

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: P709149

Luminaire Tested: **4APN-20L940-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709149
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-20L940-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

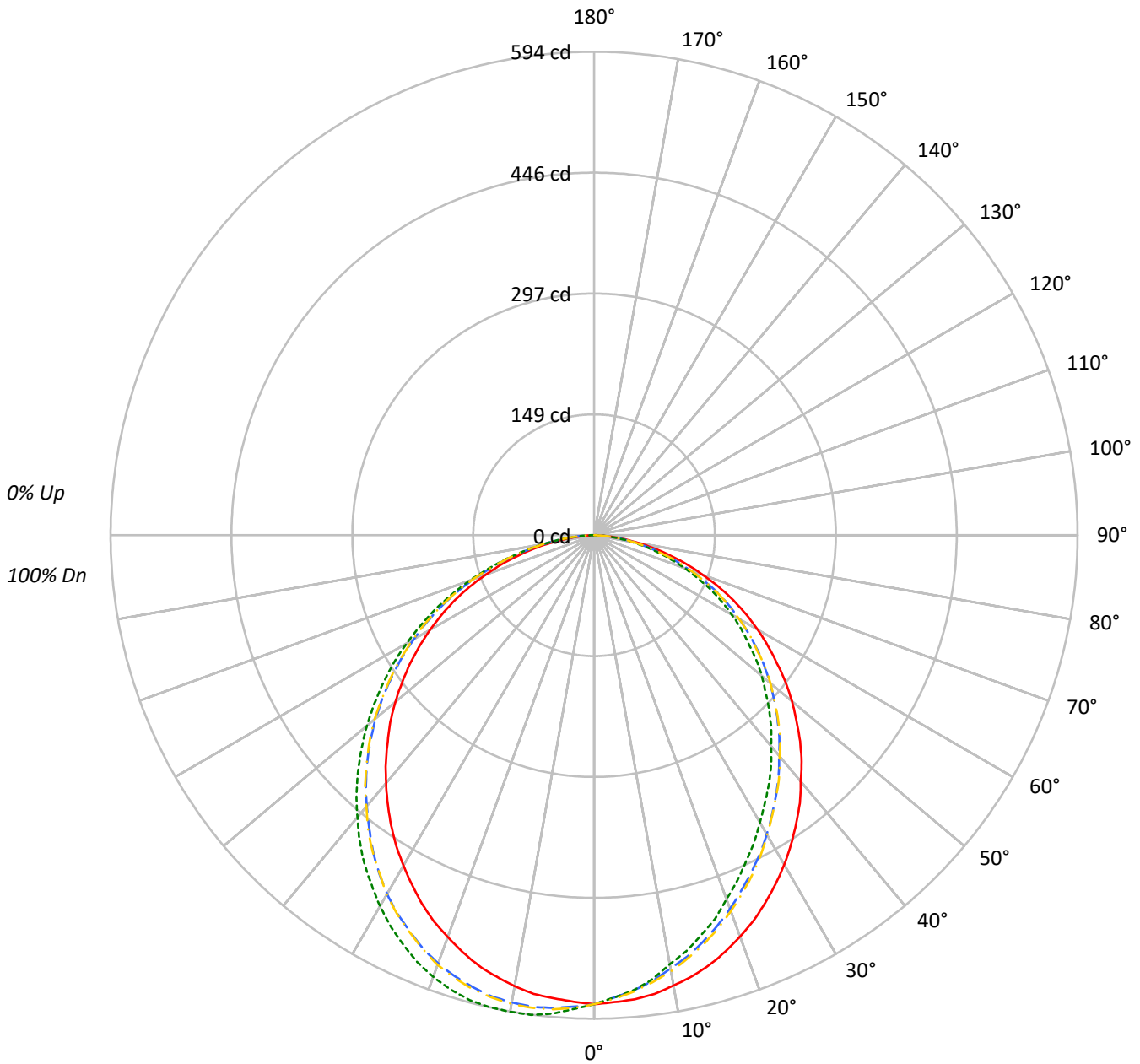
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1545.3 lumens
Efficiency: N/A
Efficacy: 64.9 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				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°	5316	5316	5316	5316
5°	5300	5198	5288	5463
10°	5263	5013	5270	5569
15°	5223	4856	5230	5647
20°	5152	4672	5158	5670
25°	5070	4499	5089	5647
30°	4978	4340	4992	5604
35°	4875	4214	4896	5543
40°	4757	4074	4789	5447
45°	4669	3972	4678	5350
50°	4556	3864	4574	5229
55°	4414	3722	4446	5085
60°	4281	3607	4294	4906
65°	4113	3458	4113	4696
70°	3833	3199	3814	4378
75°	3486	2905	3440	3928
80°	3013	2492	2912	3358
85°	2350	1863	2212	2763



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.4	3.5
10°-20°	154.5	10.0
20°-30°	229.7	14.9
30°-40°	270.7	17.5
40°-50°	275.7	17.8
50°-60°	245.6	15.9
60°-70°	185.0	12.0
70°-80°	102.9	6.7
80°-90°	26.7	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°	438.7	28.4
0°-40°	709.4	45.9
0°-60°	1230.6	79.6
0°-90°	1545.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1545.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	576	576	576	576	576	
5°	572	561	571	590	572	54
15°	547	508	548	591	547	154
25°	498	442	500	555	498	229
35°	433	374	435	492	433	271
45°	358	304	358	410	358	276
55°	274	231	276	316	274	246
65°	188	158	188	215	188	186
75°	98	82	96	110	98	104
85°	22	18	21	26	22	27
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°	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2
2.5°	574.2	574.2	574.9	572.3	569.0	567.7	567.1	566.4	567.7	568.4	567.7
5°	572.3	571.0	569.7	566.4	562.5	559.9	558.6	557.9	559.2	561.2	559.2
7.5°	568.4	565.8	563.1	558.6	554.0	550.1	548.2	546.8	548.2	550.1	548.8
10°	561.8	558.6	554.7	549.5	542.9	538.4	536.4	534.5	535.1	535.1	535.1
12.5°	555.3	550.8	546.2	539.7	532.5	527.3	524.0	521.4	522.7	523.4	523.4
