

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: P196180

Luminaire Tested: **NAV-AF-04-D-UNV-SL4-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196180
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24284)
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-SL4-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15687 lumens
Efficiency: N/A
Efficacy: 121.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G3

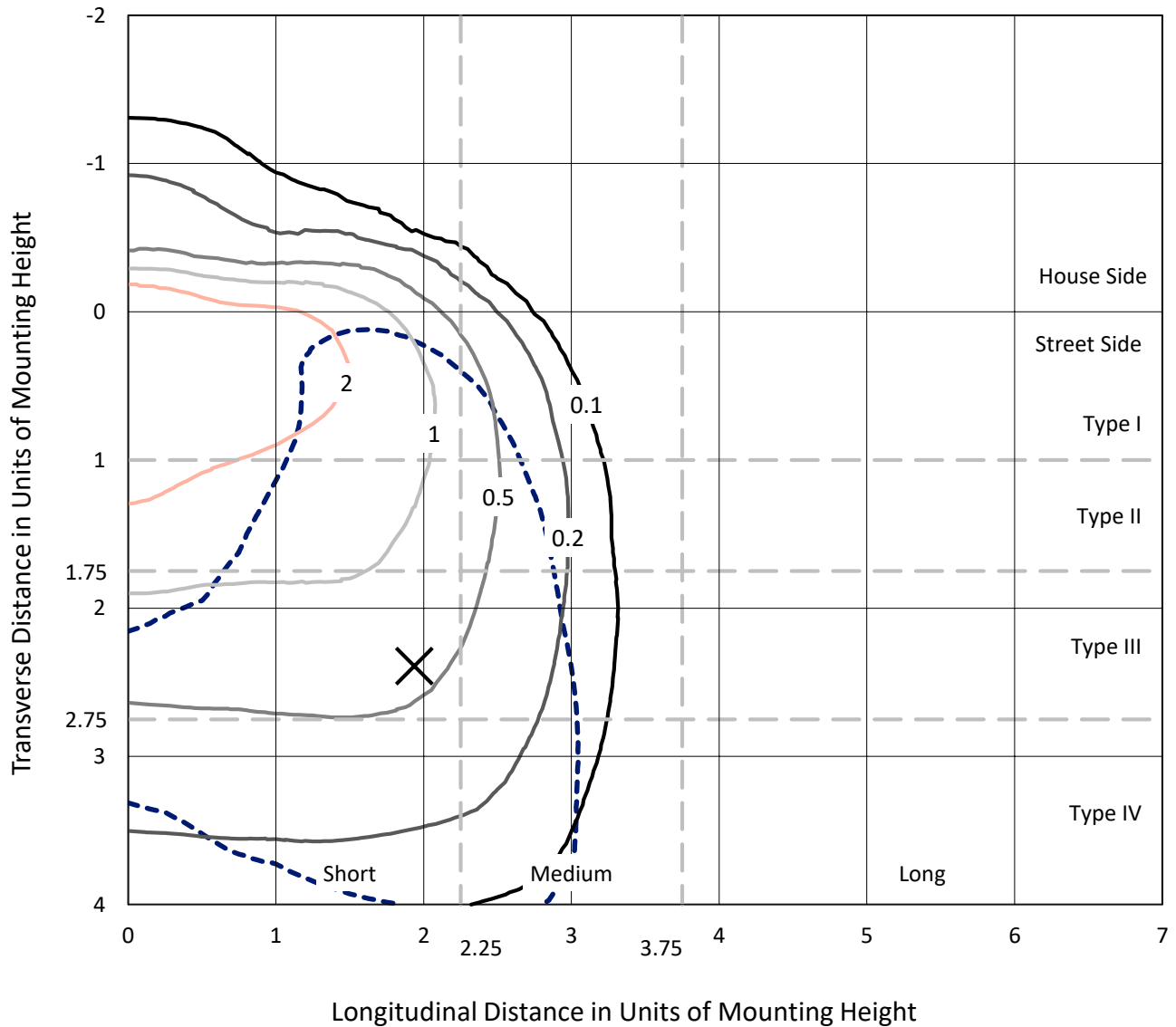
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

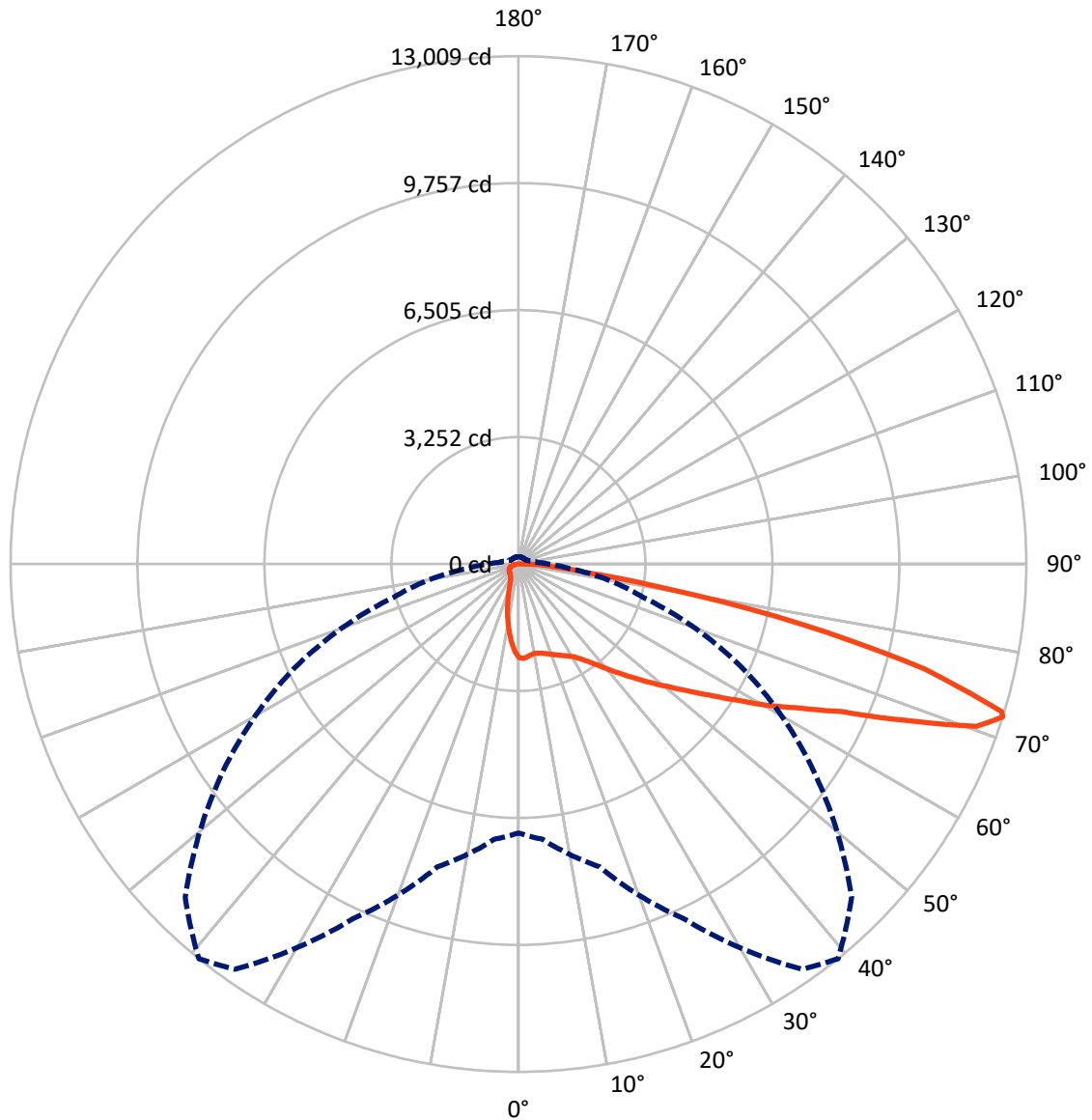
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.8 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 39-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1798.7	0.0	1798.7
	% Fixture	11.5	0.0	11.5
Street Side	Lumens	13888.2	0.0	13888.2
	% Fixture	88.5	0.0	88.5
Total	Lumens	15687.0	0.0	15687.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	205.9	1.3
10°-20°	517.3	3.3
20°-30°	806.2	5.1
30°-40°	1241.3	7.9
40°-50°	2023.6	12.9
50°-60°	3144.4	20.0
60°-70°	4208.6	26.8
70°-80°	3026.6	19.3
80°-90°	513.1	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°	15687.0	100.0
0°-180°	15687.0	100.0



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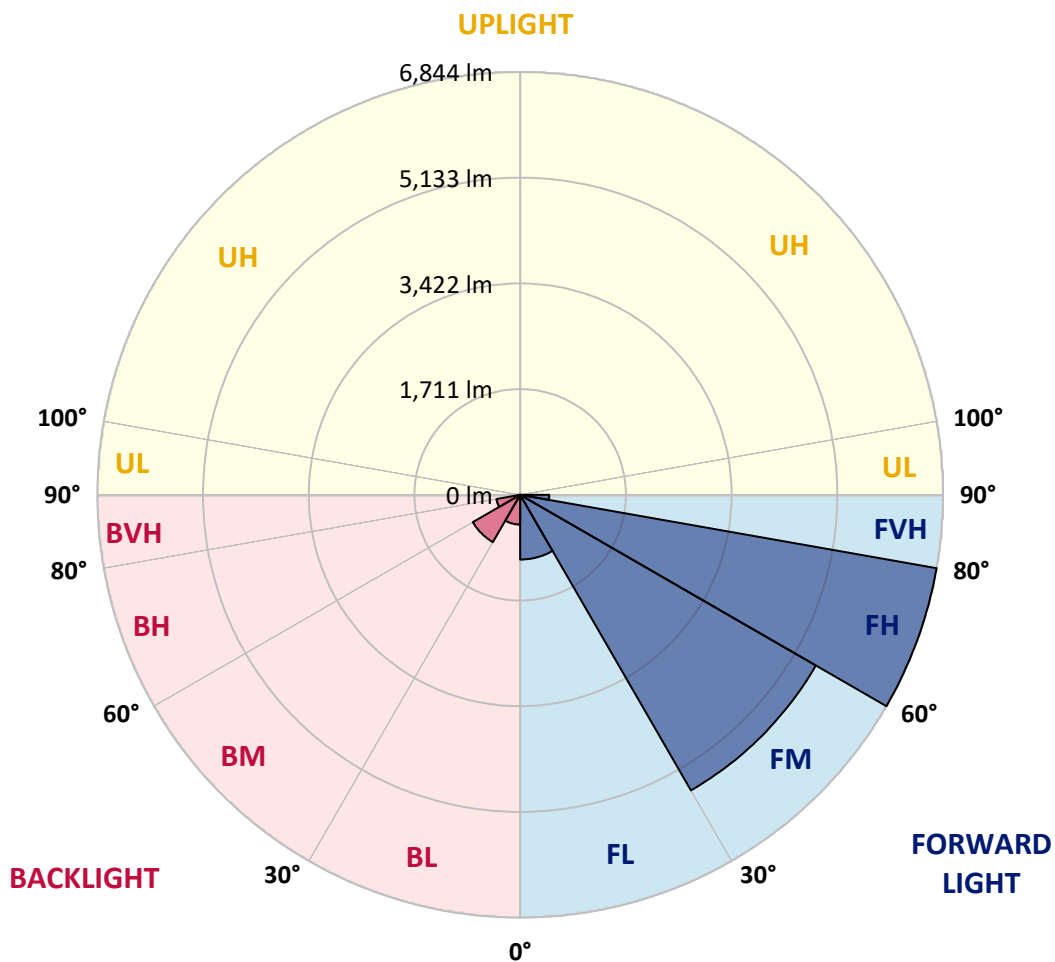
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1047.9	6.7			
FM	(30°-60°)	5525.3	35.2			
FH	(60°-80°)	6844.5	43.6			G3/7500
FVH	(80°-90°)	470.7	3.0			G3/500
BL	(0°-30°)	481.5	3.1	B1/500		
BM	(30°-60°)	884.0	5.6	B1/1000		
