

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: P196084

Luminaire Tested: **NAV-AF-04-D-UNV-SL2-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196084
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24257)
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-SL2-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16120.7 lumens
Efficiency: N/A
Efficacy: 125.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Medium - Semi-Cutoff
BUG Rating: B2 - U0 - G3

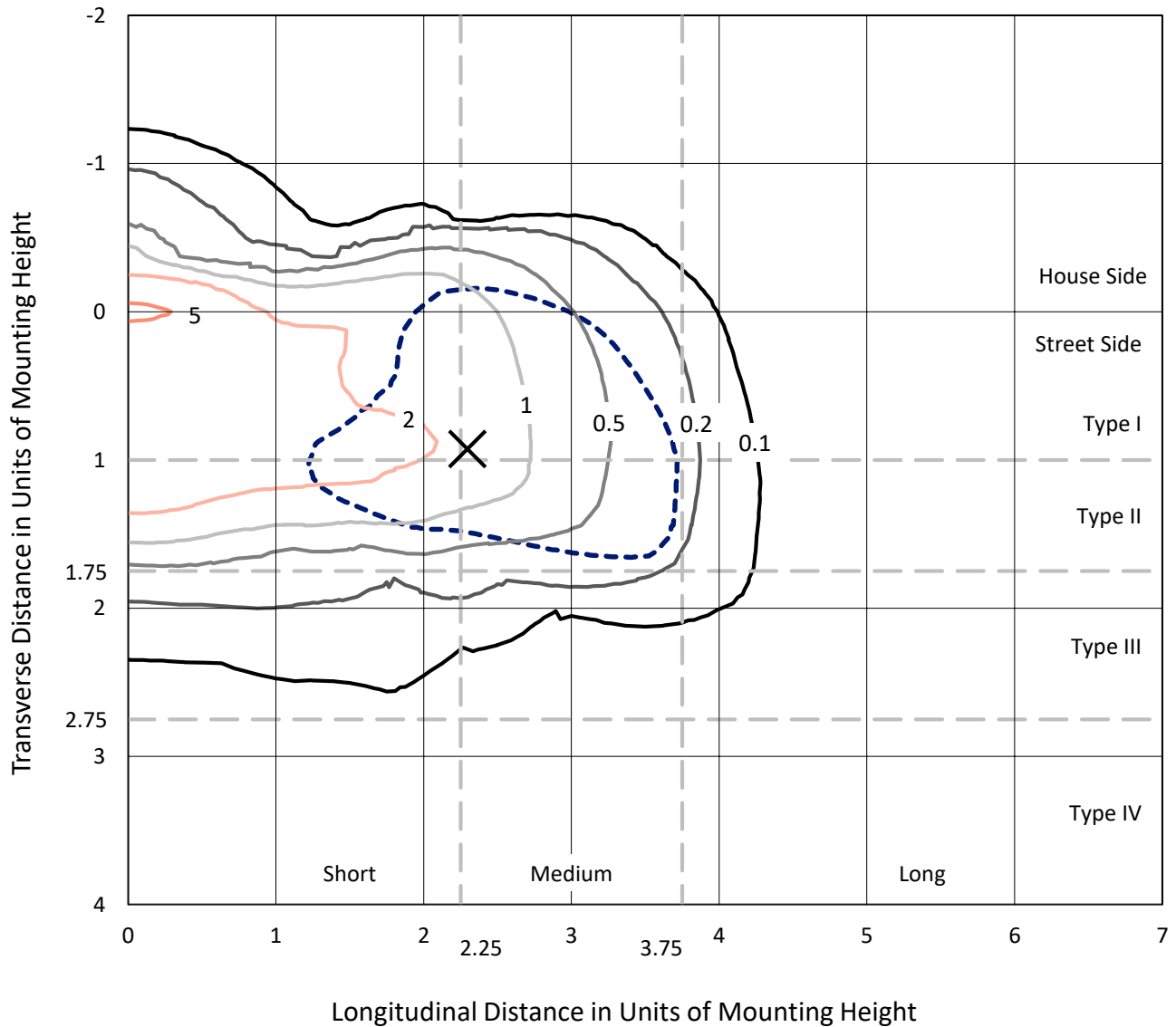
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

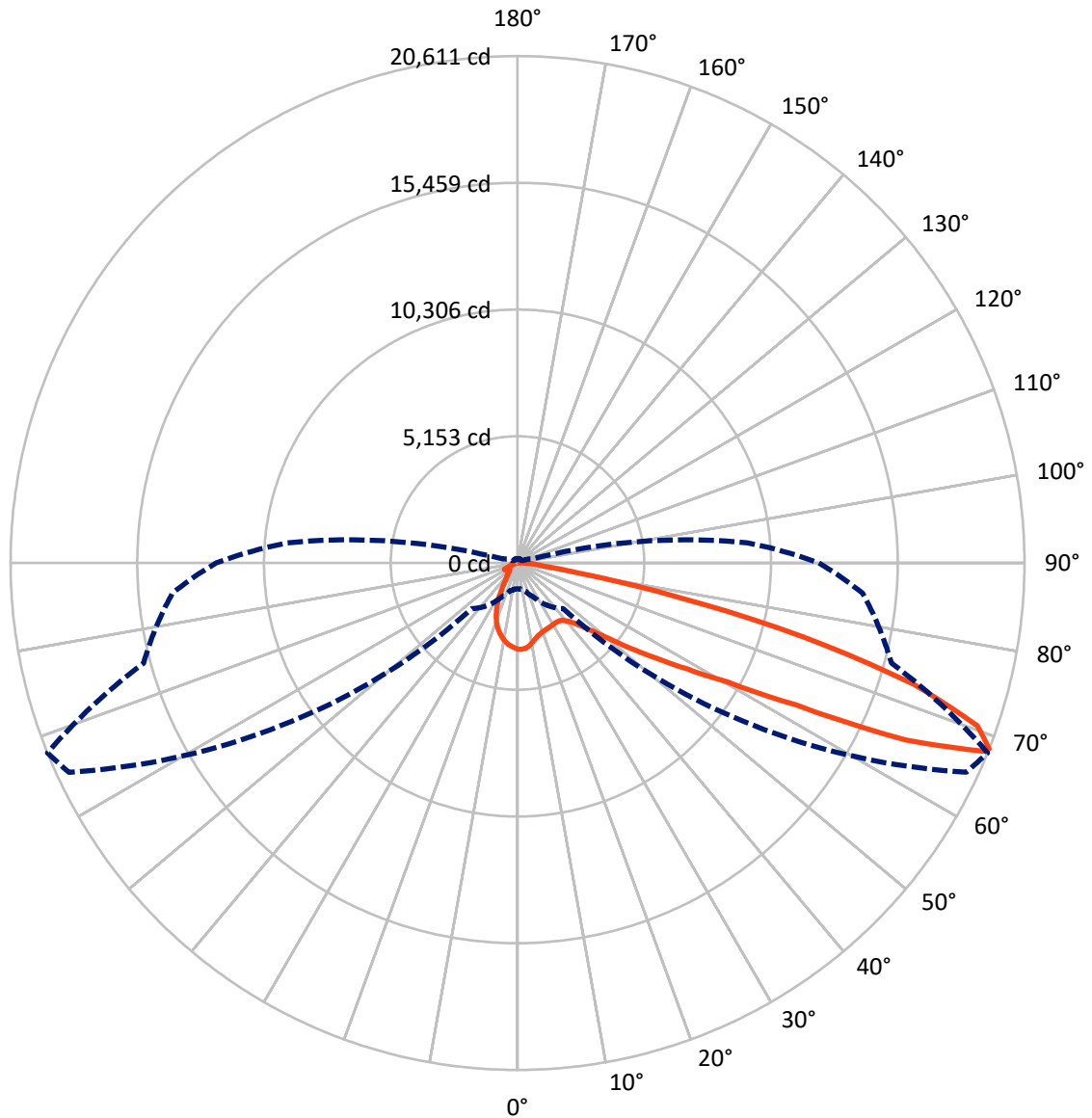
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.6 fc
 Type II - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2637.4	0.0	2637.4
	% Fixture	16.4	0.0	16.4
Street Side	Lumens	13483.3	0.0	13483.3
	% Fixture	83.6	0.0	83.6
Total	Lumens	16120.7	0.0	16120.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.5	1.9
10°-20°	697.1	4.3
20°-30°	942.8	5.8
30°-40°	1329.3	8.2
40°-50°	2185.9	13.6
50°-60°	3388.3	21.0
60°-70°	4393.1	27.3
70°-80°	2521.0	15.6
80°-90°	362.7	2.3
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°	16120.7	100.0
0°-180°	16120.7	100.0



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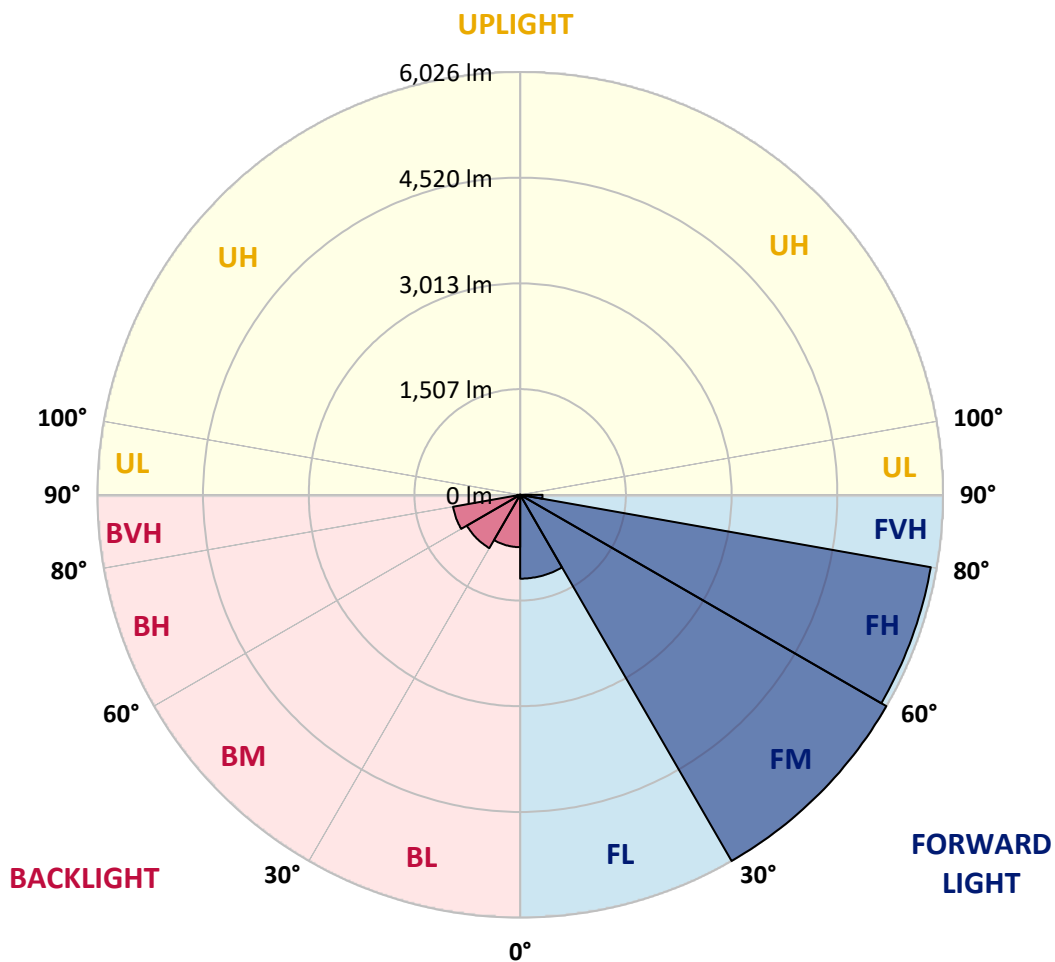
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1194.8	7.4			
FM (30°-60°)	6026.2	37.4			
FH (60°-80°)	5942.8	36.9			G3/7500
FVH (80°-90°)	319.5	2.0			G3/500
BL (0°-30°)	745.6	4.6	B2/1000		
BM (30°-60°)	877.2	5.4	B1/1000		