15°	546.8	541.0	534.5	527.3	520.1	514.3	510.3	507.7	508.4	508.4	509.0
17.5°	536.4	529.9	523.4	514.9	506.4	499.9	495.4	492.1	493.4	494.1	494.7
20°	524.7	517.5	510.3	501.2	492.1	484.9	480.4	476.5	475.8	475.8	476.5
22.5°	512.3	504.5	496.0	486.2	476.5	468.6	464.1	460.2	459.5	459.5	460.2
25°	498.0	489.5	481.0	471.2	460.8	453.0	447.1	443.2	442.6	441.9	443.2
27.5°	483.0	474.5	466.0	456.3	445.2	437.3	431.5	427.6	426.3	425.6	426.9
30°	467.3	457.6	448.4	438.0	428.2	420.4	414.5	410.0	408.7	407.4	408.7
32.5°	450.4	440.6	430.8	420.4	410.6	402.8	396.9	392.4	391.1	390.4	391.7
35°	432.8	423.0	413.9	403.5	393.7	385.9	380.0	376.1	374.8	374.1	374.8
37.5°	415.2	405.4	396.3	385.9	376.1	368.3	362.4	358.5	357.8	357.2	357.8
40°	395.0	386.5	377.4	367.6	357.8	350.0	345.4	340.9	339.6	338.3	340.2
42.5°	377.4	368.9	359.8	350.7	340.9	333.1	327.8	323.9	322.6	322.0	322.6
45°	357.8	348.7	339.6	331.1	322.0	314.8	309.6	305.7	305.0	304.4	305.0
47.5°	337.0	329.2	321.3	312.9	303.7	296.6	292.0	288.1	286.8	285.5	286.8
50°	317.4	309.6	301.8	294.0	285.5	279.0	274.4	270.5	269.8	269.2	269.8
52.5°	296.6	288.7	281.6	273.8	266.6	260.1	255.5	252.2	251.6	250.9	251.6
55°	274.4	267.9	261.4	254.8	247.7	241.8	237.9	234.0	232.7	231.4	232.7
57.5°	253.5	247.7	241.2	234.6	228.1	222.9	219.0	215.7	215.1	214.4	215.1
60°	232.0	226.8	221.0	215.1	208.6	203.4	200.1	197.5	196.2	195.5	196.2
62.5°	210.5	205.3	200.8	194.9	189.0	185.1	181.8	179.2	177.9	177.3	177.9
65°	188.4	183.8	179.2	174.0	169.5	165.6	162.3	159.7	159.0	158.4	158.4
67.5°	165.6	161.6	157.7	153.2	148.0	144.0	140.8	138.8	138.2	137.5	138.2
70°	142.1	138.8	134.9	131.0	127.1	123.8	121.9	119.9	119.3	118.6	118.6
72.5°	119.9	117.3	114.1	110.8	107.5	104.3	102.3	101.0	100.4	99.7	99.7
75°	97.8	95.2	93.2	90.6	87.3	85.4	83.4	82.1	81.5	81.5	81.5
77.5°	76.9	75.0	73.0	70.4	68.4	66.5	65.2	64.5	63.9	63.9	63.9
80°	56.7	55.4	54.1	52.8	50.8	48.9	48.2	47.6	46.9	46.9	46.9
82.5°	38.5	37.8	36.5	35.2	33.9	33.2	32.6	31.9	31.9	31.9	31.9
85°	22.2	21.5	20.9	20.2	19.6	19.6	18.9	18.3	17.6	17.6	17.6
87.5°	9.1	9.1	9.1	8.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8
