

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: P709125

Luminaire Tested: **4APN-20L840-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709125
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-20L840-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

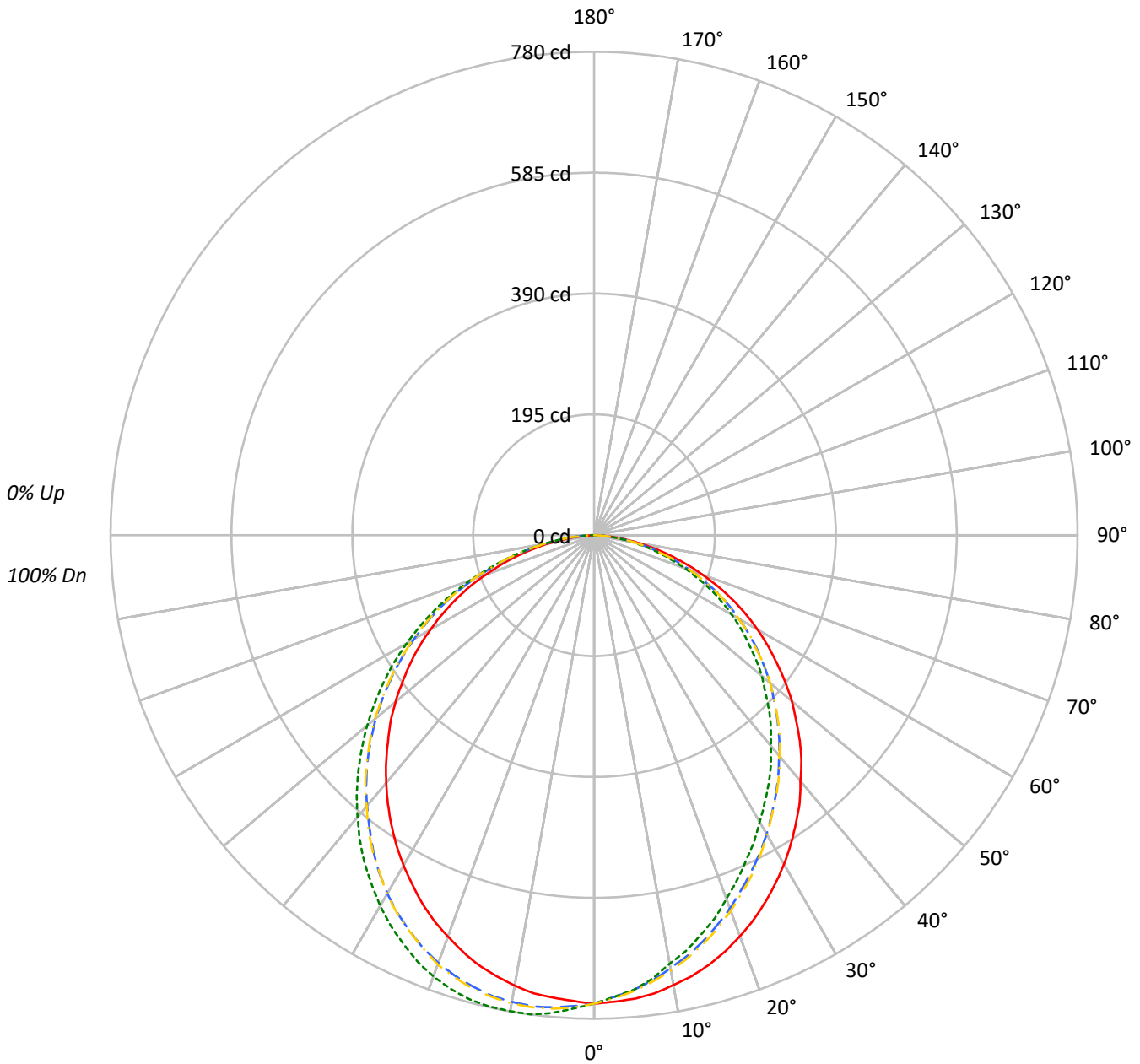
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2026.9 lumens
Efficiency: N/A
Efficacy: 85.2 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

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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°	6972	6972	6972	6972
5°	6952	6817	6936	7166
10°	6904	6576	6912	7305
15°	6851	6369	6859	7406
20°	6757	6128	6766	7437
25°	6650	5900	6675	7406
30°	6531	5692	6549	7350
35°	6394	5527	6422	7270
40°	6240	5344	6281	7146
45°	6123	5209	6135	7016
50°	5975	5068	6001	6860
55°	5789	4882	5831	6669
60°	5615	4733	5632	6436
65°	5394	4534	5394	6159
70°	5028	4197	5004	5743
75°	4570	3811	4509	5151
80°	3953	3273	3815	4405
85°	3080	2445	2901	3620



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.4	3.5
10°-20°	202.7	10.0
20°-30°	301.3	14.9
30°-40°	355.1	17.5
40°-50°	361.6	17.8
50°-60°	322.1	15.9
60°-70°	242.7	12.0
70°-80°	135.0	6.7
80°-90°	35.1	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°	575.4	28.4
0°-40°	930.5	45.9
0°-60°	1614.2	79.6
0°-90°	2026.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2026.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	756	756	756	756	756	
5°	751	736	749	774	751	71
15°	717	667	718	775	717	202
25°	653	580	656	728	653	301
35°	568	491	570	646	568	355
45°	469	399	470	538	469	362
55°	360	304	362	415	360	322
65°	247	208	247	282	247	244
75°	128	107	126	144	128	136
85°	29	23	27	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°	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7
2.5°	753.2	753.2	754.0	750.6	746.3	744.6	743.8	742.9	744.6	745.5	744.6
5°	750.6	748.9	747.2	742.9	737.8	734.4	732.7	731.8	733.5	736.1	733.5
7.5°	745.5	742.1	738.6	732.7	726.7	721.5	719.0	717.3	719.0	721.5	719.8
10°	736.9	732.7	727.5	720.7	712.1	706.2	703.6	701.0	701.9	701.9	701.9