BH (60°-80°)	971.3	6.0	B2/1000		G2/1000
BVH (80°-90°)	43.2	0.3			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 II Medium





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	68°	75°	85°
0°	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7
2.5°	3414.0	3441.4	3441.4	3461.4	3479.3	3494.0	3506.7	3506.7	3506.7	3498.3	3490.8
5°	3054.9	3091.8	3097.0	3147.6	3213.9	3295.0	3385.6	3465.6	3481.4	3510.9	3522.4
7.5°	2805.3	2816.9	2836.9	2871.6	2939.0	3039.1	3181.3	3360.3	3403.5	3496.1	3544.5
10°	2628.4	2637.9	2654.8	2689.5	2750.6	2841.1	2981.2	3213.9	3285.5	3449.8	3545.6
12.5°	2498.9	2506.2	2522.1	2553.7	2615.8	2696.9	2840.1	3082.3	3170.7	3403.5	3560.4
15°	2397.8	2410.5	2423.1	2453.6	2516.8	2594.7	2740.1	2986.5	3082.3	3366.6	3587.8
17.5°	2357.8	2364.1	2366.2	2382.0	2438.9	2517.9	2663.2	2919.1	3018.0	3337.2	3608.8
20°	2383.1	2384.1	2363.0	2352.5	2385.1	2457.8	2598.9	2868.6	2969.6	3310.8	3617.3
22.5°	2493.6	2493.6	2438.9	2392.6	2370.4	2415.7	2555.7	2833.8	2943.2	3290.8	3617.3
25°	2704.3	2694.8	2609.4	2517.9	2419.9	2401.0	2528.4	2811.7	2923.3	3280.3	3603.5
27.5°	2981.2	2972.8	2864.3	2728.4	2551.5	2432.6	2518.9	2793.8	2903.2	3264.4	3574.1
30°	3318.1	3310.8	3187.6	3009.6	2748.5	2532.6	2541.0	2781.1	2887.5	3238.2	3524.6
32.5°	3654.1	3649.9	3552.0	3369.8	3020.2	2702.1	2598.9	2779.1	2879.1	3206.5	3464.5
35°	3992.2	3992.2	3932.1	3778.4	3385.6	2956.9	2720.0	2817.9	2894.8	3189.7	3413.0
37.5°	4491.3	4471.2	4359.6	4200.6	3845.8	3287.7	2915.9	2900.1	2955.9	3218.1	3396.1
