

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: P709135

Luminaire Tested: **4APN-28L930-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709135
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28L930-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

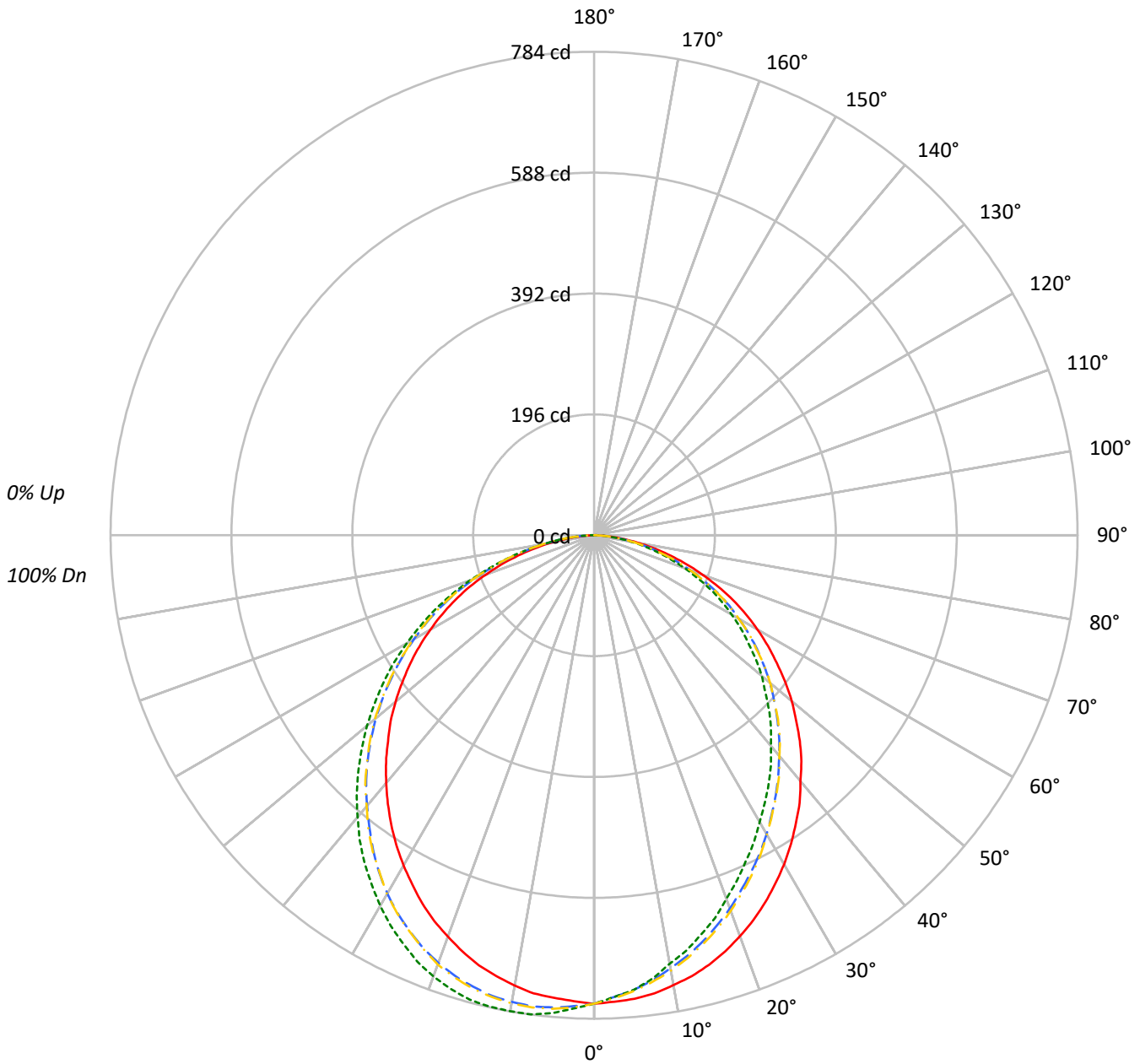
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2037.4 lumens
Efficiency: N/A
Efficacy: 63.3 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): 32.2
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

