7	4128.8	5768.1	6702.6
22.5°	745.1	874.8	1223.8	1876.0	2740.3	4184.9	6269.5	7433.7
25°	683.7	753.9	952.0	1542.8	2563.2	4333.9	6948.0	8259.4
27.5°	645.2	704.8	834.5	1304.4	2400.1	4537.3	7773.7	9269.3
30°	622.4	678.5	787.2	1181.7	2251.1	4712.6	8483.8	10030.1
32.5°	571.5	613.7	703.1	1111.5	2144.2	4854.6	9109.7	10741.9
35°	510.1	561.0	634.6	1065.9	2140.6	4921.3	9698.8	11529.2
37.5°	487.4	536.4	590.9	1041.4	2161.7	4977.4	10419.4	12421.5
40°	473.3	517.2	561.0	1037.9	2179.3	5021.3	11124.2	13350.7
42.5°	461.1	504.9	555.8	1013.3	2172.2	5080.8	11748.3	14148.4
45°	457.6	501.5	568.0	976.5	2170.5	5173.8	12244.4	14786.7
47.5°	454.1	520.7	564.6	936.2	2163.4	5370.1	12803.8	15381.0
50°	450.6	555.8	540.0	880.1	2110.9	5705.0	13555.8	16061.2
52.5°	448.9	561.0	513.7	803.0	2016.2	6201.1	14656.8	17008.0
55°	441.8	533.0	468.1	701.3	1879.5	6735.8	15836.8	18121.3
57.5°	426.1	475.2	441.8	601.4	1683.1	7109.3	16708.2	18982.1
60°	464.6	408.5	424.3	550.6	1448.2	7175.9	16746.7	19224.0
62.5°	443.6	371.6	406.7	533.0	1283.4	6741.1	15980.5	18934.7
65°	354.1	352.4	391.0	550.6	1258.8	5768.1	14686.7	18077.4
67.5°	322.6	338.4	375.2	571.5	1274.6	4544.4	12782.7	16075.3
70°	301.6	320.8	354.1	590.9	1302.6	3580.0	10291.4	13073.7
72.5°	280.5	296.2	333.1	610.1	1283.4	2824.5	8236.6	10070.4
75°	254.2	268.2	303.3	559.2	1101.0	2075.8	6544.7	7151.3
77.5°	224.4	236.7	266.5	441.8	827.6	1444.6	4902.0	5154.4
80°	192.8	198.1	220.9	322.6	540.0	864.3	3730.8	4111.2
82.5°	152.5	154.3	168.3	236.7	336.7	552.3	2587.8	2954.2
85°	98.2	101.7	108.7	166.5	226.2	354.1	1322.0	1514.8
87.5°	33.3	38.6	38.6	80.6	110.5	196.4	405.0	294.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)