

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P251590

Luminaire Tested: **LD4B10D010 EU4B10209035 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251590  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-13)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B10D010 EU4B10209035 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 826.0 lumens  
Efficiency: N/A  
Efficacy: 82.2 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.17 / 1.15  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

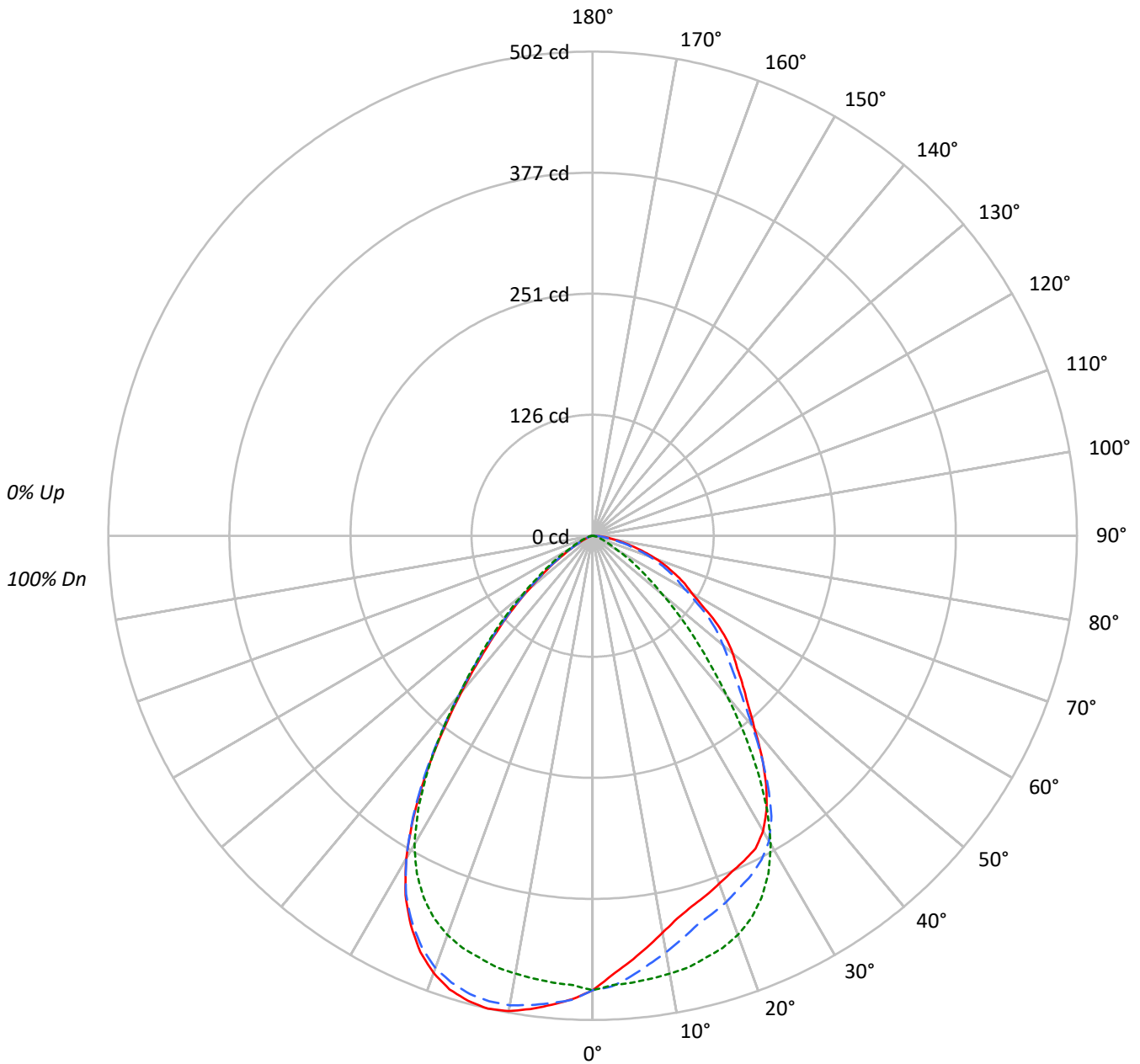
Input Watts (W): 10.05  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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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	100								
1	111	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89								
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79								
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70								
4	90	80	72	67	88	78	72	66	76	70	66	74	69	65	72	68	64	62								
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56								
6	78	67	59	53	76	66	59	53	64	58	53	62	57	52	61	56	52	50								
7	73	61	54	48	71	61	53	48	59	53	48	58	52	48	56	51	47	46								
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38								
10	61	49	42	37	59	48	42	37	47	41	37	47	41	37	46	40	37	35								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	45922	45922	45922
5°	43368	45501	47761
10°	41346	45611	49520
15°	40126	45706	50367
20°	39805	45665	50010
25°	39959	44529	47927
30°	39770	41548	43461
35°	37275	35478	35835
40°	33218	27506	26882
45°	30377	20509	19254
50°	28732	14358	12978
55°	26421	9702	8156
60°	23078	5672	4503
65°	21838	3644	2514
70°	19889	2593	1567
75°	16455	1845	1130
80°	12965	1010	673
85°	11518	671	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	44.5	5.4
10°-20°	127.7	15.5
20°-30°	189.3	22.9
30°-40°	189.6	23.0
40°-50°	132.5	16.0
50°-60°	78.9	9.5
60°-70°	41.1	5.0
70°-80°	18.3	2.2
80°-90°	4.0	0.5
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°	361.6	43.8
0°-40°	551.2	66.7
0°-60°	762.6	92.3
0°-90°	826.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	826.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	471	471	471	471	471	