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°	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2
2.5°	566.4	567.7	569.0	571.0	572.9	574.9	574.2	573.6	576.2	579.4	580.1
5°	557.9	559.2	561.2	564.4	567.7	570.3	571.0	571.0	576.2	580.7	582.0
7.5°	547.5	549.5	552.1	555.3	559.9	563.8	565.8	568.4	573.6	579.4	582.0
10°	534.5	537.7	541.6	546.2	550.8	555.3	559.2	562.5	569.0	575.5	579.4
12.5°	522.7	526.0	529.9	535.1	541.0	546.8	550.8	555.3	563.1	571.0	575.5
15°	509.7	513.0	517.5	522.7	529.3	535.8	541.6	547.5	555.3	563.8	569.0
17.5°	495.4	498.6	503.2	509.7	516.9	524.0	530.6	537.1	546.2	555.3	561.2
20°	477.8	482.3	488.2	494.7	503.2	511.7	518.2	525.3	535.1	544.9	551.4
22.5°	460.8	465.4	471.9	479.7	488.8	498.0	505.8	513.6	524.0	533.8	541.0
25°	444.5	449.7	456.3	464.1	472.5	481.7	490.8	499.9	510.3	520.8	527.9
27.5°	428.2	432.8	439.3	447.1	456.9	466.0	475.2	484.3	495.4	506.4	514.3
30°	410.0	415.2	421.1	428.9	439.3	449.7	458.9	468.6	479.7	490.8	498.6
32.5°	393.0	397.6	403.5	411.3	421.7	432.1	441.9	452.3	462.8	473.8	481.7
35°	376.1	380.6	386.5	394.3	404.8	415.2	425.0	434.7	445.2	455.6	463.4
37.5°	359.1	363.7	369.6	377.4	387.2	397.6	406.7	416.5	426.9	437.3	444.5
40°	341.5	346.1	350.7	358.5	368.3	378.7	387.8	397.6	408.0	418.4	425.6
42.5°	323.9	328.5	334.4	342.2	351.3	360.4	369.6	378.7	388.5	398.2	405.4
45°	306.3	310.3	316.1	323.3	332.4	340.9	350.0	358.5	368.3	377.4	384.6
47.5°	288.1	292.0	296.6	303.7	312.9	322.0	331.1	339.6	348.1	357.2	363.7
50°	270.5	274.4	279.6	286.1	294.6	303.1	310.9	318.7	327.2	335.7	341.5
52.5°	252.2	256.2	260.7	267.2	274.4	282.2	289.4	297.2	305.0	312.9	318.7
55°	234.0	236.6	240.5	246.4	254.2	262.0	269.2	276.4	283.5	290.0	295.9
57.5°	215.7	219.0	223.6	228.8	235.3	241.8	248.3	254.8	261.4	267.9	273.1
60°	197.5	200.1	203.4	207.9	214.4	220.3	226.8	232.7	238.6	244.4	249.0
62.5°	178.6	181.2	184.5	189.0	194.2	199.4	205.3	210.5	215.7	221.0	225.5
65°	159.0	161.6	164.9	168.8	173.4	177.9	183.2	188.4	192.3	196.2	200.8
67.5°	138.8	141.4	144.7	148.0	151.9	156.4	161.0	165.6	169.5	173.4	176.6
70°	119.3	121.2	124.5	127.1	130.4	133.6	137.5	141.4	144.0	147.3	151.2