BH	(60°-80°)	390.8	2.5	B1/500		G1/500
BVH	(80°-90°)	42.4	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	39°	45°	55°	65°	75°	85°
0°	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6
2.5°	2447.3	2448.3	2445.2	2435.6	2427.3	2423.1	2415.7	2403.0	2386.2	2374.6	2365.2
5°	2424.1	2427.3	2425.2	2409.4	2394.6	2386.2	2374.6	2356.7	2334.6	2325.2	2303.0
7.5°	2406.2	2408.3	2402.0	2384.1	2355.7	2345.1	2324.0	2300.9	2280.9	2267.2	2240.9
10°	2393.6	2395.6	2390.4	2372.5	2340.9	2328.2	2303.0	2277.7	2251.4	2234.5	2205.1
12.5°	2375.7	2379.9	2379.9	2371.5	2350.4	2341.9	2316.7	2289.4	2265.1	2247.2	2210.4
15°	2372.5	2377.7	2387.3	2386.2	2379.9	2373.6	2353.6	2326.2	2305.1	2284.0	2238.7
17.5°	2398.8	2410.4	2429.4	2435.6	2431.5	2417.7	2394.6	2369.4	2346.1	2326.2	2270.3
20°	2465.2	2471.4	2499.9	2512.6	2491.5	2471.4	2441.0	2408.3	2387.3	2371.5	2299.9
22.5°	2565.3	2573.6	2596.8	2597.9	2553.6	2529.5	2490.5	2450.5	2430.4	2424.1	2339.9
25°	2725.2	2723.2	2729.5	2703.1	2623.2	2594.7	2547.4	2501.0	2487.3	2499.9	2398.8
27.5°	2916.9	2911.6	2891.7	2823.2	2702.1	2665.3	2608.4	2567.3	2567.3	2596.8	2478.9
30°	3138.1	3132.8	3067.5	2952.7	2795.8	2753.7	2693.7	2650.5	2672.7	2729.5	2587.3
32.5°	3371.9	3352.9	3261.3	3107.5	2929.5	2883.3	2825.3	2781.1	2823.2	2920.1	2743.1
35°	3592.0	3581.5	3468.7	3286.5	3102.3	3063.3	3023.3	2968.5	3035.9	3186.5	2963.3
37.5°	3819.4	3811.0	3673.0	3479.3	3312.9	3286.5	3252.9	3214.9	3323.4	3521.4	3261.3
40°	4073.2	4056.3	3882.6	3688.9	3558.2	3545.6	3527.7	3517.2	3691.9	3986.8	3638.2