5°	443	458	465	486	488	42
15°	398	418	453	492	499	113
25°	372	389	414	443	446	171
35°	313	317	298	304	301	194
45°	220	210	149	144	140	171
55°	156	146	57	50	48	138
65°	95	87	16	12	11	94
75°	44	38	5	3	3	47
85°	10	8	1	1	0	12
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	456.0	461.5	456.0	457.9	465.1	458.5	462.1	462.1	460.3	464.5	467.6
5°	443.3	448.8	443.3	445.7	453.6	446.9	451.2	450.0	450.6	454.2	458.5
7.5°	430.5	434.8	429.9	433.0	440.3	434.8	438.4	438.4	439.0	444.5	448.1
10°	417.8	421.4	417.8	420.2	428.1	423.3	425.7	426.3	428.1	433.0	438.4
12.5°	406.2	409.3	405.6	409.3	416.0	411.1	414.1	414.7	416.6	422.0	428.1
15°	397.7	400.8	397.1	400.2	406.2	402.6	405.0	406.2	407.5	412.3	417.8
17.5°	391.1	393.5	390.5	394.1	399.0	394.7	398.4	398.4	400.2	405.0	411.1
20°	383.8	386.2	383.8	386.8	392.3	388.6	391.7	391.7	393.5	399.0	404.4
22.5°	377.1	378.3	377.1	379.5	385.0	382.0	383.8	384.4	386.2	391.1	395.9
25°	371.6	374.1	372.8	375.3	378.9	375.9	377.7	378.3	380.1	384.4	388.6
27.5°	365.6	366.8	365.6	368.6	371.6	369.2	371.0	370.4	371.6	375.3	378.9
30°	353.4	354.6	354.6	356.5	358.9	357.7	359.5	357.7	358.9	361.9	365.6
32.5°	335.8	336.4	337.0	338.8	340.7	338.8	340.1	340.1	340.1	342.5	344.9
35°	313.3	314.6	313.9	315.2	317.0	316.4	316.4	315.8	314.6	315.8	317.0
37.5°	287.8	286.0	286.0	287.8	289.0	286.6	287.8	286.6	286.6	287.2	287.2
40°	261.1	259.3	261.1	261.7	262.3	261.1	260.5	259.3	257.5	258.1	256.9
42.5°	238.6	237.4	238.0	238.0	238.6	237.4	238.0	235.6	233.8	232.6	230.8
45°	220.4	218.6	220.4	219.2	219.2	218.6	218.0	216.8	214.4	212.5	209.5
47.5°	203.4	203.4	204.0	204.0	204.0	202.8	202.8	200.4	198.0	195.5	191.3
50°	189.5	188.2	190.7	190.7	188.9	188.2	188.9	185.8	184.0	181.0	176.7
52.5°	174.3	174.3	174.9	174.9	174.3	173.1	173.7	171.2	169.4	166.4	162.1
55°	155.5	154.2	156.1	156.1	155.5	154.8	155.5	153.6	151.8	149.4	145.7
57.5°	134.2	133.6	134.8	135.4	134.2	134.2	134.8	133.0	132.4	130.0	126.3
60°	118.4	117.8	119.0	119.6	118.4	118.4	118.4	116.0	114.8	112.3	109.9
62.5°	107.5	106.9	108.1	107.5	106.9	106.3	106.9	104.4	103.2	100.8	98.4
65°	94.7	95.3	95.9	95.9	95.3	94.7	94.7	93.5	92.3	89.9	86.8
67.5°	82.6	82.6	83.2	83.8	83.2	83.2	83.2	81.4	80.2	78.3	74.7