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Luminous Intensity Polar Plot



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



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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°	7009	7009	7009	7009
5°	6988	6853	6972	7203
10°	6940	6609	6948	7342
15°	6887	6402	6895	7446
20°	6792	6159	6801	7476
25°	6684	5932	6710	7445
30°	6565	5722	6583	7388
35°	6427	5556	6456	7308
40°	6272	5372	6313	7183
45°	6156	5236	6168	7052
50°	6007	5094	6031	6895
55°	5820	4908	5862	6704
60°	5645	4757	5661	6469
65°	5423	4558	5423	6191
70°	5053	4219	5031	5773
75°	4595	3829	4534	5176
80°	3974	3289	3836	4431
85°	3091	2456	2911	3642



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.8	3.5
10°-20°	203.7	10.0
20°-30°	302.9	14.9
30°-40°	357.0	17.5
40°-50°	363.5	17.8
50°-60°	323.8	15.9
60°-70°	243.9	12.0
70°-80°	135.7	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°	578.4	28.4
0°-40°	935.3	45.9
0°-60°	1622.6	79.6
0°-90°	2037.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2037.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	760	760	760	760	760	
5°	754	740	753	778	754	72
15°	721	670	722	780	721	203
25°	657	583	659	731	657	302
35°	571	493	573	649	571	357
45°	472	401	473	540	472	364
55°	362	305	364	417	362	324
65°	248	209	248	284	248	245
75°	129	107	127	145	129	137
85°	29	23	28	34	29	35
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7
2.5°	757.1	757.1	758.0	754.5	750.2	748.5	747.7	746.8	748.5	749.4	748.5
5°	754.5	752.8	751.1	746.8	741.6	738.2	736.5	735.6	737.3	739.9	737.3
7.5°	749.4	745.9	742.5	736.5	730.5	725.3	722.7	721.0	722.7	725.3	723.6
10°	740.8	736.5	731.3	724.5	715.9	709.8	707.3	704.7	705.5	705.5	705.5
12.5°	732.2	726.2	720.2	711.6	702.1	695.2	690.9	687.5	689.2	690.1	690.1
15°	721.0	713.3	704.7	695.2	685.8	678.0	672.9	669.5	670.3	670.3	671.2
17.5°	707.3	698.7	690.1	678.9	667.7	659.1	653.1	648.8	650.5	651.4	652.3
20°	691.8	682.3	672.9	660.9	648.8	639.4	633.4	628.2	627.3	627.3	628.2
22.5°	675.5	665.2	654.0	641.1	628.2	617.9	611.9	606.7	605.9	605.9	606.7
25°	656.6	645.4	634.2	621.3	607.6	597.3	589.5	584.4	583.5	582.7	584.4
27.5°	636.8	625.6	614.5	601.6	587.0	576.6	568.9	563.7	562.0	561.2	562.9
30°	616.2	603.3	591.2	577.5	564.6	554.3	546.6	540.5	538.8	537.1	538.8
32.5°	593.8	580.9	568.0	554.3	541.4	531.1	523.4	517.3	515.6	514.8	516.5
35°	570.6	557.7	545.7	532.0	519.1	508.7	501.0	495.9	494.1	493.3	494.1
37.5°	547.4	534.5	522.5	508.7	495.9	485.5	477.8	472.7	471.8	470.9	471.8
40°	520.8	509.6	497.6	484.7	471.8	461.5	455.5	449.5	447.7	446.0	448.6
42.5°	497.6	486.4	474.4	462.3	449.5	439.1	432.3	427.1	425.4	424.5	425.4
45°	471.8	459.8	447.7	436.6	424.5	415.1	408.2	403.0	402.2	401.3	402.2
47.5°	444.3	434.0	423.7	412.5	400.5	391.0	385.0	379.8	378.1	376.4	378.1
50°	418.5	408.2	397.9	387.6	376.4	367.8	361.8	356.6	355.8	354.9	355.8
52.5°	391.0	380.7	371.2	360.9	351.5	342.9	336.9	332.6	331.7	330.9	331.7
55°	361.8	353.2	344.6	336.0	326.6	318.8	313.7	308.5	306.8	305.1	306.8
57.5°	334.3	326.6	318.0	309.4	300.8	293.9	288.7	284.5	283.6	282.7	283.6
60°	305.9	299.1	291.3	283.6	275.0	268.1	263.8	260.4	258.7	257.8	258.7
62.5°	277.6	270.7	264.7	257.0	249.2	244.1	239.8	236.3	234.6	233.7	234.6
65°	248.4	242.3	236.3	229.5	223.4	218.3	214.0	210.5	209.7	208.8	208.8
67.5°	218.3	213.1	208.0	202.0	195.1	189.9	185.6	183.0	182.2	181.3	182.2
70°	187.3	183.0	177.9	172.7	167.6	163.3	160.7	158.1	157.3	156.4	156.4
72.5°	158.1	154.7	150.4	146.1	141.8	137.5	134.9	133.2	132.3	131.5	131.5
75°	128.9	125.5	122.9	119.5	115.2	112.6	110.0	108.3	107.4	107.4	107.4
77.5°	101.4	98.8	96.2	92.8	90.2	87.7	85.9	85.1	84.2	84.2	84.2
80°	74.8	73.0	71.3	69.6	67.0	64.5	63.6	62.7	61.9	61.9	61.9
82.5°	50.7	49.8	48.1	46.4	44.7	43.8	43.0	42.1	42.1	42.1	42.1
85°	29.2	28.4	27.5	26.6	25.8	25.8	24.9	24.1	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



