

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: FAIL-SAFE

Report Number: P709131

Luminaire Tested: **4APN-20L850-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709131
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-20L850-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 5000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

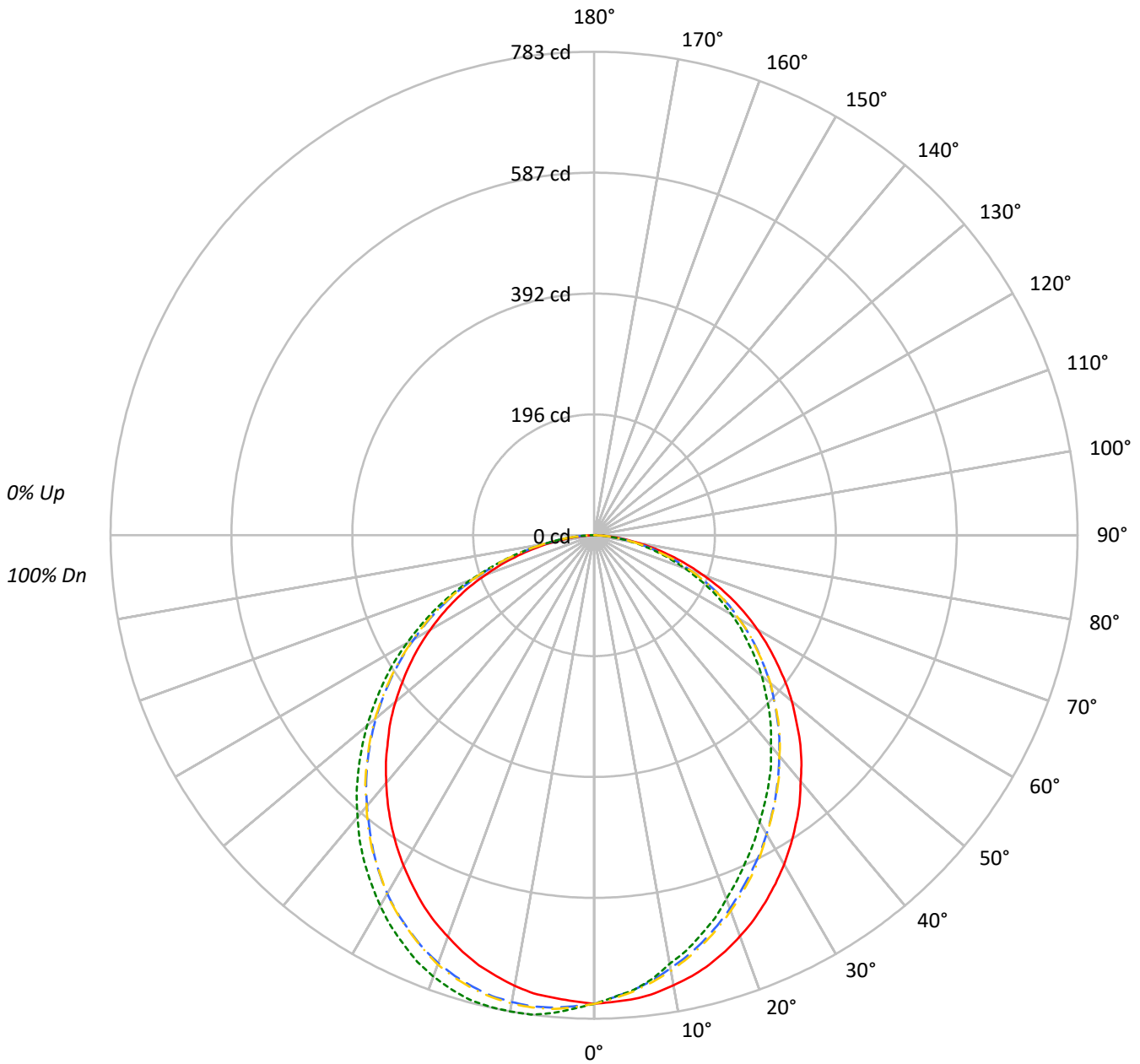
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2035.4 lumens
Efficiency: N/A
Efficacy: 85.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.33
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 23.8
Input Voltage (V): 120
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