70°	69.8	69.2	71.0	71.0	69.8	70.4	69.8	69.2	68.0	65.6	62.5
72.5°	56.5	56.5	57.1	57.1	56.5	56.5	56.5	55.9	54.0	52.8	49.8
75°	43.7	43.7	44.3	44.9	43.7	43.7	44.3	43.1	41.9	40.1	38.3
77.5°	32.8	32.2	32.8	32.8	32.2	32.2	32.2	31.6	31.0	29.1	27.3
80°	23.1	22.5	23.1	23.1	23.1	22.5	22.5	21.9	21.9	20.6	18.8
82.5°	15.8	15.2	15.8	15.8	15.8	15.2	15.2	15.2	14.6	14.0	12.8
85°	10.3	9.7	9.7	10.3	9.7	9.7	9.7	9.7	9.1	8.5	7.9
87.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.3	4.3	4.3	3.6
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	465.1	463.9	467.6	466.4	467.0	463.9	468.8	466.4	469.4	466.4	472.4
5°	457.3	456.0	461.5	460.9	461.5	459.1	464.5	463.9	467.6	465.1	471.8
7.5°	448.8	447.5	453.6	454.2	455.4	453.0	460.3	460.3	463.9	463.3	470.6
10°	439.0	439.6	445.7	446.9	449.4	448.1	454.8	456.6	461.5	460.9	470.0
12.5°	429.9	429.9	437.8	440.3	442.1	441.5	449.4	451.8	457.3	458.5	467.0
15°	420.8	421.4	428.7	432.4	434.8	434.2	442.7	445.7	452.4	453.0	463.3
17.5°	413.5	412.9	420.8	423.9	427.5	426.9	436.0	439.6	446.3	448.1	457.9
20°	407.5	406.9	414.1	417.8	420.2	419.6	428.7	433.0	439.0	440.3	450.0
22.5°	400.2	399.0	406.2	409.3	411.7	411.1	419.0	422.0	428.1	429.3	438.4
25°	391.7	390.5	397.1	399.0	400.8	399.6	406.2	408.1	412.9	414.1	423.3
27.5°	382.0	378.9	384.4	384.4	385.6	383.8	388.6	390.5	394.7	394.7	403.2
30°	366.8	362.5	365.6	365.0	365.6	363.1	366.2	366.8	369.8	369.2	375.3
32.5°	345.5	339.5	341.3	339.5	337.6	334.0	337.6	336.4	338.8	336.4	341.9
35°	316.4	310.3	309.7	307.3	305.4	302.4	302.4	299.4	300.0	298.2	301.8
37.5°	284.8	276.9	275.7	270.8	267.8	264.2	264.2	261.7	258.7	257.5	260.5
40°	253.8	245.3	242.3	234.4	231.4	227.7	225.3	222.3	221.0	216.2	218.6
42.5°	227.1	218.0	211.3	202.8	199.8	194.3	190.7	187.0	185.2	179.7	182.2
45°	204.6	193.7	186.4	175.5	171.2	165.2	159.7	155.5	151.2	148.8	147.6
47.5°	185.8	174.3	164.6	152.4	145.7	140.3	133.0	128.7	123.3	120.2	118.4
50°	170.0	157.3	146.3	132.4	125.7	119.6	111.1	104.4	99.6	94.7	93.5
52.5°	156.1	142.7	130.6	114.8	106.9	99.6	90.5	83.2	78.9	73.5	72.9
55°	139.7	128.1	114.8	98.4	90.5	83.2	73.5	66.2	60.7	57.1	55.9
57.5°	122.1	111.1	98.4	82.0	74.1	66.2	57.1	50.4	45.5	42.5	41.9
