

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: P251594

Luminaire Tested: **LD4B10D010 EU4B10209730 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251594  
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 EU4B10209730 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 97CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 711.0 lumens  
Efficiency: N/A  
Efficacy: 70.7 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

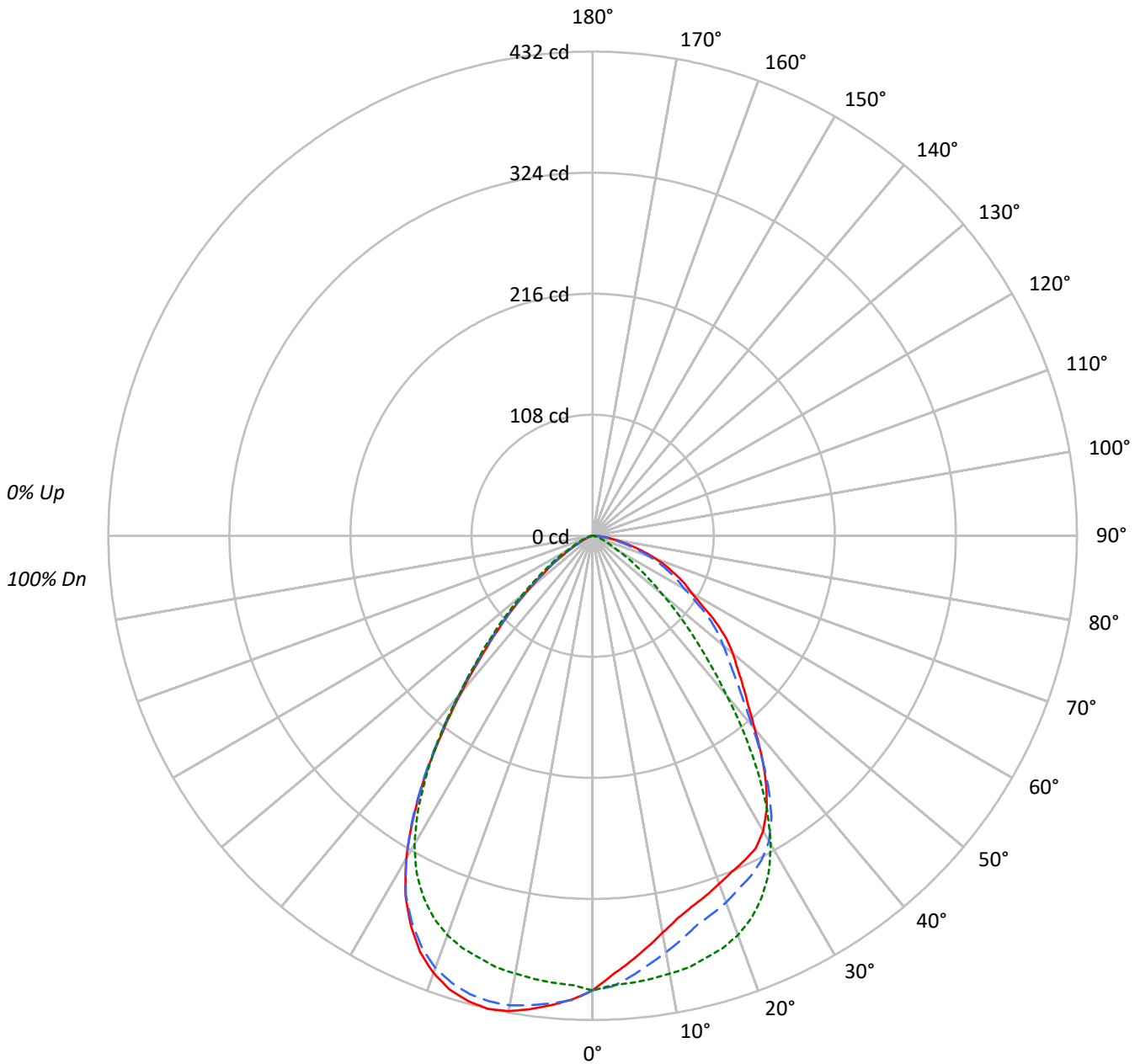
Input Watts (W): 10.05  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	39529	39529	39529
5°	37332	39171	41118
10°	35587	39258	42623
15°	34547	39339	43355
20°	34256	39307	43041
25°	34400	38336	41260
30°	34233	35764	37407
35°	32087	30529	30850
40°	28600	23676	23142
45°	26146	17656	16567
50°	24729	12357	11174
55°	22734	8343	7017
60°	19862	4892	3879
65°	18794	3136	2168
70°	17125	2223	1339
75°	14158	1582	979
80°	11169	898	561
85°	9952	559	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.3	5.4
10°-20°	109.9	15.5
20°-30°	163.0	22.9
30°-40°	163.2	23.0
40°-50°	114.1	16.0
50°-60°	67.9	9.5
60°-70°	35.4	5.0
70°-80°	15.8	2.2
80°-90°	3.4	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°	311.3	43.8
0°-40°	474.5	66.7
0°-60°	656.4	92.3
0°-90°	711.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	711.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	406	406	406	406	406	
5°	382	395	400	419	420	36
15°	342	360	390	423	430	97
25°	320	334	356	381	384	147
35°	270	273	257	261	259	167
45°	190	180	128	124	120	147
55°	134	125	49	43	41	119
65°	82	75	14	10	9	81
75°	38	33	4	3	3	41
85°	9	7	0	0	0	10
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°	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6
2.5°	392.5	397.3	392.5	394.1	400.4	394.6	397.8	397.8	396.2	399.9	402.5
5°	381.6	386.3	381.6	383.7	390.5	384.7	388.4	387.3	387.8	391.0	394.6
7.5°	370.6	374.3	370.1	372.7	379.0	374.3	377.4	377.4	377.9	382.6	385.8
10°	359.6	362.8	359.6	361.7	368.5	364.3	366.4	366.9	368.5	372.7	377.4
12.5°	349.7	352.3	349.2	352.3	358.1	353.9	356.5	357.0	358.6	363.3	368.5