12.5°	728.4	722.4	716.4	707.9	698.5	691.6	687.4	683.9	685.6	686.5	686.5
15°	717.3	709.6	701.0	691.6	682.2	674.5	669.4	666.0	666.8	666.8	667.7
17.5°	703.6	695.0	686.5	675.4	664.3	655.7	649.7	645.5	647.2	648.0	648.9
20°	688.2	678.8	669.4	657.4	645.5	636.1	630.1	624.9	624.1	624.1	624.9
22.5°	672.0	661.7	650.6	637.8	624.9	614.7	608.7	603.6	602.7	602.7	603.6
25°	653.2	642.0	630.9	618.1	604.4	594.2	586.5	581.3	580.5	579.6	581.3
27.5°	633.5	622.4	611.3	598.4	583.9	573.6	566.0	560.8	559.1	558.3	560.0
30°	613.0	600.1	588.2	574.5	561.7	551.4	543.7	537.7	536.0	534.3	536.0
32.5°	590.7	577.9	565.1	551.4	538.6	528.3	520.6	514.7	512.9	512.1	513.8
35°	567.7	554.8	542.9	529.2	516.4	506.1	498.4	493.3	491.6	490.7	491.6
37.5°	544.6	531.8	519.8	506.1	493.3	483.0	475.3	470.2	469.3	468.5	469.3
40°	518.1	507.0	495.0	482.2	469.3	459.1	453.1	447.1	445.4	443.7	446.3
42.5°	495.0	483.9	471.9	459.9	447.1	436.9	430.0	424.9	423.2	422.3	423.2
45°	469.3	457.4	445.4	434.3	422.3	412.9	406.1	401.0	400.1	399.2	400.1
47.5°	442.0	431.7	421.5	410.4	398.4	389.0	383.0	377.9	376.2	374.5	376.2
50°	416.3	406.1	395.8	385.6	374.5	365.9	359.9	354.8	353.9	353.1	353.9
52.5°	389.0	378.7	369.3	359.1	349.7	341.1	335.1	330.9	330.0	329.1	330.0
55°	359.9	351.4	342.8	334.3	324.9	317.2	312.0	306.9	305.2	303.5	305.2
57.5°	332.6	324.9	316.3	307.8	299.2	292.4	287.3	283.0	282.1	281.3	282.1
60°	304.3	297.5	289.8	282.1	273.6	266.7	262.5	259.0	257.3	256.5	257.3
62.5°	276.1	269.3	263.3	255.6	247.9	242.8	238.5	235.1	233.4	232.5	233.4
65°	247.1	241.1	235.1	228.3	222.3	217.1	212.9	209.5	208.6	207.7	207.7
67.5°	217.1	212.0	206.9	200.9	194.1	188.9	184.7	182.1	181.2	180.4	181.2
70°	186.4	182.1	177.0	171.8	166.7	162.4	159.9	157.3	156.4	155.6	155.6
72.5°	157.3	153.9	149.6	145.3	141.1	136.8	134.2	132.5	131.7	130.8	130.8
75°	128.2	124.8	122.3	118.8	114.6	112.0	109.4	107.7	106.9	106.9	106.9
77.5°	100.9	98.3	95.8	92.3	89.8	87.2	85.5	84.6	83.8	83.8	83.8
80°	74.4	72.7	71.0	69.2	66.7	64.1	63.3	62.4	61.6	61.6	61.6
82.5°	50.4	49.6	47.9	46.2	44.5	43.6	42.7	41.9	41.9	41.9	41.9
85°	29.1	28.2	27.4	26.5	25.6	25.6	24.8	23.9	23.1	23.1	23.1
