

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: P196214

Luminaire Tested: **NAV-AF-02-D-UNV-SLL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196214
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-02-D-UNV-SLL
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 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: 11004.9 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G3

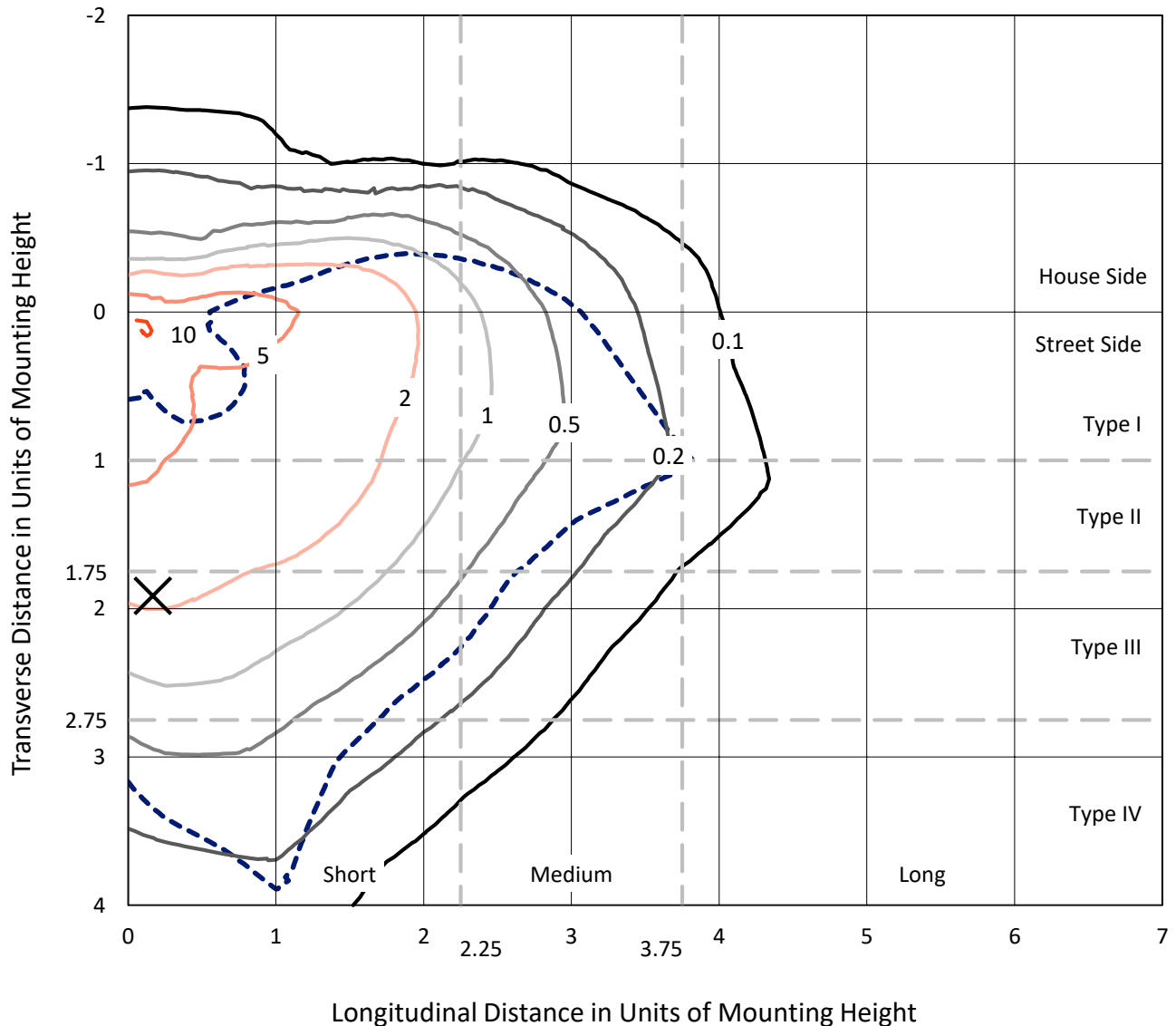
Input Watts (W): 113
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P196214
 CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