72.5°	100.4	102.3	104.9	107.5	109.5	112.1	116.0	119.3	122.5	126.4	128.4
75°	82.1	83.4	85.4	87.3	89.3	91.3	93.9	96.5	99.1	101.0	103.6
77.5°	63.9	65.2	67.1	68.4	69.7	71.0	73.0	75.0	76.9	78.2	80.8
80°	46.9	48.2	49.5	50.8	52.1	53.4	54.1	54.8	57.4	59.3	60.6
82.5°	31.9	32.6	33.2	34.5	35.2	35.8	36.5	36.5	37.8	39.1	41.1
85°	18.3	18.9	19.6	19.6	19.6	19.6	20.2	20.9	21.5	22.8	24.1
87.5°	7.2	7.2	7.8	7.8	7.8	7.8	7.8	7.8	8.5	9.8	10.4
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):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2	576.2
2.5°	579.4	580.1	581.4	582.0	582.7	582.7	583.3	584.0	582.7	581.4	580.7
5°	582.7	583.3	585.3	587.3	588.6	589.9	589.2	588.6	587.3	585.3	584.0
7.5°	583.3	585.3	587.3	589.9	591.8	594.4	593.1	591.8	589.2	586.6	584.7
10°	581.4	584.0	587.3	590.5	592.5	594.4	593.1	591.8	589.2	586.0	583.3
12.5°	578.8	582.0	586.0	589.2	591.2	593.8	591.8	589.9	586.6	583.3	580.1
15°	572.9	576.8	581.4	585.3	588.6	591.2	589.2	587.9	584.0	579.4	574.9
17.5°	565.8	571.0	575.5	580.1	582.7	585.3	584.0	582.7	578.1	572.9	567.7
20°	557.3	562.5	567.1	571.6	574.9	577.5	575.5	573.6	569.0	564.4	559.2
22.5°	546.8	552.1	557.3	561.8	565.1	567.7	565.1	561.8	557.3	552.7	547.5
25°	533.8	539.7	545.5	550.1	552.1	554.7	552.1	549.5	544.9	540.3	534.5
27.5°	520.8	526.6	532.5	537.1	539.0	541.6	539.0	536.4	531.9	527.3	521.4
30°	505.8	511.7	517.5	522.1	524.0	526.0	523.4	520.8	516.9	512.3	506.4
32.5°	488.8	494.7	499.3	503.8	506.4	509.0	506.4	504.5	499.9	494.1	488.2
35°	470.6	476.5	482.3	486.9	489.5	492.1	488.8	485.6	481.7	477.1	471.9
37.5°	450.4	456.9	463.4	468.6	470.6	473.2	470.6	467.3	463.4	458.9	453.0
40°	431.5	437.3	443.2	448.4	450.4	452.3	449.7	447.1	442.6	438.0	432.1
42.5°	411.9	417.8	423.0	427.6	429.5	432.1	429.5	426.3	423.0	419.1	413.9
45°	391.1	396.9	401.5	406.1	408.0	410.0	407.4	404.1	400.8	397.6	392.4
47.5°	369.6	374.8	379.3	383.9	385.2	387.2	384.6	382.6	379.3	376.1	371.5
50°	347.4	352.6	357.2	361.1	362.4	364.3	361.7	359.1	356.5	353.9	350.0
52.5°	324.6	329.2	333.7	337.6	338.9	340.2	337.6	335.0	332.4	329.8	325.9