87.5°	12.0	12.0	12.0	11.1	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°	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7
2.5°	742.9	744.6	746.3	748.9	751.5	754.0	753.2	752.3	755.7	760.0	760.9
5°	731.8	733.5	736.1	740.4	744.6	748.0	748.9	748.9	755.7	761.7	763.4
7.5°	718.1	720.7	724.1	728.4	734.4	739.5	742.1	745.5	752.3	760.0	763.4
10°	701.0	705.3	710.4	716.4	722.4	728.4	733.5	737.8	746.3	754.9	760.0
12.5°	685.6	689.9	695.0	701.9	709.6	717.3	722.4	728.4	738.6	748.9	754.9
15°	668.5	672.8	678.8	685.6	694.2	702.7	710.4	718.1	728.4	739.5	746.3
17.5°	649.7	654.0	660.0	668.5	677.9	687.4	695.9	704.4	716.4	728.4	736.1
20°	626.7	632.6	640.3	648.9	660.0	671.1	679.7	689.1	701.9	714.7	723.3
22.5°	604.4	610.4	619.0	629.2	641.2	653.2	663.4	673.7	687.4	700.2	709.6
25°	583.1	589.9	598.4	608.7	619.8	631.8	643.7	655.7	669.4	683.1	692.5
27.5°	561.7	567.7	576.2	586.5	599.3	611.3	623.2	635.2	649.7	664.3	674.5
30°	537.7	544.6	552.3	562.5	576.2	589.9	601.9	614.7	629.2	643.7	654.0
32.5°	515.5	521.5	529.2	539.5	553.1	566.8	579.6	593.3	607.0	621.5	631.8
35°	493.3	499.3	507.0	517.2	530.9	544.6	557.4	570.2	583.9	597.6	607.8
37.5°	471.1	477.0	484.7	495.0	507.8	521.5	533.5	546.3	560.0	573.6	583.1
40°	448.0	454.0	459.9	470.2	483.0	496.7	508.7	521.5	535.2	548.9	558.3
42.5°	424.9	430.9	438.6	448.8	460.8	472.8	484.7	496.7	509.5	522.4	531.8
45°	401.8	406.9	414.6	424.0	436.0	447.1	459.1	470.2	483.0	495.0	504.4
47.5°	377.9	383.0	389.0	398.4	410.4	422.3	434.3	445.4	456.5	468.5	477.0
50°	354.8	359.9	366.8	375.3	386.4	397.5	407.8	418.1	429.2	440.3	448.0
52.5°	330.9	336.0	342.0	350.5	359.9	370.2	379.6	389.8	400.1	410.4	418.1
55°	306.9	310.3	315.5	323.2	333.4	343.7	353.1	362.5	371.9	380.4	388.1
57.5°	283.0	287.3	293.2	300.1	308.6	317.2	325.7	334.3	342.8	351.4	358.2
60°	259.0	262.5	266.7	272.7	281.3	289.0	297.5	305.2	312.9	320.6	326.6
62.5°	234.2	237.7	241.9	247.9	254.8	261.6	269.3	276.1	283.0	289.8	295.8
65°	208.6	212.0	216.3	221.4	227.4	233.4	240.2	247.1	252.2	257.3	263.3
67.5°	182.1	185.5	189.8	194.1	199.2	205.2	211.2	217.1	222.3	227.4	231.7
70°	156.4	159.0	163.3	166.7	171.0	175.3	180.4	185.5	188.9	193.2	198.3