Iso-Footcandle Lines of Horizontal Illumination

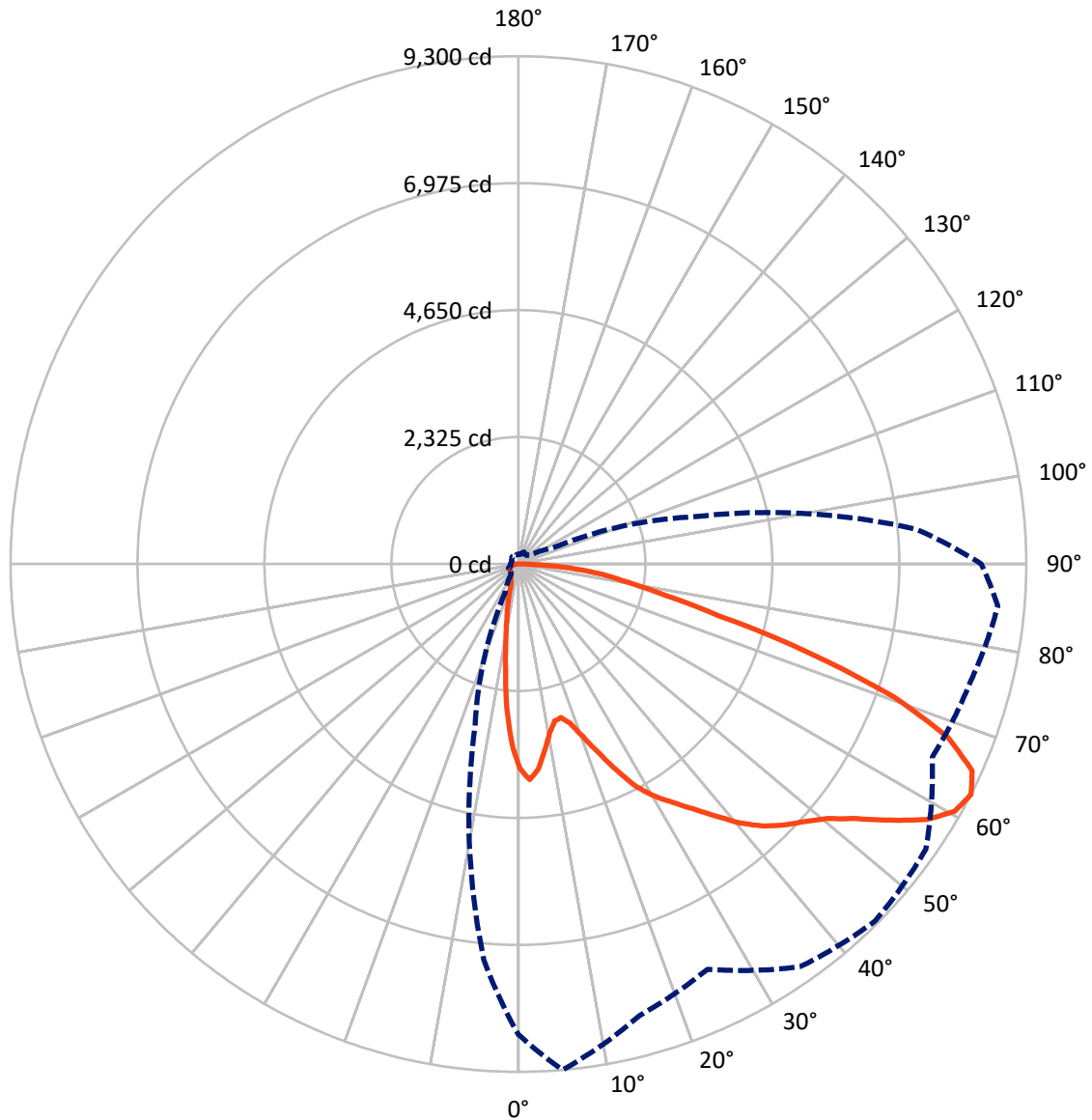
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.8 fc
 Type IV - Short - Non-Cutoff

REPORT NUMBER: P196214
CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

Luminous Intensity Polar Plot



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

REPORT NUMBER: P196214

CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1949.5	0.0	1949.5
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	9055.4	0.0	9055.4
	% Fixture	82.3	0.0	82.3
Total	Lumens	11004.9	0.0	11004.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	272.8	2.5
10°-20°	498.4	4.5
20°-30°	716.8	6.5
30°-40°	1097.8	10.0
40°-50°	1605.0	14.6
50°-60°	2335.3	21.2
60°-70°	2705.8	24.6
70°-80°	1410.5	12.8
80°-90°	362.6	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°	11004.9	100.0
0°-180°	11004.9	100.0