42.5°	4360.6	4328.0	4103.7	3919.4	3825.7	3836.3	3826.8	3868.9	4136.4	4523.9	4086.9
45°	4689.2	4623.9	4323.8	4164.8	4121.6	4163.7	4183.8	4291.2	4661.8	5144.1	4588.1
47.5°	4996.7	4912.4	4564.9	4431.2	4455.5	4528.1	4585.0	4774.5	5237.8	5757.0	5099.9
50°	5280.0	5185.2	4822.9	4707.1	4825.1	4928.3	5046.2	5313.7	5850.8	6387.8	5569.6
52.5°	5489.6	5421.1	5081.0	5008.3	5249.5	5386.3	5574.8	5912.9	6470.0	6989.1	5988.7
55°	5651.7	5614.9	5332.6	5353.7	5729.6	5925.4	6154.0	6542.6	7125.0	7528.2	6325.6
57.5°	5839.1	5811.8	5620.1	5770.7	6325.6	6572.0	6841.6	7273.4	7748.3	8003.2	6590.0
60°	6037.1	6037.1	5940.3	6273.0	7071.2	7353.4	7621.9	7957.8	8369.6	8430.6	6697.4
62.5°	6186.6	6225.6	6260.4	6807.9	7778.8	8129.5	8424.4	8746.6	9013.0	8641.3	6444.6
65°	6403.6	6486.7	6682.6	7426.1	8655.0	9114.1	9512.1	9782.8	9534.3	8473.8	5620.1
67.5°	6776.3	6899.6	7316.6	8346.5	9996.6	10684.2	11070.7	10603.1	9432.1	7419.8	4304.9
70°	7112.3	7286.1	7999.0	9514.3	11740.4	12454.3	12276.4	10412.5	8214.8	5439.0	2648.4
72°	6889.1	7078.6	8030.6	10022.9	12672.3	13009.4	12071.0	9227.8	6347.7	3319.2	1305.8
72.5°	6742.7	6939.6	7928.4	10010.3	12697.6	12938.8	11785.7	8757.2	5762.3	2904.3	1056.2
75°	5632.8	5801.3	6817.5	8872.0	11189.6	10747.4	9197.4	5667.5	2648.4	938.3	543.4
77.5°	3678.3	3806.8	4700.8	6146.6	7837.8	7412.4	5598.0	2653.6	993.0	569.7	408.6
80°	1848.1	1939.7	2515.7	3231.8	4230.1	3892.0	2584.2	1283.7	664.5	411.7	321.2
82.5°	1285.7	1370.0	1732.3	1650.1	1768.1	1711.2	1215.3	1070.9	497.1	260.1	168.5