72.5°	131.7	134.2	137.6	141.1	143.6	147.0	152.2	156.4	160.7	165.9	168.4
75°	107.7	109.4	112.0	114.6	117.1	119.7	123.1	126.5	129.9	132.5	135.9
77.5°	83.8	85.5	88.1	89.8	91.5	93.2	95.8	98.3	100.9	102.6	106.0
80°	61.6	63.3	65.0	66.7	68.4	70.1	71.0	71.8	75.2	77.8	79.5
82.5°	41.9	42.7	43.6	45.3	46.2	47.0	47.9	47.9	49.6	51.3	53.9
85°	23.9	24.8	25.6	25.6	25.6	25.6	26.5	27.4	28.2	29.9	31.6
87.5°	9.4	9.4	10.3	10.3	10.3	10.3	10.3	10.3	11.1	12.8	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°	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7	755.7
2.5°	760.0	760.9	762.6	763.4	764.3	764.3	765.1	766.0	764.3	762.6	761.7
5°	764.3	765.1	767.7	770.3	772.0	773.7	772.8	772.0	770.3	767.7	766.0
7.5°	765.1	767.7	770.3	773.7	776.3	779.7	778.0	776.3	772.8	769.4	766.9
10°	762.6	766.0	770.3	774.6	777.1	779.7	778.0	776.3	772.8	768.6	765.1
12.5°	759.2	763.4	768.6	772.8	775.4	778.8	776.3	773.7	769.4	765.1	760.9
15°	751.5	756.6	762.6	767.7	772.0	775.4	772.8	771.1	766.0	760.0	754.0
17.5°	742.1	748.9	754.9	760.9	764.3	767.7	766.0	764.3	758.3	751.5	744.6
20°	731.0	737.8	743.8	749.8	754.0	757.5	754.9	752.3	746.3	740.4	733.5
22.5°	717.3	724.1	731.0	736.9	741.2	744.6	741.2	736.9	731.0	725.0	718.1
25°	700.2	707.9	715.6	721.5	724.1	727.5	724.1	720.7	714.7	708.7	701.0
27.5°	683.1	690.8	698.5	704.4	707.0	710.4	707.0	703.6	697.6	691.6	683.9
30°	663.4	671.1	678.8	684.8	687.4	689.9	686.5	683.1	677.9	672.0	664.3
32.5°	641.2	648.9	654.9	660.8	664.3	667.7	664.3	661.7	655.7	648.0	640.3
35°	617.2	624.9	632.6	638.6	642.0	645.5	641.2	636.9	631.8	625.8	619.0
37.5°	590.7	599.3	607.8	614.7	617.2	620.7	617.2	613.0	607.8	601.9	594.2
40°	566.0	573.6	581.3	588.2	590.7	593.3	589.9	586.5	580.5	574.5	566.8
42.5°	540.3	548.0	554.8	560.8	563.4	566.8	563.4	559.1	554.8	549.7	542.9
45°	512.9	520.6	526.6	532.6	535.2	537.7	534.3	530.0	525.8	521.5	514.7
47.5°	484.7	491.6	497.6	503.5	505.3	507.8	504.4	501.8	497.6	493.3	487.3
50°	455.7	462.5	468.5	473.6	475.3	477.9	474.5	471.1	467.6	464.2	459.1
52.5°	425.7	431.7	437.7	442.8	444.6	446.3	442.8	439.4	436.0	432.6	427.5