REPORT NUMBER: P196214

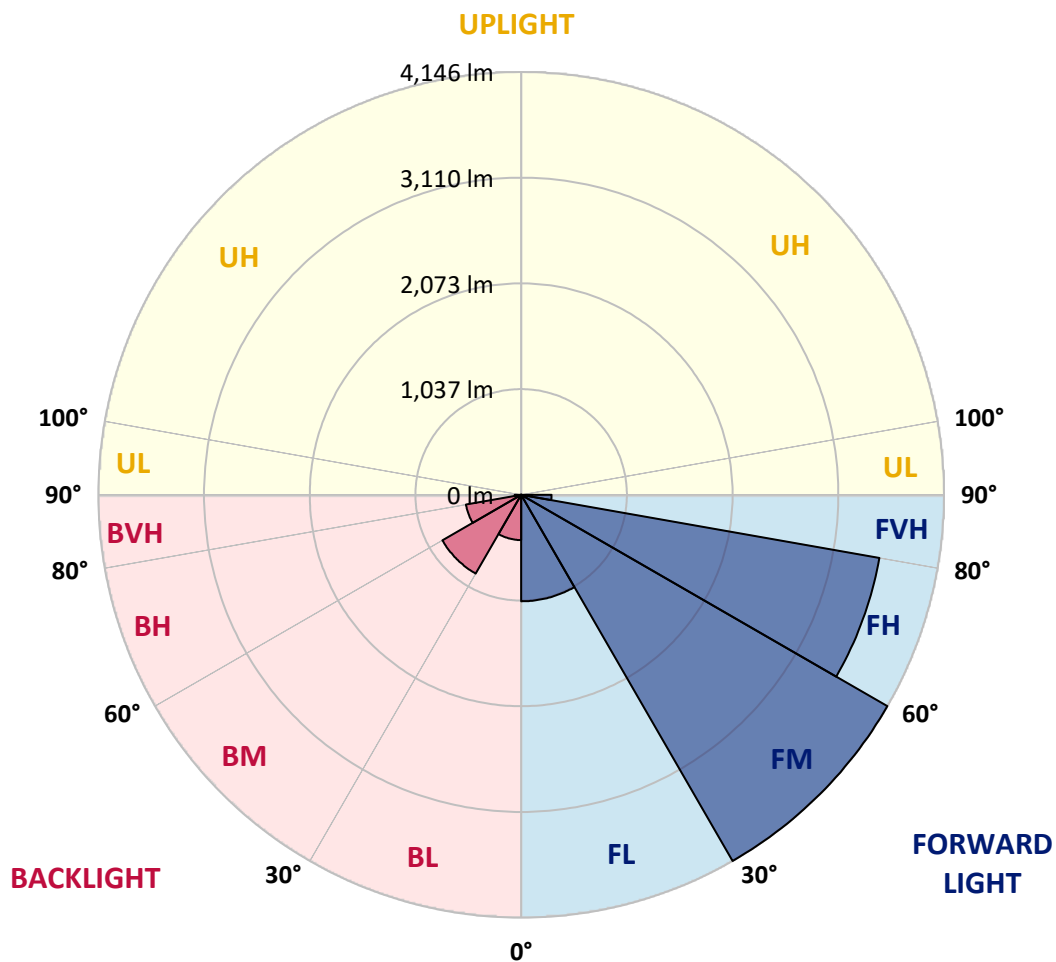
CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1044.4	9.5			
FM (30°-60°)	4146.1	37.7			
FH (60°-80°)	3566.5	32.4			G2/5000
FVH (80°-90°)	298.3	2.7			G3/500
BL (0°-30°)	443.6	4.0	B1/500		
BM (30°-60°)	892.0	8.1	B1/1000		
BH (60°-80°)	549.7	5.0	B2/1000		G2/1000
BVH (80°-90°)	64.3	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