40°	5264.2	5206.3	4927.2	4659.7	4348.1	3711.0	3202.3	3059.1	3092.8	3315.0	3436.1
42.5°	6073.0	5981.3	5611.7	5184.2	4867.2	4233.3	3578.3	3317.1	3316.1	3502.5	3563.6
45°	6766.9	6719.6	6319.4	5777.0	5460.1	4820.9	4053.2	3700.4	3662.5	3793.1	3808.9
47.5°	7170.3	7138.7	6897.5	6404.7	6163.5	5514.8	4655.6	4232.3	4160.6	4238.5	4214.4
50°	7058.6	7089.2	7019.7	6767.9	6919.6	6490.0	5423.2	4960.9	4825.1	4903.0	4844.1
52.5°	6471.0	6553.1	6615.3	6663.7	7354.5	7794.7	6387.8	5870.7	5758.1	5744.4	5687.5
55°	5412.6	5543.3	5739.2	6095.0	7237.6	8842.5	8072.7	6971.2	6806.9	6720.6	6742.7
57.5°	3683.5	3881.6	4303.9	4981.0	6630.1	9289.0	10564.2	8392.8	8114.9	7807.4	7879.0
60°	2029.2	2194.5	2696.9	3379.2	5243.1	9222.6	12772.5	10703.2	9828.1	9013.1	9160.5
62.5°	1313.2	1349.0	1722.8	2308.3	3218.1	8142.2	13999.3	14564.8	12710.4	10603.2	10810.6
65°	1055.2	1080.4	1263.7	1861.8	2241.9	5237.9	14054.0	18570.5	17348.0	12764.1	12770.3
67.5°	1030.9	1042.5	1148.9	1565.9	2103.0	2851.7	12148.1	20150.2	20433.4	15314.5	14081.4
68°	1045.7	1059.4	1166.8	1517.4	2101.9	2628.4	11227.6	20125.9	20611.4	15741.1	14081.4
70°	922.5	939.3	1190.0	1570.1	2012.3	2259.8	7688.3	19057.1	19838.5	16721.5	13361.2
72.5°	482.3	468.6	588.6	1239.4	2265.1	2354.6	4061.6	15921.1	16833.1	15486.1	11543.6
75°	375.9	342.3	329.6	489.7	1992.4	2442.0	2358.8	11316.1	12004.8	11163.4	7715.7
77.5°	353.8	312.7	288.6	289.6	877.2	2541.0	1908.1	6659.5	6659.5	5325.3	2462.0
80°	284.3	246.4	230.6	263.3	423.3	2341.9	1991.3	3034.9	2588.4	1376.4	678.2
82.5°	187.4	167.5	168.5	213.8	321.2	1563.8	2306.1	1498.5	1125.8	609.7	399.2
