

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: P196016

Luminaire Tested: **NAV-AF-02-D-UNV-AFL-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196016
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24160)
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-AFL-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10314.4 lumens
Efficiency: N/A
Efficacy: 121.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Short - Full Cutoff
BUG Rating: B1 - U0 - G1

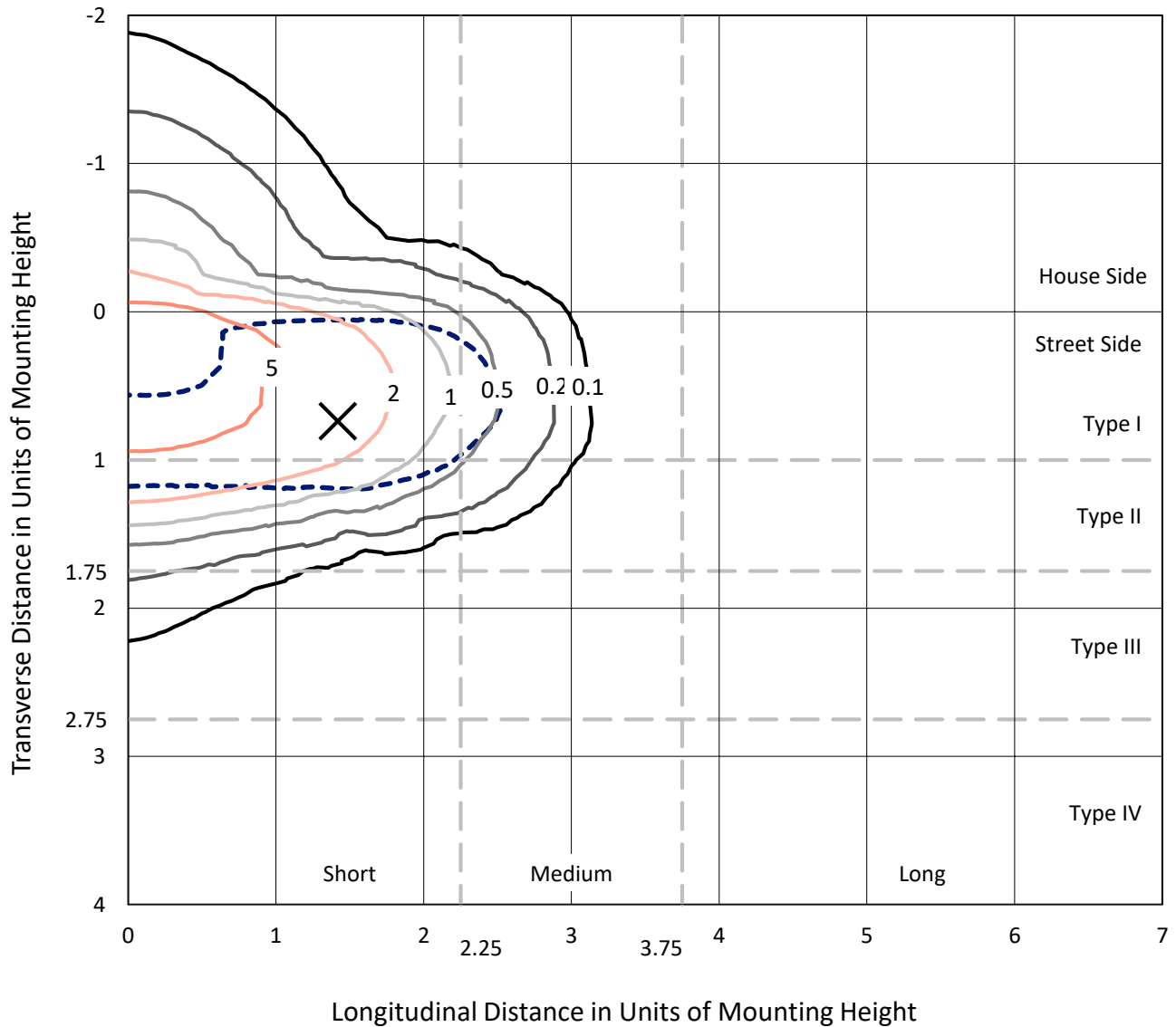
Input Watts (W): 85
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

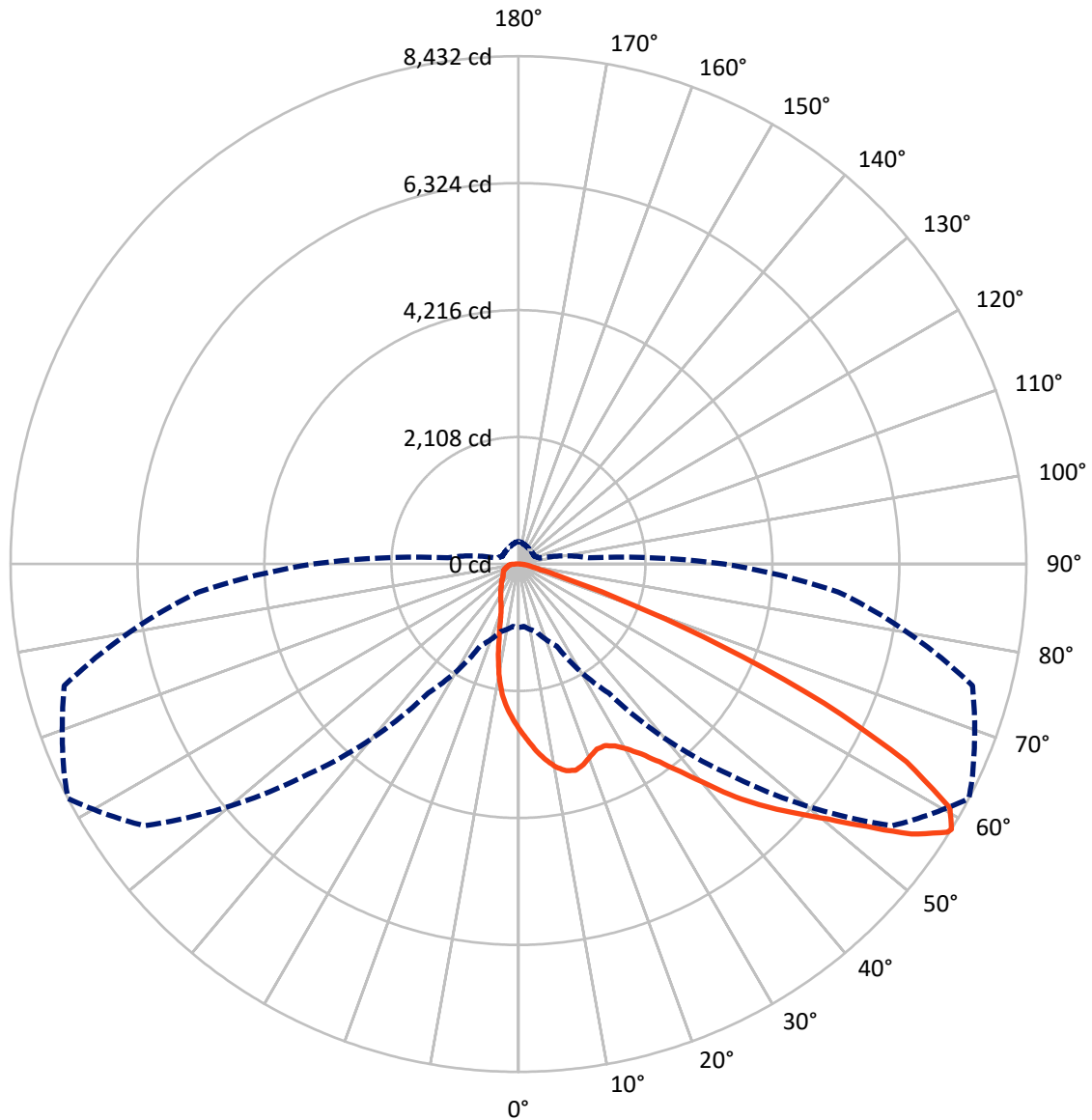
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.1 fc
 Type II - Short - Full Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 62.5-Deg Lateral - - - Horizontal Cone Through 58-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1583.6	0.0	1583.6
	% Fixture	15.4	0.0	15.4
Street Side	Lumens	8730.8	0.0	8730.8
	% Fixture	84.6	0.0	84.6
Total	Lumens	10314.4	0.0	10314.4
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.1	2.4
10°-20°	621.2	6.0
20°-30°	1006.8	9.8
30°-40°	1607.4	15.6
40°-50°	2338.0	22.7
50°-60°	2446.5	23.7
60°-70°	1491.5	14.5
70°-80°	417.1	4.0
80°-90°	139.8	1.4
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°	10314.4	100.0
0°-180°	10314.4	100.0



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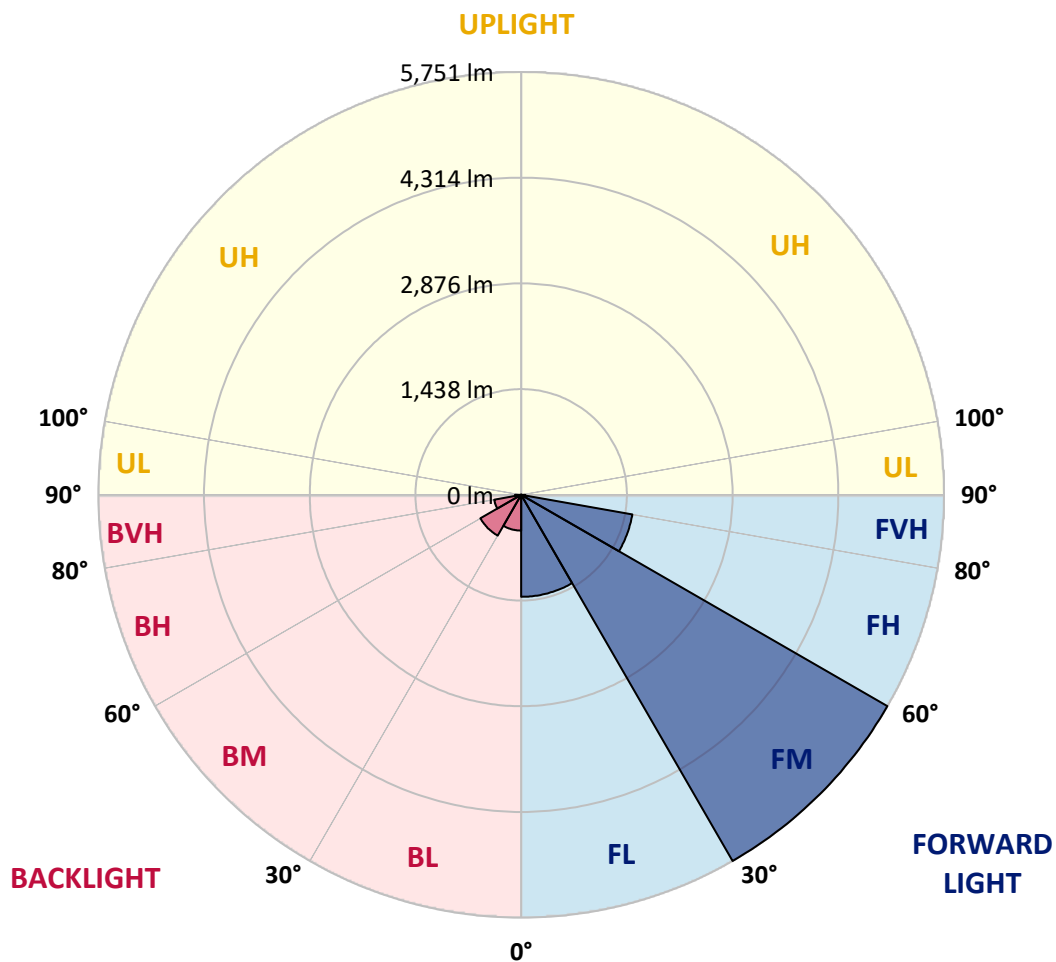
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1387.3	13.5			