REPORT NUMBER: P196214

CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3873.1	3955.2	4049.5	4172.3	4256.1	4289.5	4317.5	4270.4	4225.0	4139.6	4109.3
5°	3617.8	3775.7	4035.0	4281.6	4498.6	4623.1	4661.4	4574.4	4419.7	4196.2	4078.1
7.5°	3238.8	3447.0	3811.6	4174.7	4485.8	4693.3	4708.5	4536.2	4231.3	3865.1	3673.6
10°	2907.6	3143.0	3565.1	3971.2	4300.8	4513.0	4471.5	4229.7	3861.9	3445.4	3229.1
12.5°	2715.3	2950.7	3380.8	3793.3	4103.7	4184.3	4099.7	3896.2	3547.5	3130.2	2912.3
15°	2674.6	2917.1	3315.3	3663.2	3855.5	3803.6	3719.9	3616.9	3368.8	3027.3	2816.6
17.5°	2797.5	3068.8	3402.3	3593.0	3585.0	3460.5	3390.4	3410.3	3368.0	3139.0	2918.8
20°	3050.4	3371.2	3623.3	3573.9	3369.6	3194.9	3154.2	3310.6	3506.1	3419.1	3177.3
22.5°	3383.2	3748.6	3925.0	3628.9	3257.1	3068.8	3060.8	3304.9	3757.4	3842.7	3548.3
25°	3758.9	4185.1	4229.0	3726.3	3245.1	3057.6	3050.4	3391.2	4059.8	4262.4	3964.0
27.5°	4218.5	4625.5	4482.7	3856.3	3297.8	3090.3	3095.1	3538.0	4375.0	4677.3	4432.4
30°	4564.8	4938.3	4639.1	3984.0	3382.4	3147.7	3159.7	3696.7	4544.9	4965.4	4806.6
32.5°	4888.8	5205.6	4789.0	4110.0	3506.1	3233.1	3274.7	3894.6	4749.2	5212.8	5160.1
35°	5247.1	5504.8	4955.9	4244.9	3683.1	3383.2	3443.0	4082.9	4951.9	5460.1	5510.4
37.5°	5653.2	5847.1	5137.0	4435.6	3938.5	3660.8	3694.4	4275.2	5093.1	5733.8	5886.2
40°	6076.1	6230.9	5334.9	4690.1	4309.5	4035.8	4051.8	4521.7	5204.0	6017.1	6250.8
42.5°	6439.2	6559.7	5533.6	5006.1	4735.6	4418.0	4431.6	4787.5	5310.1	6261.3	6542.9
45°	6729.6	6818.2	5721.1	5338.9	5190.5	4895.2	4892.1	5058.0	5452.1	6467.1	6767.1
47.5°	7000.1	7047.2	5930.0	5662.7	5662.0	5509.6	5395.5	5377.1	5641.3	6640.3	6962.6
50°	7309.7	7327.3	6206.1	5990.0	6238.1	6214.1	6003.5	5782.4	5886.2	6834.9	7167.6
52.5°	7740.6	7741.4	6548.5	6309.2	6874.0	6949.8	6704.8	6241.3	6248.5	7214.0	7522.0
55°	8247.2	8282.3	6994.5	6691.3	7539.5	7668.8	7438.2	6786.3	6768.7	7825.2	8096.5
57.5°	8639.0	8824.9	7514.0	7169.2	8161.1	8329.4	8143.5	7351.2	7407.8	8455.5	8570.4
60°	8749.1	9184.0	8031.8	7705.5	8686.9	8939.9	8750.7	7961.6	8033.4	8864.8	8706.8
62.5°	8617.4	9299.6	8559.2	8185.8	8998.9	9241.4	9105.8	8361.3	8543.3	8812.2	8476.3
65°	8227.3	9132.1	9017.2	8390.0	8819.4	8905.5	8869.6	8382.1	8820.2	8314.2	7838.7
67.5°	7316.0	8485.8	8812.9	7953.6	7980.8	7888.2	7841.1	7812.4	8508.9	7510.8	6833.3
70°	5950.0	7291.3	7838.7	6656.2	6455.1	6365.7	6210.9	6593.9	7648.0	6399.3	5623.7
72.5°	4583.2	5578.3	6429.6	5046.0	4627.9	4658.2	4482.7	5042.0	6335.4	4947.1	4293.5
75°	3254.7	3803.6	5132.1	3625.7	3071.9	3070.4	3056.8	3628.9	4999.0	3550.8	3141.4
77.5°	2345.8	2738.4	4020.7	2426.4	2179.9	2207.8	2163.1	2466.3	3897.0	2554.1	2327.5
80°	1871.1	2027.5	2598.8	1618.2	1622.9	1688.4	1678.8	1686.7	2563.7	1849.6	1740.2
82.5°	1344.5	1539.1	1986.8	1239.9	1073.2	1142.6	1156.1	1251.2	1808.9	1307.7	1147.4
85°	689.4	938.4	1828.0	1074.0	671.1	556.2	640.0	987.0	1571.0	783.6	559.3
87.5°	134.0	260.1	1339.7	596.8	301.6	152.4	251.3	418.1	913.6	142.0	69.5
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: P196214

CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°	185°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	4057.4	3955.2	3859.5	3760.6	3684.0	3590.7	3498.9	3419.1	3341.7	3290.6	3306.6
5°	3958.4	3709.5	3486.1	3278.7	3157.3	3011.4	2881.2	2772.0	2687.4	2633.1	2665.8
7.5°	3507.6	3170.9	2876.4	2602.8	2430.4	2241.4	2089.8	1982.8	1917.4	1880.7	1934.1
10°	3046.4	2668.3	2337.9	2053.1	1883.0	1722.6	1585.5	1472.1	1384.4	1342.9	1364.4
12.5°	2716.1	2295.6	1949.3	1757.8	1611.8	1468.1	1326.2	1193.7	1082.0	1030.9	1020.5
15°	2592.5	2095.3	1741.9	1528.0	1382.8	1226.4	1073.2	931.2	825.0	781.1	771.6
17.5°	2646.7	2052.2	1618.9	1366.0	1155.4	965.5	793.1	659.1	580.8	556.2	558.5
20°	2837.4	2068.2	1520.0	1199.3	939.2	714.1	541.8	449.2	415.7	410.1	416.5
22.5°	3099.1	2133.7	1448.2	1055.7	748.5	519.5	402.9	359.1	350.3	349.4	355.9
25°	3444.6	2261.3	1400.3	928.0	591.3	411.7	351.1	326.3	319.2	320.8	327.1
27.5°	3851.5	2423.3	1369.2	817.8	485.9	367.0	328.0	306.4	299.2	300.8	305.6
30°	4223.4	2565.3	1323.0	734.9	436.5	351.1	315.2	293.6	284.1	284.1	287.2
32.5°	4556.1	2688.2	1268.7	672.7	391.0	315.2	285.6	268.9	261.7	264.1	265.7
35°	4851.3	2752.8	1226.4	636.0	354.2	290.4	261.0	243.4	233.7	235.4	237.7
37.5°	5141.8	2777.5	1198.5	616.0	328.0	275.3	248.2	233.7	223.4	221.8	221.1
40°	5417.9	2772.0	1172.1	610.4	310.4	264.1	240.2	227.4	217.1	214.6	213.8
42.5°	5656.4	2753.6	1147.4	595.3	298.4	256.1	233.7	222.6	212.3	209.1	207.5
45°	5874.2	2742.4	1120.2	567.3	304.8	253.0	230.6	218.6	209.1	205.1	203.5
47.5°	6116.0	2782.3	1090.0	536.9	303.2	253.7	230.6	217.1	207.5	203.5	201.8
50°	6404.1	2917.1	1052.4	495.5	288.9	271.3	229.8	214.6	205.8	203.5	200.3
52.5°	6811.0	3135.8	1000.5	442.0	277.6	289.6	229.0	210.6	203.5	199.5	195.5
55°	7368.7	3354.5	933.5	385.3	260.1	276.9	230.6	205.8	197.8	193.8	189.1
57.5°	7826.0	3520.4	848.9	338.3	244.2	261.7	228.2	200.3	191.5	187.5	183.5
60°	7796.4	3536.3	768.4	308.0	234.6	235.4	233.7	196.3	185.9	182.7	179.5
62.5°	7313.7	3339.3	693.4	292.9	227.4	214.6	238.6	191.5	180.3	177.2	174.7
65°	6510.2	2880.4	653.5	292.9	221.1	203.5	208.3	185.2	174.7	171.5	169.9
67.5°	5491.2	2314.7	616.0	299.2	212.3	195.5	189.1	178.7	169.2	165.9	164.4
70°	4401.2	1821.7	589.6	296.0	204.3	186.7	178.7	169.9	160.4	159.6	157.9
72.5°	3452.6	1463.3	577.7	296.0	192.3	176.4	168.4	161.9	152.4	151.6	149.2
75°	2766.4	1098.8	528.3	290.4	180.3	162.8	155.6	150.0	140.5	141.3	139.6
77.5°	2142.4	777.1	441.2	261.7	165.2	147.6	142.0	138.0	126.8	127.7	127.7
80°	1675.6	505.8	342.3	217.1	147.6	130.0	126.0	122.9	110.9	112.5	112.5
82.5°	1148.2	300.8	248.2	174.7	126.8	110.9	110.1	105.4	92.6	93.4	94.9
85°	627.2	197.8	165.2	129.3	99.7	90.1	88.6	86.1	74.2	74.2	75.0
87.5°	115.7	106.1	97.4	85.4	67.0	64.7	62.2	64.7	55.9	54.2	54.2
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: P196214

CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

CANDELA DISTRIBUTION (continued):

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3269.0	3214.0	3175.6	3142.2	3061.6	3067.2	3078.4	3094.3	3044.0	3070.4	3103.1
5°	2633.1	2587.7	2553.3	2499.9	2387.4	2347.5	2321.9	2310.7	2235.8	2251.7	2286.8
7.5°	1941.4	1940.5	1928.6	1868.7	1733.1	1650.8	1596.6	1579.8	1533.6	1551.1	1604.6
10°	1366.9	1381.2	1375.6	1322.2	1200.8	1141.8	1129.8	1163.4	1164.1	1198.5	1290.2
12.5°	987.9	979.9	972.6	928.7	837.8	828.3	855.4	901.6	912.8	949.5	1045.3
15°	737.2	718.1	714.1	679.9	620.0	628.7	648.7	672.7	673.4	699.0	778.0
17.5°	552.9	552.9	559.3	536.9	493.9	489.9	479.6	473.1	463.6	473.9	517.0
20°	429.2	449.2	465.1	452.5	413.3	394.1	374.2	361.4	354.2	355.1	367.9
22.5°	367.9	383.8	404.6	398.1	365.4	340.7	328.0	319.2	313.5	313.5	320.8
25°	336.8	347.1	366.2	363.0	335.1	315.2	304.8	296.0	289.6	288.9	296.0
27.5°	312.0	318.3	331.1	329.5	300.8	288.1	281.6	276.1	272.1	271.3	278.4
30°	289.6	292.9	299.2	296.9	275.3	262.5	260.1	257.7	255.3	256.1	266.5
32.5°	269.6	272.1	276.1	272.9	252.2	241.0	237.0	233.7	231.4	233.7	245.7
35°	247.3	254.5	259.3	257.7	235.4	221.8	213.1	205.1	201.8	204.3	217.8
37.5°	228.2	240.2	246.5	245.0	221.8	205.8	194.7	193.1	193.1	196.3	209.8
40°	221.1	229.8	235.4	233.0	209.8	193.8	187.5	185.2	185.9	189.1	203.5
42.5°	214.6	222.6	224.2	219.4	196.3	185.9	181.9	178.7	180.3	184.3	198.7
45°	209.1	215.4	214.6	207.5	185.2	177.9	177.9	175.5	176.4	179.5	194.7
47.5°	205.1	208.3	206.6	199.5	177.2	171.5	173.9	173.9	175.5	177.9	193.1
50°	198.7	201.1	199.5	193.1	170.7	165.9	168.4	171.5	173.2	175.5	189.1
52.5°	192.3	193.8	193.1	186.7	164.4	161.2	161.2	164.4	167.6	170.7	182.7
55°	185.9	187.5	188.3	183.5	159.6	156.4	155.6	155.6	158.8	163.6	176.4
57.5°	181.2	181.2	182.7	179.5	154.8	150.8	146.8	147.6	151.6	155.6	168.4
60°	175.5	176.4	178.7	175.5	148.4	142.0	138.8	142.8	144.4	148.4	161.9
62.5°	170.7	170.7	172.4	169.9	142.8	136.5	134.0	138.0	138.0	142.0	155.6
65°	166.7	165.9	165.9	165.2	137.3	130.8	129.3	130.8	131.7	135.6	149.2
67.5°	163.6	159.6	159.6	161.2	131.7	125.3	124.5	124.5	125.3	130.0	142.0
70°	156.4	153.2	152.4	157.9	126.0	118.0	118.0	116.5	118.0	120.5	133.3
72.5°	148.4	146.0	145.3	153.2	120.5	110.1	108.5	107.7	108.5	110.9	122.9
75°	138.0	136.5	138.0	150.0	114.9	101.4	98.9	98.1	98.1	98.9	111.7
77.5°	126.0	124.5	136.5	139.6	111.7	90.9	88.6	87.0	85.4	85.4	99.7
80°	111.7	110.9	131.7	118.0	106.9	79.8	75.8	73.4	71.8	71.0	85.4
82.5°	97.4	95.7	112.5	92.6	88.6	65.5	59.8	55.0	52.7	52.7	65.5
85°	79.8	79.0	88.6	67.8	61.5	47.9	39.9	35.9	32.7	32.7	42.2
87.5°	58.2	56.7	55.0	40.7	31.1	21.6	15.1	14.3	12.8	12.0	17.6
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: P196214