85°	1078.3	1165.8	1433.2	1176.3	962.5	877.2	870.8	1012.0	328.6	128.5	142.2
87.5°	940.4	1073.1	1182.5	859.3	660.2	582.4	641.3	927.7	104.2	70.6	43.2
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°	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6	2395.6
2.5°	2349.3	2346.1	2330.4	2306.1	2288.2	2276.7	2254.6	2253.6	2255.6	2236.7	2244.0
5°	2283.0	2270.3	2229.3	2173.5	2128.2	2085.1	2037.6	2021.9	2008.2	1979.7	1982.9
7.5°	2213.5	2191.4	2119.8	2028.2	1940.7	1860.7	1781.8	1742.8	1713.3	1676.4	1676.4
10°	2172.4	2137.7	2028.2	1894.4	1755.4	1638.6	1520.6	1450.0	1398.5	1351.0	1347.9
12.5°	2170.3	2117.7	1965.0	1780.7	1590.1	1425.8	1264.7	1156.2	1079.4	1023.6	1018.2
15°	2187.2	2113.4	1912.3	1674.4	1434.3	1220.5	1021.4	883.5	785.5	723.4	717.1
17.5°	2201.9	2108.2	1855.4	1562.8	1282.6	1022.5	801.4	658.2	565.5	515.0	509.6
20°	2215.6	2096.6	1782.8	1444.8	1115.2	837.2	626.6	510.8	449.7	421.3	418.1
22.5°	2235.7	2086.1	1707.0	1312.1	950.9	681.3	517.0	433.8	401.2	387.5	385.4
25°	2268.3	2087.1	1633.2	1176.3	800.4	567.6	447.5	396.0	378.1	368.6	368.6
27.5°	2315.7	2099.8	1560.6	1038.3	672.9	489.7	406.5	375.9	364.4	357.0	354.9
30°	2385.1	2122.9	1483.8	907.8	571.8	436.0	382.3	363.2	353.8	347.5	346.5
32.5°	2486.3	2164.1	1402.7	788.7	494.9	398.0	364.4	352.8	345.3	340.1	339.1
35°	2636.9	2236.7	1323.7	687.6	440.2	370.7	349.6	340.1	335.9	333.8	332.8
37.5°	2857.9	2353.6	1248.9	608.7	404.4	352.8	334.9	329.6	327.4	327.4	327.4
40°	3136.0	2507.3	1181.5	552.8	384.3	339.1	324.4	320.1	320.1	321.2	321.2