FM	(30°-60°)	5751.4	55.8			
FH	(60°-80°)	1535.7	14.9			G1/1800
FVH	(80°-90°)	56.2	0.5			G1/100
BL	(0°-30°)	486.8	4.7	B1/500		
BM	(30°-60°)	640.5	6.2	B1/1000		
BH	(60°-80°)	372.8	3.6	B1/500		G1/500
BVH	(80°-90°)	83.6	0.8			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	62.5°	65°	75°	85°
0°	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9
2.5°	3125.8	3123.9	3097.5	3080.1	3059.4	3011.8	2964.0	2928.6	2910.5	2841.6	2774.5
5°	3384.3	3376.6	3361.7	3343.1	3316.0	3256.1	3180.7	3115.5	3089.7	2967.3	2844.1
7.5°	3247.7	3259.9	3305.7	3357.2	3411.4	3415.3	3361.7	3284.4	3256.1	3092.3	2911.8
10°	2869.3	2864.2	2921.4	3022.0	3200.6	3377.3	3465.6	3427.5	3397.8	3210.9	2979.5
12.5°	2754.5	2753.3	2762.9	2788.7	2900.9	3143.2	3439.2	3521.6	3511.3	3336.7	3051.7
15°	2789.4	2790.6	2790.0	2793.2	2824.2	2939.6	3291.5	3553.2	3585.4	3461.1	3125.2
17.5°	2900.9	2896.4	2882.2	2866.7	2871.2	2912.4	3132.3	3499.1	3595.8	3571.9	3187.1
20°	3072.9	3072.9	3034.9	2991.7	2963.4	2972.4	3065.9	3406.2	3548.1	3666.1	3233.4
22.5°	3288.9	3292.2	3236.1	3157.4	3093.0	3068.4	3103.9	3337.3	3490.1	3753.1	3274.8
25°	3557.1	3556.5	3474.6	3361.7	3259.9	3201.2	3200.6	3340.5	3472.0	3854.9	3317.9
27.5°	3889.1	3858.8	3763.3	3602.8	3459.1	3369.5	3328.9	3421.8	3510.1	3980.0	3375.9
30°	4263.7	4232.7	4107.7	3901.3	3706.7	3575.8	3508.7	3562.2	3626.1	4139.2	3463.6
32.5°	4634.3	4641.3	4494.4	4261.7	4011.6	3827.2	3727.9	3760.8	3805.3	4333.8	3582.3
35°	5177.1	5176.4	4984.3	4693.6	4396.4	4141.1	4015.4	4032.9	4073.5	4608.5	3748.6