85°	119.0	102.2	113.8	149.6	240.1	697.1	2283.0	1041.5	745.5	342.3	199.1
87.5°	60.0	46.3	56.9	77.9	146.4	200.1	1879.7	929.9	552.8	142.2	108.4
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°	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7	3507.7
2.5°	3490.8	3467.7	3456.1	3437.1	3414.0	3390.9	3375.0	3367.7	3363.5	3365.5	3364.5
5°	3516.2	3485.6	3436.1	3365.5	3292.9	3216.1	3157.0	3111.8	3083.4	3074.9	3072.8
7.5°	3535.1	3490.8	3398.2	3269.8	3145.5	3010.6	2895.9	2804.3	2742.1	2713.7	2712.7
10°	3531.9	3475.1	3328.7	3139.1	2956.9	2759.0	2579.0	2425.2	2313.5	2259.8	2257.8
12.5°	3535.1	3457.2	3243.4	2986.5	2725.3	2442.0	2174.6	1935.5	1769.1	1690.1	1686.9
15°	3547.7	3438.2	3156.0	2815.9	2454.7	2054.5	1672.2	1372.1	1220.5	1168.9	1168.9
17.5°	3546.7	3406.6	3054.9	2617.9	2133.5	1597.4	1141.5	956.2	941.4	988.8	996.1
20°	3525.6	3356.1	2924.3	2383.1	1756.5	1105.7	774.0	747.7	865.6	996.1	1010.9
22.5°	3493.0	3290.8	2773.7	2110.3	1317.4	720.3	597.1	637.1	797.2	959.3	982.5
25°	3447.7	3211.8	2601.1	1793.3	876.2	518.1	498.1	547.6	660.3	768.7	785.6
27.5°	3381.4	3111.8	2412.5	1450.0	559.1	426.5	433.8	468.6	517.0	563.3	572.9
30°	3298.2	2994.9	2207.2	1069.9	424.4	381.3	393.8	414.9	436.0	465.4	471.8
32.5°	3213.9	2875.9	1993.4	735.0	370.7	357.0	369.6	381.3	399.2	419.1	423.3
35°	3138.1	2765.3	1773.4	512.8	347.5	341.2	347.5	354.9	372.8	392.8	394.9
37.5°	3083.4	2674.7	1543.7	405.4	333.8	327.5	330.6	333.8	354.9	384.3	387.5
40°	3076.0	2614.8	1311.0	364.4	323.3	314.9	312.7	314.9	342.3	375.9	379.1