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CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7
2.5°	746.8	748.5	750.2	752.8	755.4	758.0	757.1	756.2	759.7	764.0	764.8
5°	735.6	737.3	739.9	744.2	748.5	752.0	752.8	752.8	759.7	765.7	767.4
7.5°	721.9	724.5	727.9	732.2	738.2	743.4	745.9	749.4	756.2	764.0	767.4
10°	704.7	709.0	714.1	720.2	726.2	732.2	737.3	741.6	750.2	758.8	764.0
12.5°	689.2	693.5	698.7	705.5	713.3	721.0	726.2	732.2	742.5	752.8	758.8
15°	672.0	676.3	682.3	689.2	697.8	706.4	714.1	721.9	732.2	743.4	750.2
17.5°	653.1	657.4	663.4	672.0	681.5	690.9	699.5	708.1	720.2	732.2	739.9
20°	629.9	635.9	643.7	652.3	663.4	674.6	683.2	692.7	705.5	718.4	727.0
22.5°	607.6	613.6	622.2	632.5	644.5	656.6	666.9	677.2	690.9	703.8	713.3
25°	586.1	593.0	601.6	611.9	623.0	635.1	647.1	659.1	672.9	686.6	696.1
27.5°	564.6	570.6	579.2	589.5	602.4	614.5	626.5	638.5	653.1	667.7	678.0
30°	540.5	547.4	555.2	565.5	579.2	593.0	605.0	617.9	632.5	647.1	657.4
32.5°	518.2	524.2	532.0	542.3	556.0	569.8	582.7	596.4	610.2	624.8	635.1
35°	495.9	501.9	509.6	519.9	533.7	547.4	560.3	573.2	587.0	600.7	611.0
37.5°	473.5	479.5	487.3	497.6	510.5	524.2	536.2	549.1	562.9	576.6	586.1
40°	450.3	456.3	462.3	472.7	485.5	499.3	511.3	524.2	538.0	551.7	561.2
42.5°	427.1	433.1	440.9	451.2	463.2	475.2	487.3	499.3	512.2	525.1	534.5
45°	403.9	409.1	416.8	426.2	438.3	449.5	461.5	472.7	485.5	497.6	507.0
47.5°	379.8	385.0	391.0	400.5	412.5	424.5	436.6	447.7	458.9	470.9	479.5
50°	356.6	361.8	368.7	377.3	388.4	399.6	409.9	420.2	431.4	442.6	450.3
52.5°	332.6	337.7	343.7	352.3	361.8	372.1	381.6	391.9	402.2	412.5	420.2
55°	308.5	312.0	317.1	324.8	335.2	345.5	354.9	364.4	373.8	382.4	390.2
57.5°	284.5	288.7	294.8	301.6	310.2	318.8	327.4	336.0	344.6	353.2	360.1
60°	260.4	263.8	268.1	274.1	282.7	290.5	299.1	306.8	314.5	322.3	328.3
62.5°	235.5	238.9	243.2	249.2	256.1	263.0	270.7	277.6	284.5	291.3	297.3
65°	209.7	213.1	217.4	222.6	228.6	234.6	241.5	248.4	253.5	258.7	264.7
67.5°	183.0	186.5	190.8	195.1	200.2	206.2	212.3	218.3	223.4	228.6	232.9
70°	157.3	159.8	164.1	167.6	171.9	176.2	181.3	186.5	189.9	194.2	199.4
72.5°	132.3	134.9	138.4	141.8	144.4	147.8	153.0	157.3	161.6	166.7	169.3
75°	108.3	110.0	112.6	115.2	117.7	120.3	123.7	127.2	130.6	133.2	136.6
77.5°	84.2	85.9	88.5	90.2	92.0	93.7	96.2	98.8	101.4	103.1	106.6
80°	61.9	63.6	65.3	67.0	68.7	70.5	71.3	72.2	75.6	78.2	79.9
82.5°	42.1	43.0	43.8	45.5	46.4	47.3	48.1	48.1	49.8	51.6	54.1
85°	24.1	24.9	25.8	25.8	25.8	25.8	26.6	27.5	28.4	30.1	31.8
87.5°	9.5	9.5	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