55°	301.1	305.7	310.3	313.5	314.8	316.1	313.5	311.6	308.9	307.0	303.1
57.5°	277.7	282.2	286.1	289.4	290.7	292.0	289.4	286.8	284.8	282.9	279.6
60°	253.5	258.1	261.4	264.0	265.3	265.9	263.3	261.4	260.1	258.8	255.5
62.5°	230.1	233.3	236.6	238.6	239.9	240.5	238.6	237.3	235.9	234.6	232.0
65°	205.3	209.2	211.8	213.8	214.4	215.1	213.1	211.8	210.5	209.2	207.3
67.5°	180.5	183.8	185.8	187.7	188.4	188.4	188.4	187.7	186.4	184.5	182.5
70°	155.8	158.4	160.3	161.6	162.3	162.3	161.0	159.7	159.7	159.0	157.7
72.5°	130.4	132.3	133.6	134.9	134.9	134.9	134.9	135.6	134.9	133.6	131.7
75°	106.2	108.2	109.5	110.2	110.2	110.2	110.2	110.8	110.2	109.5	108.2
77.5°	83.4	84.7	85.4	86.0	86.0	86.0	86.7	87.3	86.7	86.0	85.4
80°	61.9	62.6	63.2	63.9	63.2	63.2	63.9	65.2	64.5	63.9	63.2
82.5°	42.4	43.0	43.7	43.7	44.3	45.0	45.0	45.0	45.0	44.3	43.7
85°	25.4	26.1	26.1	26.1	26.1	26.1	26.7	27.4	27.4	26.7	26.7
87.5°	11.7	12.4	11.7	11.1	10.4	10.4	11.7	13.0	13.0	12.4	12.4
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):

	330°	340°	350°	360°
0°	576.2	576.2	576.2	576.2
2.5°	581.4	580.7	577.5	574.2
5°	583.3	581.4	576.8	572.3
7.5°	583.3	580.7	574.2	568.4
10°	580.1	576.2	569.0	561.8
12.5°	576.2	571.6	563.1	555.3
15°	570.3	565.1	556.0	546.8
17.5°	561.8	555.3	546.2	536.4
20°	553.4	546.2	535.1	524.7
22.5°	541.6	535.1	523.4	512.3
25°	528.6	521.4	509.7	498.0
27.5°	514.9	506.4	494.7	483.0
30°	499.3	490.8	479.1	467.3
32.5°	482.3	474.5	462.8	450.4
35°	465.4	456.9	445.2	432.8
37.5°	446.5	438.7	426.9	415.2
40°	426.3	418.4	406.7	395.0
42.5°	407.4	400.2	388.5	377.4
45°	386.5	379.3	368.3	357.8
47.5°	365.0	357.8	347.4	337.0
50°	344.1	337.0	327.2	317.4
52.5°	320.7	314.8	305.7	296.6
55°	297.9	292.0	282.9	274.4
57.5°	275.1	269.8	261.4	253.5
60°	250.9	245.7	239.2	232.0
62.5°	228.1	223.6	217.0	210.5
65°	204.0	200.1	194.2	188.4
67.5°	179.2	176.0	170.8	165.6
70°	154.5	150.6	146.7	142.1
72.5°	129.7	127.8	123.8	119.9
75°	106.2	104.3	101.0	97.8
77.5°	84.1	82.1	79.5	76.9
80°	61.9	60.6	58.7	56.7
82.5°	43.0	41.7	40.4	38.5
85°	26.1	24.8	23.5	22.2
87.5°	11.7	11.1	9.8	9.1
90°	0.0	0.0	0.0	0.0

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