15°	342.4	345.0	341.8	344.5	349.7	346.6	348.6	349.7	350.7	354.9	359.6
17.5°	336.6	338.7	336.1	339.2	343.4	339.8	342.9	342.9	344.5	348.6	353.9
20°	330.3	332.4	330.3	333.0	337.7	334.5	337.1	337.1	338.7	343.4	348.1
22.5°	324.6	325.6	324.6	326.7	331.4	328.8	330.3	330.9	332.4	336.6	340.8
25°	319.9	322.0	320.9	323.0	326.2	323.6	325.1	325.6	327.2	330.9	334.5
27.5°	314.7	315.7	314.7	317.3	319.9	317.8	319.4	318.8	319.9	323.0	326.2
30°	304.2	305.3	305.3	306.8	308.9	307.9	309.4	307.9	308.9	311.5	314.7
32.5°	289.1	289.6	290.1	291.7	293.2	291.7	292.7	292.7	292.7	294.8	296.9
35°	269.7	270.8	270.2	271.3	272.9	272.3	272.3	271.8	270.8	271.8	272.9
37.5°	247.8	246.2	246.2	247.8	248.8	246.7	247.8	246.7	246.7	247.2	247.2
40°	224.8	223.2	224.8	225.3	225.8	224.8	224.2	223.2	221.6	222.1	221.1
42.5°	205.4	204.4	204.9	204.9	205.4	204.4	204.9	202.8	201.2	200.2	198.6
45°	189.7	188.2	189.7	188.7	188.7	188.2	187.6	186.6	184.5	182.9	180.3
47.5°	175.1	175.1	175.6	175.6	175.6	174.6	174.6	172.5	170.4	168.3	164.7
50°	163.1	162.0	164.1	164.1	162.6	162.0	162.6	159.9	158.4	155.8	152.1
52.5°	150.0	150.0	150.5	150.5	150.0	149.0	149.5	147.4	145.8	143.2	139.6
55°	133.8	132.8	134.3	134.3	133.8	133.3	133.8	132.2	130.7	128.6	125.4
57.5°	115.5	115.0	116.0	116.6	115.5	115.5	116.0	114.5	113.9	111.9	108.7
60°	101.9	101.4	102.4	103.0	101.9	101.9	101.9	99.8	98.8	96.7	94.6
62.5°	92.5	92.0	93.0	92.5	92.0	91.5	92.0	89.9	88.9	86.8	84.7
65°	81.5	82.1	82.6	82.6	82.1	81.5	81.5	80.5	79.5	77.4	74.7
67.5°	71.1	71.1	71.6	72.1	71.6	71.6	71.6	70.0	69.0	67.4	64.3
70°	60.1	59.6	61.2	61.2	60.1	60.6	60.1	59.6	58.5	56.5	53.8
72.5°	48.6	48.6	49.1	49.1	48.6	48.6	48.6	48.1	46.5	45.5	42.9
75°	37.6	37.6	38.2	38.7	37.6	37.6	38.2	37.1	36.1	34.5	32.9
77.5°	28.2	27.7	28.2	28.2	27.7	27.7	27.7	27.2	26.7	25.1	23.5
80°	19.9	19.3	19.9	19.9	19.9	19.3	19.3	18.8	18.8	17.8	16.2
82.5°	13.6	13.1	13.6	13.6	13.6	13.1	13.1	13.1	12.5	12.0	11.0
85°	8.9	8.4	8.4	8.9	8.4	8.4	8.4	8.4	7.8	7.3	6.8
87.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.7	3.7	3.7	3.1