CATALOG NUMBER: NAV-AF-02-D-UNV-SLL

CANDELA DISTRIBUTION (continued):

	295°	305°	315°	325°	335°	345°	355°	360°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3151.7	3218.0	3343.3	3446.2	3583.4	3693.6	3818.8	3873.1
5°	2351.5	2456.0	2647.5	2811.1	3037.7	3247.5	3486.9	3617.8
7.5°	1686.7	1841.6	1986.8	2191.1	2474.3	2756.0	3065.6	3238.8
10°	1395.5	1537.6	1662.1	1807.2	2026.0	2342.7	2712.1	2907.6
12.5°	1156.1	1309.4	1441.0	1596.6	1780.1	2066.6	2487.9	2715.3
15°	886.5	1053.2	1211.3	1398.8	1623.7	1950.9	2420.9	2674.6
17.5°	607.2	785.9	980.6	1209.6	1480.9	1902.2	2484.7	2797.5
20°	412.6	543.4	754.8	1026.1	1352.4	1879.1	2625.1	3050.4
22.5°	339.1	398.1	556.9	853.8	1247.2	1904.6	2853.3	3383.2
25°	311.2	343.1	433.2	702.2	1166.6	1972.5	3162.1	3758.9
27.5°	293.6	320.8	379.8	593.6	1092.3	2065.0	3538.0	4218.5
30°	283.3	308.8	358.2	537.8	1024.5	2144.8	3861.1	4564.8
32.5°	260.1	279.3	320.0	505.8	975.9	2209.5	4145.9	4888.8
35°	232.2	255.3	288.9	485.1	974.3	2239.8	4414.0	5247.1
37.5°	221.8	244.2	268.9	473.9	983.9	2265.3	4742.0	5653.2
40°	215.4	235.4	255.3	472.4	991.9	2285.3	5062.8	6076.1
42.5°	209.8	229.8	253.0	461.1	988.6	2312.4	5346.9	6439.2
45°	208.3	228.2	258.5	444.5	987.9	2354.6	5572.6	6729.6
47.5°	206.6	237.0	257.0	426.1	984.6	2444.0	5827.1	7000.1
50°	205.1	253.0	245.7	400.6	960.7	2596.5	6169.5	7309.7
52.5°	204.3	255.3	233.7	365.4	917.6	2822.2	6670.6	7740.6
55°	201.1	242.5	213.1	319.2	855.4	3065.6	7207.5	8247.2
57.5°	193.8	216.3	201.1	273.6	766.0	3235.5	7604.1	8639.0
60°	211.4	185.9	193.1	250.5	659.1	3265.9	7621.7	8749.1
62.5°	201.8	169.2	185.2	242.5	584.1	3067.9	7273.0	8617.4
65°	161.2	160.4	177.9	250.5	572.9	2625.1	6684.2	8227.3
67.5°	146.8	154.0	170.7	260.1	580.1	2068.2	5817.6	7316.0
70°	137.3	146.0	161.2	268.9	592.8	1629.4	4683.8	5950.0
72.5°	127.7	134.8	151.6	277.6	584.1	1285.4	3748.6	4583.2
75°	115.7	122.0	138.0	254.5	501.0	944.7	2978.6	3254.7
77.5°	102.1	107.7	121.3	201.1	376.7	657.5	2231.0	2345.8
80°	87.8	90.1	100.6	146.8	245.7	393.3	1698.0	1871.1
82.5°	69.5	70.2	76.6	107.7	153.2	251.3	1177.7	1344.5
85°	44.7	46.2	49.5	75.8	102.9	161.2	601.6	689.4
87.5°	15.1	17.6	17.6	36.7	50.2	89.4	184.3	134.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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