42.5°	3147.6	2617.9	1083.6	347.5	314.9	305.4	297.0	301.2	325.4	351.7	353.8
45°	3317.1	2691.6	886.7	340.1	307.5	300.1	287.4	289.6	301.2	314.9	317.0
47.5°	3616.1	2852.7	736.1	335.9	301.2	294.8	279.1	272.7	273.8	281.2	281.2
50°	4094.3	3122.3	644.5	331.7	295.9	284.3	266.4	253.8	250.6	254.8	255.9
52.5°	4807.2	3584.6	600.3	323.3	286.4	270.7	250.6	238.0	232.7	236.9	236.9
55°	5770.8	4322.8	579.2	311.7	274.9	253.8	235.9	225.4	221.2	224.3	224.3
57.5°	6869.0	5282.1	615.0	295.9	260.1	235.9	223.2	215.8	212.7	215.8	217.0
60°	8173.8	6537.4	861.4	275.9	244.3	220.1	212.7	208.5	206.4	209.6	209.6
62.5°	9908.2	8207.4	1333.2	260.1	227.5	205.3	203.3	201.1	199.1	202.1	202.1
65°	11780.5	9727.0	1372.1	250.6	212.7	192.7	193.7	193.7	191.7	194.8	194.8
67.5°	12376.5	9595.4	766.6	239.1	194.8	180.0	184.2	184.2	183.2	186.4	185.4
68°	12250.1	9386.9	667.7	235.9	191.7	176.9	181.2	182.2	181.2	184.2	183.2
70°	11308.7	8241.2	439.2	218.0	178.0	166.3	172.7	173.8	172.7	176.9	175.8
72.5°	9335.3	6181.4	324.4	190.6	161.1	152.7	159.0	160.1	161.1	165.3	164.3
75°	5928.7	3414.0	255.9	162.1	144.2	136.9	143.2	146.4	148.4	154.8	151.6
77.5°	1623.8	1036.2	207.5	138.0	124.3	121.1	125.3	129.5	131.7	139.0	133.7
80°	568.7	458.1	172.7	116.9	103.2	102.2	106.4	110.6	112.6	119.0	112.6
82.5°	345.5	299.1	138.0	91.7	81.1	80.0	85.3	89.5	91.7	91.7	87.4
85°	180.0	157.9	101.1	64.2	55.9	52.7	62.1	67.4	68.4	67.4	64.2
87.5°	101.1	89.5	53.7	30.6	25.3	26.3	32.6	40.0	43.2	42.1	40.0
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)