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°	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6
2.5°	400.4	399.3	402.5	401.4	402.0	399.3	403.5	401.4	404.0	401.4	406.7
5°	393.6	392.5	397.3	396.7	397.3	395.2	399.9	399.3	402.5	400.4	406.1
7.5°	386.3	385.2	390.5	391.0	392.0	389.9	396.2	396.2	399.3	398.8	405.1
10°	377.9	378.4	383.7	384.7	386.8	385.8	391.5	393.1	397.3	396.7	404.6
12.5°	370.1	370.1	376.9	379.0	380.5	380.0	386.8	388.9	393.6	394.6	402.0
15°	362.2	362.8	369.0	372.2	374.3	373.7	381.0	383.7	389.4	389.9	398.8
17.5°	356.0	355.4	362.2	364.8	368.0	367.5	375.3	378.4	384.2	385.8	394.1
20°	350.7	350.2	356.5	359.6	361.7	361.2	369.0	372.7	377.9	379.0	387.3
22.5°	344.5	343.4	349.7	352.3	354.4	353.9	360.7	363.3	368.5	369.6	377.4
25°	337.1	336.1	341.8	343.4	345.0	343.9	349.7	351.3	355.4	356.5	364.3
27.5°	328.8	326.2	330.9	330.9	331.9	330.3	334.5	336.1	339.8	339.8	347.1
30°	315.7	312.1	314.7	314.1	314.7	312.6	315.2	315.7	318.3	317.8	323.0
32.5°	297.4	292.2	293.8	292.2	290.6	287.5	290.6	289.6	291.7	289.6	294.3
35°	272.3	267.1	266.6	264.5	262.9	260.3	260.3	257.7	258.2	256.6	259.8
37.5°	245.1	238.4	237.3	233.1	230.5	227.4	227.4	225.3	222.7	221.6	224.2
40°	218.5	211.2	208.6	201.8	199.1	196.0	193.9	191.3	190.3	186.1	188.2
42.5°	195.5	187.6	181.9	174.6	172.0	167.3	164.1	161.0	159.4	154.7	156.8
45°	176.2	166.7	160.5	151.1	147.4	142.2	137.5	133.8	130.2	128.1	127.0
47.5°	159.9	150.0	141.7	131.2	125.4	120.7	114.5	110.8	106.1	103.5	101.9
50°	146.4	135.4	126.0	113.9	108.2	103.0	95.7	89.9	85.7	81.5	80.5
52.5°	134.3	122.8	112.4	98.8	92.0	85.7	77.9	71.6	68.0	63.2	62.7
55°	120.2	110.3	98.8	84.7	77.9	71.6	63.2	57.0	52.3	49.1	48.1
57.5°	105.1	95.7	84.7	70.6	63.8	57.0	49.1	43.4	39.2	36.6	36.1
60°	91.0	82.1	71.6	57.5	50.7	45.0	36.6	30.8	27.2	25.1	24.0
62.5°	80.5	72.1	62.2	49.1	42.9	37.1	29.3	24.0	20.9	18.8	17.8
65°	70.6	62.2	53.3	41.3	36.1	30.8	23.5	18.8	15.7	13.6	12.5
67.5°	60.1	52.8	44.4	34.5	29.3	25.1	18.8	14.6	12.0	10.5	9.4
70°	49.7	42.9	36.1	27.7	24.0	19.9	14.6	11.5	8.9	7.8	6.8
72.5°	39.2	34.0	28.2	21.4	18.3	15.7	11.5	8.4	6.8	5.7	4.7
75°	29.3	25.6	20.9	16.2	13.6	11.5	8.4	6.3	5.2	4.2	3.7