37.5°	5581.9	5575.5	5451.7	5194.4	4859.9	4553.7	4371.9	4374.4	4409.3	4953.3	3967.7
40°	5623.2	5621.8	5621.2	5584.5	5355.7	5066.9	4839.3	4792.2	4806.4	5319.5	4200.4
42.5°	5307.9	5354.9	5490.4	5697.9	5761.8	5610.3	5394.9	5289.9	5258.9	5739.9	4446.7
45°	4858.6	4882.4	5119.7	5586.4	5966.1	6120.8	5959.0	5737.2	5684.4	6148.5	4647.2
47.5°	4649.7	4639.4	4776.8	5285.4	5946.1	6526.9	6538.5	6174.9	6085.3	6501.2	4818.0
50°	4201.8	4188.2	4361.6	4842.5	5728.2	6728.7	7133.5	6651.9	6486.3	6836.4	4972.7
52.5°	3308.9	3296.0	3528.8	4148.3	5240.9	6653.3	7635.1	7237.3	6954.9	7159.3	5117.1
55°	2153.1	2154.3	2376.1	3014.9	4241.1	6213.6	7870.4	7913.5	7597.0	7482.3	5233.8
57.5°	1185.5	1174.6	1332.5	1725.0	2917.7	5215.1	7674.4	8400.9	8235.9	7759.5	5318.2
58°	1053.9	1041.1	1162.9	1501.4	2615.9	4933.4	7575.8	8431.8	8317.7	7805.2	5330.5
60°	751.1	729.1	710.3	846.4	1507.1	3557.1	6918.2	8231.4	8341.6	7896.8	5318.8
62.5°	633.0	607.9	540.8	535.7	709.7	1739.8	5471.0	7228.9	7537.7	7685.9	5131.9
65°	587.9	562.7	474.4	442.8	481.5	751.1	3383.0	5581.9	5994.5	6953.0	4661.4
67.5°	555.7	526.0	431.3	390.1	397.7	449.3	1435.6	3650.6	4128.9	5422.0	3739.5
70°	526.7	493.8	397.1	349.4	343.0	341.7	560.8	1906.2	2367.1	3548.1	2505.0
72.5°	493.8	461.6	366.8	315.9	301.7	277.2	337.2	787.8	1079.7	1739.2	1148.1
75°	446.1	419.6	333.3	288.2	263.6	224.9	248.8	377.8	465.4	665.9	533.2
77.5°	392.6	371.3	299.1	264.9	232.1	183.7	190.2	255.9	287.6	375.2	308.8
80°	277.8	285.6	261.1	233.3	204.4	148.2	146.3	187.6	206.3	252.1	207.6