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CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7	759.7
2.5°	764.0	764.8	766.6	767.4	768.3	768.3	769.1	770.0	768.3	766.6	765.7
5°	768.3	769.1	771.7	774.3	776.0	777.7	776.9	776.0	774.3	771.7	770.0
7.5°	769.1	771.7	774.3	777.7	780.3	783.7	782.0	780.3	776.9	773.4	770.9
10°	766.6	770.0	774.3	778.6	781.2	783.7	782.0	780.3	776.9	772.6	769.1
12.5°	763.1	767.4	772.6	776.9	779.5	782.9	780.3	777.7	773.4	769.1	764.8
15°	755.4	760.5	766.6	771.7	776.0	779.5	776.9	775.2	770.0	764.0	758.0
17.5°	745.9	752.8	758.8	764.8	768.3	771.7	770.0	768.3	762.3	755.4	748.5
20°	734.8	741.6	747.7	753.7	758.0	761.4	758.8	756.2	750.2	744.2	737.3
22.5°	721.0	727.9	734.8	740.8	745.1	748.5	745.1	740.8	734.8	728.7	721.9
25°	703.8	711.6	719.3	725.3	727.9	731.3	727.9	724.5	718.4	712.4	704.7
27.5°	686.6	694.4	702.1	708.1	710.7	714.1	710.7	707.3	701.2	695.2	687.5
30°	666.9	674.6	682.3	688.4	690.9	693.5	690.1	686.6	681.5	675.5	667.7
32.5°	644.5	652.3	658.3	664.3	667.7	671.2	667.7	665.2	659.1	651.4	643.7
35°	620.5	628.2	635.9	642.0	645.4	648.8	644.5	640.2	635.1	629.1	622.2
37.5°	593.8	602.4	611.0	617.9	620.5	623.9	620.5	616.2	611.0	605.0	597.3
40°	568.9	576.6	584.4	591.2	593.8	596.4	593.0	589.5	583.5	577.5	569.8
42.5°	543.1	550.9	557.7	563.7	566.3	569.8	566.3	562.0	557.7	552.6	545.7
45°	515.6	523.4	529.4	535.4	538.0	540.5	537.1	532.8	528.5	524.2	517.3
47.5°	487.3	494.1	500.2	506.2	507.9	510.5	507.0	504.5	500.2	495.9	489.8
50°	458.0	464.9	470.9	476.1	477.8	480.4	477.0	473.5	470.1	466.6	461.5
52.5°	428.0	434.0	440.0	445.2	446.9	448.6	445.2	441.7	438.3	434.8	429.7
55°	397.0	403.0	409.1	413.4	415.1	416.8	413.4	410.8	407.3	404.8	399.6
57.5°	366.1	372.1	377.3	381.6	383.3	385.0	381.6	378.1	375.5	373.0	368.7
60°	334.3	340.3	344.6	348.0	349.8	350.6	347.2	344.6	342.9	341.2	336.9
62.5°	303.4	307.7	312.0	314.5	316.2	317.1	314.5	312.8	311.1	309.4	305.9
65°	270.7	275.9	279.3	281.9	282.7	283.6	281.0	279.3	277.6	275.9	273.3
67.5°	238.0	242.3	244.9	247.5	248.4	248.4	248.4	247.5	245.8	243.2	240.6
70°	205.4	208.8	211.4	213.1	214.0	214.0	212.3	210.5	210.5	209.7	208.0
72.5°	171.9	174.5	176.2	177.9	177.9	177.9	177.9	178.7	177.9	176.2	173.6
75°	140.1	142.7	144.4	145.2	145.2	145.2	145.2	146.1	145.2	144.4	142.7
77.5°	110.0	111.7	112.6	113.4	113.4	113.4	114.3	115.2	114.3	113.4	112.6
80°	81.6	82.5	83.4	84.2	83.4	83.4	84.2	85.9	85.1	84.2	83.4
82.5°	55.9	56.7	57.6	57.6	58.4	59.3	59.3	59.3	59.3	58.4	57.6
85°	33.5	34.4	34.4	34.4	34.4	34.4	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