TEST NUMBER: P709131
CATALOG NUMBER: 4APN-20L850-X-UNV

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - · - · 90°-270° - · - · 135°-315°



TEST NUMBER: P709131
 CATALOG NUMBER: 4APN-20L850-X-UNV

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	61	61	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	41	41	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	36	36	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	32	32	32	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	29	29	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	27	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7002	7002	7002	7002
5°	6981	6846	6965	7195
10°	6933	6603	6941	7336
15°	6880	6396	6888	7438
20°	6785	6153	6794	7468
25°	6677	5926	6704	7437
30°	6557	5717	6576	7381
35°	6420	5550	6449	7301
40°	6266	5367	6307	7176
45°	6149	5231	6161	7046
50°	6001	5090	6026	6888
55°	5813	4903	5855	6698
60°	5639	4753	5656	6464
65°	5416	4554	5416	6185
70°	5050	4214	5026	5767
75°	4591	3825	4531	5172
80°	3969	3284	3831	4426
85°	3091	2456	2911	3631



TEST NUMBER: P709131
 CATALOG NUMBER: 4APN-20L850-X-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.7	3.5
10°-20°	203.5	10.0
20°-30°	302.6	14.9
30°-40°	356.6	17.5
40°-50°	363.1	17.8
50°-60°	323.5	15.9
60°-70°	243.7	12.0
70°-80°	135.5	6.7
80°-90°	35.2	1.7
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°-30°	577.8	28.4
0°-40°	934.4	45.9
0°-60°	1620.9	79.6
0°-90°	2035.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2035.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	759	759	759	759	759	
5°	754	739	752	777	754	72
15°	720	670	721	779	720	203
25°	656	582	658	731	656	302
35°	570	493	573	648	570	357
45°	471	401	472	540	471	363
55°	361	305	364	416	361	324
65°	248	209	248	283	248	245
75°	129	107	127	145	129	137
85°	29	23	28	34	29	35
90°	0	0	0	0	0	