82.5°	191.5	197.2	212.8	184.3	165.0	115.4	107.6	130.2	139.8	152.1	100.6
85°	136.7	132.8	147.6	132.2	121.2	73.4	68.9	82.6	88.3	92.8	48.4
87.5°	83.2	82.6	85.1	68.3	63.2	37.3	34.2	39.3	41.9	40.6	23.2
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):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9	2753.9
2.5°	2749.4	2717.8	2648.8	2593.4	2533.4	2487.6	2441.9	2416.1	2387.8	2371.6	2369.7
5°	2779.7	2715.2	2568.2	2431.6	2291.0	2164.7	2040.9	1949.3	1874.6	1832.0	1829.4
7.5°	2813.2	2711.9	2485.1	2248.4	1998.3	1749.6	1529.7	1374.3	1274.5	1228.1	1224.8
10°	2839.0	2698.4	2383.9	2015.7	1619.3	1290.6	1090.8	999.2	968.8	961.2	959.8
12.5°	2869.9	2688.7	2256.2	1717.3	1237.7	982.4	921.8	916.1	922.5	926.4	927.0
15°	2898.9	2670.1	2084.1	1386.6	968.8	878.0	879.3	891.5	904.4	910.2	910.8
17.5°	2912.4	2624.3	1857.9	1092.6	847.7	830.9	845.8	861.8	873.5	878.0	878.0
20°	2912.4	2550.8	1595.5	885.1	784.5	787.8	805.8	818.1	820.6	816.7	814.8
22.5°	2900.2	2459.9	1340.2	772.2	732.9	745.2	759.3	751.1	720.7	697.4	692.9
25°	2889.2	2352.3	1094.6	703.3	687.8	703.9	698.2	640.8	594.3	570.5	566.6
27.5°	2871.2	2222.1	889.6	646.6	643.9	656.8	599.6	544.1	520.9	508.0	505.4
30°	2866.7	2080.9	744.5	596.3	600.8	582.8	517.0	499.0	493.8	486.7	483.4
32.5°	2881.6	1939.7	653.7	555.1	559.6	500.2	475.1	477.7	477.0	468.0	464.8
35°	2922.2	1802.4	595.7	517.6	504.7	448.1	451.2	459.0	459.0	448.1	444.2
37.5°	2993.1	1674.8	558.9	486.0	441.6	420.9	429.3	439.7	439.7	431.9	428.7
40°	3068.4	1550.4	531.2	460.9	401.6	402.2	410.6	418.4	421.6	422.9	420.3