60°	105.7	95.3	83.2	66.8	58.9	52.2	42.5	35.8	31.6	29.1	27.9
62.5°	93.5	83.8	72.3	57.1	49.8	43.1	34.0	27.9	24.3	21.9	20.6
65°	82.0	72.3	61.9	48.0	41.9	35.8	27.3	21.9	18.2	15.8	14.6
67.5°	69.8	61.3	51.6	40.1	34.0	29.1	21.9	17.0	14.0	12.1	10.9
70°	57.7	49.8	41.9	32.2	27.9	23.1	17.0	13.4	10.3	9.1	7.9
72.5°	45.5	39.5	32.8	24.9	21.3	18.2	13.4	9.7	7.9	6.7	5.5
75°	34.0	29.8	24.3	18.8	15.8	13.4	9.7	7.3	6.1	4.9	4.3
77.5°	24.3	20.6	17.0	12.8	11.5	9.7	6.7	5.5	4.3	3.0	2.4
80°	16.4	14.6	11.5	9.1	7.3	6.7	4.9	3.6	2.4	1.8	1.8
82.5°	10.9	9.1	7.3	5.5	4.9	4.3	3.0	2.4	1.8	1.2	1.2
85°	6.7	5.5	4.3	3.0	3.0	2.4	1.8	1.2	0.6	0.6	0.6
87.5°	3.0	2.4	1.8	1.2	1.2	0.6	0.6	0.6	0.0	0.0	0.0
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	477.3	473.7	471.2	474.3	475.5	473.7	475.5	478.5	481.5	482.2	473.7
5°	477.9	474.3	473.0	476.7	477.3	476.7	478.5	482.8	486.4	487.6	479.1
7.5°	477.9	475.5	474.9	479.1	479.7	479.1	482.2	487.0	490.7	493.1	484.6
10°	476.7	475.5	476.1	479.7	480.9	480.9	485.2	490.7	494.3	496.7	488.2
12.5°	474.9	474.9	474.9	479.1	480.3	480.9	484.6	491.9	494.3	497.9	489.4
15°	471.8	471.8	471.8	476.1	477.9	477.9	482.2	488.8	491.9	495.5	487.0
17.5°	466.4	466.4	467.0	470.6	472.4	472.4	476.7	484.0	485.8	490.0	481.5
20°	458.5	458.5	459.1	462.7	464.5	463.3	468.8	474.9	476.7	480.3	471.8
22.5°	446.9	446.9	446.9	450.6	451.8	451.2	456.6	462.1	462.1	467.0	457.9
25°	429.9	431.1	429.9	433.6	434.8	434.2	439.0	443.9	442.7	448.1	439.0
27.5°	409.3	408.7	408.7	411.7	411.7	411.1	414.7	420.2	419.0	422.6	414.1
30°	380.7	382.6	379.5	383.8	382.0	380.7	383.2	388.0	386.2	389.2	382.6
32.5°	348.0	345.5	345.5	345.5	346.7	343.7	346.1	348.6	346.7	349.8	342.5
35°	304.8	305.4	303.6	304.2	304.8	301.2	303.6	306.1	303.6	305.4	298.8
37.5°	261.7	262.3	258.1	260.5	258.1	256.9	259.3	260.5	258.1	259.9	252.6
40°	218.6	217.4	216.8	216.8	217.4	214.4	216.2	218.0	216.2	217.4	210.7
42.5°	181.0	180.4	179.1	179.7	177.9	177.3	177.9	179.7	177.9	179.1	174.3
45°	148.2	147.0	145.1	145.7	145.7	142.7	144.5	145.7	143.9	144.5	140.3
47.5°	117.8	116.0	116.0	115.4	115.4	114.2	116.0	115.4	113.6	114.8	110.5
50°	91.7	90.5	90.5	90.5	90.5	88.7	89.3	90.5	88.7	88.7	86.2
52.5°	71.7	69.8	68.6	68.6	68.6	68.0	68.0	68.6	66.8	66.8	66.2