TEST NUMBER: P709131

CATALOG NUMBER: 4APN-20L850-X-UNV

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9
2.5°	756.3	756.3	757.2	753.8	749.5	747.8	746.9	746.0	747.8	748.6	747.8
5°	753.8	752.0	750.3	746.0	740.9	737.5	735.7	734.9	736.6	739.2	736.6
7.5°	748.6	745.2	741.7	735.7	729.7	724.6	722.0	720.3	722.0	724.6	722.9
10°	740.0	735.7	730.6	723.7	715.1	709.1	706.5	704.0	704.8	704.8	704.8
12.5°	731.4	725.4	719.4	710.8	701.4	694.5	690.2	686.8	688.5	689.4	689.4
15°	720.3	712.6	704.0	694.5	685.1	677.4	672.2	668.8	669.6	669.6	670.5
17.5°	706.5	698.0	689.4	678.2	667.1	658.5	652.5	648.2	649.9	650.7	651.6
20°	691.1	681.7	672.2	660.2	648.2	638.7	632.7	627.6	626.7	626.7	627.6
22.5°	674.8	664.5	653.3	640.4	627.6	617.3	611.3	606.1	605.2	605.2	606.1
25°	655.9	644.7	633.6	620.7	607.0	596.7	588.9	583.8	582.9	582.1	583.8
27.5°	636.2	625.0	613.8	601.0	586.4	576.1	568.3	563.2	561.5	560.6	562.3
30°	615.5	602.7	590.7	576.9	564.0	553.7	546.0	540.0	538.3	536.6	538.3
32.5°	593.2	580.3	567.5	553.7	540.9	530.6	522.8	516.8	515.1	514.2	516.0
35°	570.0	557.2	545.2	531.4	518.5	508.2	500.5	495.4	493.6	492.8	493.6
37.5°	546.9	534.0	522.0	508.2	495.4	485.1	477.3	472.2	471.3	470.5	471.3
40°	520.3	509.1	497.1	484.2	471.3	461.0	455.0	449.0	447.3	445.6	448.1
42.5°	497.1	485.9	473.9	461.9	449.0	438.7	431.8	426.7	425.0	424.1	425.0
45°	471.3	459.3	447.3	436.1	424.1	414.7	407.8	402.6	401.8	400.9	401.8
47.5°	443.8	433.5	423.2	412.1	400.1	390.6	384.6	379.5	377.7	376.0	377.7
50°	418.1	407.8	397.5	387.2	376.0	367.4	361.4	356.3	355.4	354.6	355.4
52.5°	390.6	380.3	370.9	360.6	351.1	342.5	336.5	332.2	331.4	330.5	331.4
55°	361.4	352.8	344.3	335.7	326.2	318.5	313.4	308.2	306.5	304.8	306.5
57.5°	334.0	326.2	317.6	309.1	300.5	293.6	288.5	284.2	283.3	282.4	283.3
60°	305.6	298.8	291.0	283.3	274.7	267.9	263.6	260.1	258.4	257.6	258.4
62.5°	277.3	270.4	264.4	256.7	249.0	243.8	239.5	236.1	234.4	233.5	234.4
65°	248.1	242.1	236.1	229.2	223.2	218.1	213.8	210.3	209.5	208.6	208.6
67.5°	218.1	212.9	207.8	201.7	194.9	189.7	185.4	182.9	182.0	181.1	182.0
70°	187.2	182.9	177.7	172.6	167.4	163.1	160.5	158.0	157.1	156.2	156.2
72.5°	158.0	154.5	150.2	145.9	141.7	137.4	134.8	133.1	132.2	131.4	131.4
75°	128.8	125.3	122.8	119.3	115.0	112.5	109.9	108.2	107.3	107.3	107.3
77.5°	101.3	98.7	96.2	92.7	90.1	87.6	85.9	85.0	84.1	84.1	84.1
80°	74.7	73.0	71.3	69.5	67.0	64.4	63.5	62.7	61.8	61.8	61.8
82.5°	50.7	49.8	48.1	46.4	44.6	43.8	42.9	42.1	42.1	42.1	42.1
85°	29.2	28.3	27.5	26.6	25.8	25.8	24.9	24.0	23.2	23.2	23.2
87.5°	12.0	12.0	12.0	11.2	10.3	10.3	10.3	10.3	10.3	10.3	10.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P709131
 CATALOG NUMBER: 4APN-20L850-X-UNV

CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9
2.5°	746.0	747.8	749.5	752.0	754.6	757.2	756.3	755.5	758.9	763.2	764.1
5°	734.9	736.6	739.2	743.5	747.8	751.2	752.0	752.0	758.9	764.9	766.6
7.5°	721.1	723.7	727.2	731.4	737.5	742.6	745.2	748.6	755.5	763.2	766.6
10°	704.0	708.3	713.4	719.4	725.4	731.4	736.6	740.9	749.5	758.1	763.2
12.5°	688.5	692.8	698.0	704.8	712.6	720.3	725.4	731.4	741.7	752.0	758.1
15°	671.4	675.6	681.7	688.5	697.1	705.7	713.4	721.1	731.4	742.6	749.5
17.5°	652.5	656.8	662.8	671.4	680.8	690.2	698.8	707.4	719.4	731.4	739.2
20°	629.3	635.3	643.0	651.6	662.8	673.9	682.5	692.0	704.8	717.7	726.3
22.5°	607.0	613.0	621.6	631.9	643.9	655.9	666.2	676.5	690.2	703.1	712.6
25°	585.5	592.4	601.0	611.3	622.4	634.4	646.5	658.5	672.2	685.9	695.4
27.5°	564.0	570.0	578.6	588.9	601.8	613.8	625.8	637.9	652.5	667.1	677.4
30°	540.0	546.9	554.6	564.9	578.6	592.4	604.4	617.3	631.9	646.5	656.8
32.5°	517.7	523.7	531.4	541.7	555.5	569.2	582.1	595.8	609.5	624.1	634.4
35°	495.4	501.4	509.1	519.4	533.1	546.9	559.7	572.6	586.4	600.1	610.4
37.5°	473.0	479.0	486.8	497.1	510.0	523.7	535.7	548.6	562.3	576.1	585.5
40°	449.9	455.9	461.9	472.2	485.1	498.8	510.8	523.7	537.4	551.2	560.6
42.5°	426.7	432.7	440.4	450.7	462.7	474.8	486.8	498.8	511.7	524.5	534.0
45°	403.5	408.6	416.4	425.8	437.8	449.0	461.0	472.2	485.1	497.1	506.5
47.5°	379.5	384.6	390.6	400.1	412.1	424.1	436.1	447.3	458.4	470.5	479.0
50°	356.3	361.4	368.3	376.9	388.0	399.2	409.5	419.8	431.0	442.1	449.9
52.5°	332.2	337.4	343.4	352.0	361.4	371.7	381.2	391.5	401.8	412.1	419.8
55°	308.2	311.6	316.8	324.5	334.8	345.1	354.6	364.0	373.4	382.0	389.8
57.5°	284.2	288.5	294.5	301.3	309.9	318.5	327.1	335.7	344.3	352.8	359.7
60°	260.1	263.6	267.9	273.9	282.4	290.2	298.8	306.5	314.2	321.9	327.9
62.5°	235.2	238.7	243.0	249.0	255.8	262.7	270.4	277.3	284.2	291.0	297.0
65°	209.5	212.9	217.2	222.4	228.4	234.4	241.2	248.1	253.3	258.4	264.4
67.5°	182.9	186.3	190.6	194.9	200.0	206.0	212.1	218.1	223.2	228.4	232.7
70°	157.1	159.7	164.0	167.4	171.7	176.0	181.1	186.3	189.7	194.0	199.2
72.5°	132.2	134.8	138.2	141.7	144.2	147.7	152.8	157.1	161.4	166.5	169.1
75°	108.2	109.9	112.5	115.0	117.6	120.2	123.6	127.1	130.5	133.1	136.5
77.5°	84.1	85.9	88.4	90.1	91.9	93.6	96.2	98.7	101.3	103.0	106.5
80°	61.8	63.5	65.2	67.0	68.7	70.4	71.3	72.1	75.5	78.1	79.8
82.5°	42.1	42.9	43.8	45.5	46.4	47.2	48.1	48.1	49.8	51.5	54.1
85°	24.0	24.9	25.8	25.8	25.8	25.8	26.6	27.5	28.3	30.0	31.8
87.5°	9.4	9.4	10.3	10.3	10.3	10.3	10.3	10.3	11.2	12.9	13.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P709131