42.5°	3474.0	2700.0	1123.6	515.0	372.8	329.6	317.0	314.9	313.8	313.8	314.9
45°	3866.8	2927.5	1087.8	485.5	364.4	324.4	311.7	310.7	306.5	304.3	304.3
47.5°	4261.7	3170.7	1085.7	468.6	353.8	318.0	306.5	306.5	298.0	293.8	294.8
50°	4630.3	3388.7	1108.9	464.4	347.5	308.5	301.2	302.2	290.6	285.4	284.3
52.5°	4927.2	3555.1	1137.3	469.6	347.5	300.1	291.6	297.0	284.3	278.0	276.9
55°	5156.8	3671.0	1147.9	481.2	351.7	292.8	283.3	291.6	282.2	273.7	273.7
57.5°	5321.1	3707.8	1102.5	486.5	358.0	291.6	274.9	290.6	285.4	274.9	274.9
60°	5261.0	3494.0	934.1	466.5	357.0	289.6	268.5	292.8	295.9	284.3	284.3
62.5°	4792.4	2923.3	749.7	421.3	339.1	282.2	261.2	290.6	303.3	299.1	297.0
65°	3901.5	2144.0	581.2	367.5	308.5	266.4	245.4	271.7	286.4	290.6	291.6
67.5°	2749.5	1357.4	451.7	312.7	270.7	243.3	227.5	240.1	245.4	247.5	251.6
70°	1503.7	735.0	359.1	263.3	231.7	220.0	208.5	209.6	207.5	205.3	207.5
72°	755.0	480.2	303.3	228.5	205.3	197.9	192.7	189.6	189.6	186.4	187.4
72.5°	649.8	446.5	292.8	220.0	199.1	192.7	188.5	185.4	184.2	182.2	183.2
75°	432.8	353.8	244.3	184.2	169.5	165.3	167.5	164.3	165.3	163.3	164.3
77.5°	349.6	304.3	207.5	155.9	145.4	139.0	143.2	144.2	146.4	144.2	143.2
80°	292.8	259.0	173.8	128.5	121.1	115.8	117.9	125.3	126.3	120.1	119.0
82.5°	189.6	208.5	136.9	100.0	92.7	90.5	95.9	103.2	105.3	96.9	94.7
85°	159.0	167.5	99.0	68.4	61.1	58.9	69.5	76.8	82.1	73.8	71.6
87.5°	44.2	82.1	48.5	32.6	27.4	27.4	33.7	40.0	47.4	48.5	48.5
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)