77.5°	20.9	17.8	14.6	11.0	9.9	8.4	5.7	4.7	3.7	2.6	2.1
80°	14.1	12.5	9.9	7.8	6.3	5.7	4.2	3.1	2.1	1.6	1.6
82.5°	9.4	7.8	6.3	4.7	4.2	3.7	2.6	2.1	1.6	1.0	1.0
85°	5.7	4.7	3.7	2.6	2.6	2.1	1.6	1.0	0.5	0.5	0.5
87.5°	2.6	2.1	1.6	1.0	1.0	0.5	0.5	0.5	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°	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6
2.5°	410.8	407.7	405.6	408.2	409.3	407.7	409.3	411.9	414.5	415.0	407.7
5°	411.4	408.2	407.2	410.3	410.8	410.3	411.9	415.5	418.7	419.7	412.4
7.5°	411.4	409.3	408.8	412.4	412.9	412.4	415.0	419.2	422.3	424.4	417.1
10°	410.3	409.3	409.8	412.9	414.0	414.0	417.6	422.3	425.5	427.6	420.3
12.5°	408.8	408.8	408.8	412.4	413.5	414.0	417.1	423.4	425.5	428.6	421.3
15°	406.1	406.1	406.1	409.8	411.4	411.4	415.0	420.8	423.4	426.5	419.2
17.5°	401.4	401.4	402.0	405.1	406.7	406.7	410.3	416.6	418.2	421.8	414.5
20°	394.6	394.6	395.2	398.3	399.9	398.8	403.5	408.8	410.3	413.5	406.1
22.5°	384.7	384.7	384.7	387.8	388.9	388.4	393.1	397.8	397.8	402.0	394.1
25°	370.1	371.1	370.1	373.2	374.3	373.7	377.9	382.1	381.0	385.8	377.9
27.5°	352.3	351.8	351.8	354.4	354.4	353.9	357.0	361.7	360.7	363.8	356.5
30°	327.7	329.3	326.7	330.3	328.8	327.7	329.8	334.0	332.4	335.1	329.3
32.5°	299.5	297.4	297.4	297.4	298.5	295.8	297.9	300.0	298.5	301.1	294.8
35°	262.4	262.9	261.4	261.9	262.4	259.3	261.4	263.4	261.4	262.9	257.2
37.5°	225.3	225.8	222.1	224.2	222.1	221.1	223.2	224.2	222.1	223.7	217.4
40°	188.2	187.1	186.6	186.6	187.1	184.5	186.1	187.6	186.1	187.1	181.4
42.5°	155.8	155.2	154.2	154.7	153.2	152.6	153.2	154.7	153.2	154.2	150.0
45°	127.5	126.5	124.9	125.4	125.4	122.8	124.4	125.4	123.9	124.4	120.7
47.5°	101.4	99.8	99.8	99.3	99.3	98.3	99.8	99.3	97.7	98.8	95.1
50°	78.9	77.9	77.9	77.9	77.9	76.3	76.8	77.9	76.3	76.3	74.2
52.5°	61.7	60.1	59.1	59.1	59.1	58.5	58.5	59.1	57.5	57.5	57.0
55°	46.5	46.0	44.4	44.4	44.4	42.9	43.4	43.4	42.9	42.9	41.3
57.5°	34.5	32.9	31.9	31.9	30.8	30.8	30.3	30.8	29.8	29.8	28.7
60°	23.0	22.0	21.4	20.9	20.9	20.4	20.9	20.4	20.4	19.9	19.3
62.5°	16.7	15.7	14.6	14.6	14.6	14.1	14.1	14.1	14.1	14.1	13.6