CATALOG NUMBER: 4APN-20L850-X-UNV

CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9	758.9
2.5°	763.2	764.1	765.8	766.6	767.5	767.5	768.4	769.2	767.5	765.8	764.9
5°	767.5	768.4	770.9	773.5	775.2	776.9	776.1	775.2	773.5	770.9	769.2
7.5°	768.4	770.9	773.5	776.9	779.5	783.0	781.2	779.5	776.1	772.7	770.1
10°	765.8	769.2	773.5	777.8	780.4	783.0	781.2	779.5	776.1	771.8	768.4
12.5°	762.4	766.6	771.8	776.1	778.7	782.1	779.5	776.9	772.7	768.4	764.1
15°	754.6	759.8	765.8	770.9	775.2	778.7	776.1	774.4	769.2	763.2	757.2
17.5°	745.2	752.0	758.1	764.1	767.5	770.9	769.2	767.5	761.5	754.6	747.8
20°	734.0	740.9	746.9	752.9	757.2	760.6	758.1	755.5	749.5	743.5	736.6
22.5°	720.3	727.2	734.0	740.0	744.3	747.8	744.3	740.0	734.0	728.0	721.1
25°	703.1	710.8	718.6	724.6	727.2	730.6	727.2	723.7	717.7	711.7	704.0
27.5°	685.9	693.7	701.4	707.4	710.0	713.4	710.0	706.5	700.5	694.5	686.8
30°	666.2	673.9	681.7	687.7	690.2	692.8	689.4	685.9	680.8	674.8	667.1
32.5°	643.9	651.6	657.6	663.6	667.1	670.5	667.1	664.5	658.5	650.7	643.0
35°	619.8	627.6	635.3	641.3	644.7	648.2	643.9	639.6	634.4	628.4	621.6
37.5°	593.2	601.8	610.4	617.3	619.8	623.3	619.8	615.5	610.4	604.4	596.7
40°	568.3	576.1	583.8	590.7	593.2	595.8	592.4	588.9	582.9	576.9	569.2
42.5°	542.6	550.3	557.2	563.2	565.8	569.2	565.8	561.5	557.2	552.0	545.2
45°	515.1	522.8	528.8	534.8	537.4	540.0	536.6	532.3	528.0	523.7	516.8
47.5°	486.8	493.6	499.6	505.7	507.4	510.0	506.5	503.9	499.6	495.4	489.3
50°	457.6	464.5	470.5	475.6	477.3	479.9	476.5	473.0	469.6	466.2	461.0
52.5°	427.5	433.5	439.6	444.7	446.4	448.1	444.7	441.3	437.8	434.4	429.3
55°	396.6	402.6	408.6	412.9	414.7	416.4	412.9	410.4	406.9	404.4	399.2
57.5°	365.7	371.7	376.9	381.2	382.9	384.6	381.2	377.7	375.2	372.6	368.3
60°	334.0	340.0	344.3	347.7	349.4	350.3	346.8	344.3	342.5	340.8	336.5
62.5°	303.1	307.3	311.6	314.2	315.9	316.8	314.2	312.5	310.8	309.1	305.6
65°	270.4	275.6	279.0	281.6	282.4	283.3	280.7	279.0	277.3	275.6	273.0
67.5°	237.8	242.1	244.7	247.2	248.1	248.1	248.1	247.2	245.5	243.0	240.4
70°	205.2	208.6	211.2	212.9	213.8	213.8	212.1	210.3	210.3	209.5	207.8
72.5°	171.7	174.3	176.0	177.7	177.7	177.7	177.7	178.6	177.7	176.0	173.4
75°	139.9	142.5	144.2	145.1	145.1	145.1	145.1	145.9	145.1	144.2	142.5
77.5°	109.9	111.6	112.5	113.3	113.3	113.3	114.2	115.0	114.2	113.3	112.5
80°	81.6	82.4	83.3	84.1	83.3	83.3	84.1	85.9	85.0	84.1	83.3
82.5°	55.8	56.7	57.5	57.5	58.4	59.2	59.2	59.2	59.2	58.4	57.5
85°	33.5	34.3	34.3	34.3	34.3	34.3	35.2	36.1	36.1	35.2	35.2
87.5°	15.5	16.3	15.5	14.6	13.7	13.7	15.5	17.2	17.2	16.3	16.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P709131
 CATALOG NUMBER: 4APN-20L850-X-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	758.9	758.9	758.9	758.9
2.5°	765.8	764.9	760.6	756.3
5°	768.4	765.8	759.8	753.8
7.5°	768.4	764.9	756.3	748.6
10°	764.1	758.9	749.5	740.0
12.5°	758.9	752.9	741.7	731.4
15°	751.2	744.3	732.3	720.3
17.5°	740.0	731.4	719.4	706.5
20°	728.9	719.4	704.8	691.1
22.5°	713.4	704.8	689.4	674.8
25°	696.2	686.8	671.4	655.9
27.5°	678.2	667.1	651.6	636.2
30°	657.6	646.5	631.0	615.5
32.5°	635.3	625.0	609.5	593.2
35°	613.0	601.8	586.4	570.0
37.5°	588.1	577.8	562.3	546.9
40°	561.5	551.2	535.7	520.3
42.5°	536.6	527.1	511.7	497.1
45°	509.1	499.6	485.1	471.3
47.5°	480.8	471.3	457.6	443.8
50°	453.3	443.8	431.0	418.1
52.5°	422.4	414.7	402.6	390.6
55°	392.3	384.6	372.6	361.4
57.5°	362.3	355.4	344.3	334.0
60°	330.5	323.7	315.1	305.6
62.5°	300.5	294.5	285.9	277.3
65°	268.7	263.6	255.8	248.1
67.5°	236.1	231.8	224.9	218.1
70°	203.5	198.3	193.2	187.2
72.5°	170.8	168.3	163.1	158.0
75°	139.9	137.4	133.1	128.8
77.5°	110.7	108.2	104.7	101.3
80°	81.6	79.8	77.3	74.7
82.5°	56.7	54.9	53.2	50.7
85°	34.3	32.6	30.9	29.2
87.5°	15.5	14.6	12.9	12.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)