55°	54.0	53.4	51.6	51.6	51.6	49.8	50.4	50.4	49.8	49.8	48.0
57.5°	40.1	38.3	37.0	37.0	35.8	35.8	35.2	35.8	34.6	34.6	33.4
60°	26.7	25.5	24.9	24.3	24.3	23.7	24.3	23.7	23.7	23.1	22.5
62.5°	19.4	18.2	17.0	17.0	17.0	16.4	16.4	16.4	16.4	16.4	15.8
65°	14.0	12.8	12.8	12.1	12.1	11.5	11.5	11.5	11.5	11.5	10.9
67.5°	9.7	9.1	8.5	8.5	8.5	8.5	8.5	8.5	7.9	7.9	7.9
70°	7.3	6.7	6.1	6.1	6.1	6.1	6.1	5.5	6.1	6.1	5.5
72.5°	4.9	4.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
75°	3.6	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	2.4	2.4	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
85°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	482.8	482.2	480.9	482.8	477.9	476.1	475.5	480.9
5°	489.4	488.2	488.2	490.0	484.6	483.4	482.2	488.2
7.5°	495.5	494.3	494.3	496.1	491.3	490.0	488.8	494.9
10°	499.2	499.2	499.2	500.4	496.1	494.9	494.3	500.4
12.5°	501.0	501.0	500.4	502.8	497.3	497.3	496.1	502.2
15°	498.5	498.5	498.5	500.4	495.5	494.3	494.3	499.2
17.5°	492.5	492.5	491.9	493.7	488.2	488.2	487.6	493.1
20°	483.4	483.4	482.2	484.6	479.1	477.3	476.7	482.2
22.5°	468.8	468.2	467.6	468.8	463.9	462.7	462.1	467.0
25°	450.0	449.4	448.1	449.4	443.9	442.1	442.1	445.7
27.5°	423.3	423.3	421.4	423.3	417.2	416.6	416.0	420.2
30°	390.5	388.0	386.8	389.2	383.2	383.2	382.0	386.2
32.5°	349.8	347.3	346.7	348.0	342.5	340.7	343.1	345.5
35°	303.0	303.6	301.2	301.2	296.3	296.9	297.6	301.2
37.5°	258.1	256.9	256.3	256.9	253.2	252.0	250.8	254.4
40°	216.2	213.1	212.5	212.5	209.5	208.9	209.5	211.3
42.5°	176.7	176.1	173.7	174.9	171.9	173.1	172.5	172.5
45°	142.7	143.3	140.9	142.7	140.3	138.5	138.5	139.7
47.5°	112.9	112.9	112.3	112.3	110.5	111.1	109.9	111.7
50°	87.4	87.4	86.2	86.8	85.6	85.6	85.0	85.6
52.5°	66.8	66.2	66.2	65.6	64.4	65.0	65.6	64.4
55°	48.6	49.2	48.0	48.6	47.4	48.0	47.4	48.0
57.5°	33.4	34.0	32.8	34.0	32.8	33.4	32.8	32.8
60°	23.1	23.1	22.5	23.1	22.5	22.5	21.9	23.1
62.5°	15.8	15.8	15.8	15.8	15.8	15.2	15.8	15.8
65°	11.5	10.9	10.9	10.9	10.9	10.9	10.9	10.9
67.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
70°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
75°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
85°	0.6	0.6	0.6	0.0	0.6	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)