65°	12.0	11.0	11.0	10.5	10.5	9.9	9.9	9.9	9.9	9.9	9.4
67.5°	8.4	7.8	7.3	7.3	7.3	7.3	7.3	7.3	6.8	6.8	6.8
70°	6.3	5.7	5.2	5.2	5.2	5.2	5.2	4.7	5.2	5.2	4.7
72.5°	4.2	4.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	3.1	3.1	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.1	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
85°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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°	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6
2.5°	415.5	415.0	414.0	415.5	411.4	409.8	409.3	414.0
5°	421.3	420.3	420.3	421.8	417.1	416.1	415.0	420.3
7.5°	426.5	425.5	425.5	427.0	422.9	421.8	420.8	426.0
10°	429.7	429.7	429.7	430.7	427.0	426.0	425.5	430.7
12.5°	431.2	431.2	430.7	432.8	428.1	428.1	427.0	432.3
15°	429.1	429.1	429.1	430.7	426.5	425.5	425.5	429.7
17.5°	423.9	423.9	423.4	425.0	420.3	420.3	419.7	424.4
20°	416.1	416.1	415.0	417.1	412.4	410.8	410.3	415.0
22.5°	403.5	403.0	402.5	403.5	399.3	398.3	397.8	402.0
25°	387.3	386.8	385.8	386.8	382.1	380.5	380.5	383.7
27.5°	364.3	364.3	362.8	364.3	359.1	358.6	358.1	361.7
30°	336.1	334.0	333.0	335.1	329.8	329.8	328.8	332.4
32.5°	301.1	299.0	298.5	299.5	294.8	293.2	295.3	297.4
35°	260.8	261.4	259.3	259.3	255.1	255.6	256.1	259.3
37.5°	222.1	221.1	220.6	221.1	218.0	216.9	215.9	219.0
40°	186.1	183.5	182.9	182.9	180.3	179.8	180.3	181.9
42.5°	152.1	151.6	149.5	150.5	147.9	149.0	148.4	148.4
45°	122.8	123.4	121.3	122.8	120.7	119.2	119.2	120.2
47.5°	97.2	97.2	96.7	96.7	95.1	95.7	94.6	96.2
50°	75.3	75.3	74.2	74.7	73.7	73.7	73.2	73.7
52.5°	57.5	57.0	57.0	56.5	55.4	55.9	56.5	55.4
55°	41.8	42.3	41.3	41.8	40.8	41.3	40.8	41.3
57.5°	28.7	29.3	28.2	29.3	28.2	28.7	28.2	28.2
60°	19.9	19.9	19.3	19.9	19.3	19.3	18.8	19.9
62.5°	13.6	13.6	13.6	13.6	13.6	13.1	13.6	13.6
65°	9.9	9.4	9.4	9.4	9.4	9.4	9.4	9.4
67.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
70°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
72.5°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
85°	0.5	0.5	0.5	0.0	0.5	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)