55°	395.0	401.0	406.9	411.2	412.9	414.6	411.2	408.6	405.2	402.7	397.5
57.5°	364.2	370.2	375.3	379.6	381.3	383.0	379.6	376.2	373.6	371.0	366.8
60°	332.6	338.5	342.8	346.2	347.9	348.8	345.4	342.8	341.1	339.4	335.1
62.5°	301.8	306.1	310.3	312.9	314.6	315.5	312.9	311.2	309.5	307.8	304.3
65°	269.3	274.4	277.8	280.4	281.3	282.1	279.6	277.8	276.1	274.4	271.9
67.5°	236.8	241.1	243.7	246.2	247.1	247.1	247.1	246.2	244.5	241.9	239.4
70°	204.3	207.7	210.3	212.0	212.9	212.9	211.2	209.5	209.5	208.6	206.9
72.5°	171.0	173.5	175.3	177.0	177.0	177.0	177.0	177.8	177.0	175.3	172.7
75°	139.4	141.9	143.6	144.5	144.5	144.5	144.5	145.3	144.5	143.6	141.9
77.5°	109.4	111.1	112.0	112.8	112.8	112.8	113.7	114.6	113.7	112.8	112.0
80°	81.2	82.1	82.9	83.8	82.9	82.9	83.8	85.5	84.6	83.8	82.9
82.5°	55.6	56.4	57.3	57.3	58.1	59.0	59.0	59.0	59.0	58.1	57.3
85°	33.3	34.2	34.2	34.2	34.2	34.2	35.1	35.9	35.9	35.1	35.1
87.5°	15.4	16.2	15.4	14.5	13.7	13.7	15.4	17.1	17.1	16.2	16.2
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):

	330°	340°	350°	360°
0°	755.7	755.7	755.7	755.7
2.5°	762.6	761.7	757.5	753.2
5°	765.1	762.6	756.6	750.6
7.5°	765.1	761.7	753.2	745.5
10°	760.9	755.7	746.3	736.9
12.5°	755.7	749.8	738.6	728.4
15°	748.0	741.2	729.2	717.3
17.5°	736.9	728.4	716.4	703.6
20°	725.8	716.4	701.9	688.2
22.5°	710.4	701.9	686.5	672.0
25°	693.3	683.9	668.5	653.2
27.5°	675.4	664.3	648.9	633.5
30°	654.9	643.7	628.4	613.0
32.5°	632.6	622.4	607.0	590.7
35°	610.4	599.3	583.9	567.7
37.5°	585.6	575.4	560.0	544.6
40°	559.1	548.9	533.5	518.1
42.5°	534.3	524.9	509.5	495.0
45°	507.0	497.6	483.0	469.3
47.5°	478.8	469.3	455.7	442.0
50°	451.4	442.0	429.2	416.3
52.5°	420.6	412.9	401.0	389.0
55°	390.7	383.0	371.0	359.9
57.5°	360.8	353.9	342.8	332.6
60°	329.1	322.3	313.8	304.3
62.5°	299.2	293.2	284.7	276.1
65°	267.6	262.5	254.8	247.1
67.5°	235.1	230.8	224.0	217.1
70°	202.6	197.5	192.4	186.4
72.5°	170.1	167.6	162.4	157.3
75°	139.4	136.8	132.5	128.2
77.5°	110.3	107.7	104.3	100.9
80°	81.2	79.5	76.9	74.4
82.5°	56.4	54.7	53.0	50.4
85°	34.2	32.5	30.8	29.1
87.5°	15.4	14.5	12.8	12.0
90°	0.0	0.0	0.0	0.0

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