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CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	759.7	759.7	759.7	759.7
2.5°	766.6	765.7	761.4	757.1
5°	769.1	766.6	760.5	754.5
7.5°	769.1	765.7	757.1	749.4
10°	764.8	759.7	750.2	740.8
12.5°	759.7	753.7	742.5	732.2
15°	752.0	745.1	733.0	721.0
17.5°	740.8	732.2	720.2	707.3
20°	729.6	720.2	705.5	691.8
22.5°	714.1	705.5	690.1	675.5
25°	697.0	687.5	672.0	656.6
27.5°	678.9	667.7	652.3	636.8
30°	658.3	647.1	631.6	616.2
32.5°	635.9	625.6	610.2	593.8
35°	613.6	602.4	587.0	570.6
37.5°	588.7	578.4	562.9	547.4
40°	562.0	551.7	536.2	520.8
42.5°	537.1	527.7	512.2	497.6
45°	509.6	500.2	485.5	471.8
47.5°	481.2	471.8	458.0	444.3
50°	453.7	444.3	431.4	418.5
52.5°	422.8	415.1	403.0	391.0
55°	392.7	385.0	373.0	361.8
57.5°	362.7	355.8	344.6	334.3
60°	330.9	324.0	315.4	305.9
62.5°	300.8	294.8	286.2	277.6
65°	269.0	263.8	256.1	248.4
67.5°	236.3	232.0	225.2	218.3
70°	203.7	198.5	193.4	187.3
72.5°	171.0	168.4	163.3	158.1
75°	140.1	137.5	133.2	128.9
77.5°	110.9	108.3	104.8	101.4
80°	81.6	79.9	77.3	74.8
82.5°	56.7	55.0	53.3	50.7
85°	34.4	32.7	30.9	29.2
87.5°	15.5	14.6	12.9	12.0
90°	0.0	0.0	0.0	0.0

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