42.5°	3136.8	1421.4	501.6	433.8	383.6	388.1	391.9	397.7	411.2	420.3	419.0
45°	3176.8	1291.9	469.3	400.3	371.3	373.3	371.9	382.3	398.3	411.9	411.9
47.5°	3213.5	1185.5	442.8	366.8	359.1	359.1	355.2	365.5	380.3	396.5	397.7
50°	3248.3	1116.6	424.2	341.1	343.6	341.7	340.3	350.1	370.0	389.3	392.6
52.5°	3283.8	1093.3	407.4	322.3	327.4	324.9	326.2	339.7	362.3	382.3	385.4
55°	3333.4	1108.2	390.1	309.4	312.0	311.4	316.5	331.9	352.0	371.9	373.3
57.5°	3394.7	1162.3	375.2	299.7	297.2	301.1	309.4	324.3	343.6	367.4	369.4
58°	3406.9	1175.2	372.6	297.2	294.0	299.7	308.1	322.3	342.3	367.4	369.4
60°	3425.6	1220.9	366.1	292.1	282.9	293.3	303.6	317.8	339.7	370.6	374.5
62.5°	3335.3	1230.0	364.2	286.2	271.4	284.3	296.6	312.6	337.2	381.7	390.1
65°	3022.7	1137.1	350.7	276.5	261.7	277.2	290.1	308.8	344.8	414.5	418.4
67.5°	2426.4	944.4	317.8	261.7	250.7	268.8	284.9	308.8	348.1	419.6	422.3
70°	1668.3	709.7	276.5	245.6	237.8	258.5	282.9	315.9	337.2	397.1	389.3
72.5°	871.6	493.8	242.3	226.9	222.4	249.5	301.7	308.8	324.3	370.6	362.9
75°	438.9	335.8	213.4	205.6	205.0	246.2	337.8	297.2	310.7	348.7	365.5
77.5°	259.1	263.0	190.2	185.7	188.8	240.5	338.4	285.6	295.2	321.0	339.1
80°	177.3	217.3	172.2	170.8	173.4	221.1	312.0	271.4	277.2	303.6	322.9
82.5°	99.9	119.9	150.9	159.3	157.9	181.2	269.4	246.9	254.0	359.1	379.7
85°	48.4	72.2	126.3	148.9	134.7	120.5	219.2	219.2	221.1	257.2	260.4
87.5°	18.0	32.2	85.1	117.9	94.1	72.2	148.9	155.4	172.8	177.9	181.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)