

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: P219508

Luminaire Tested: **LDSQ4B20D010 EU4B10209024 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219508
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B20D010 EU4B10209024 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2400K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1141.8 lumens
Efficiency: N/A
Efficacy: 54.9 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

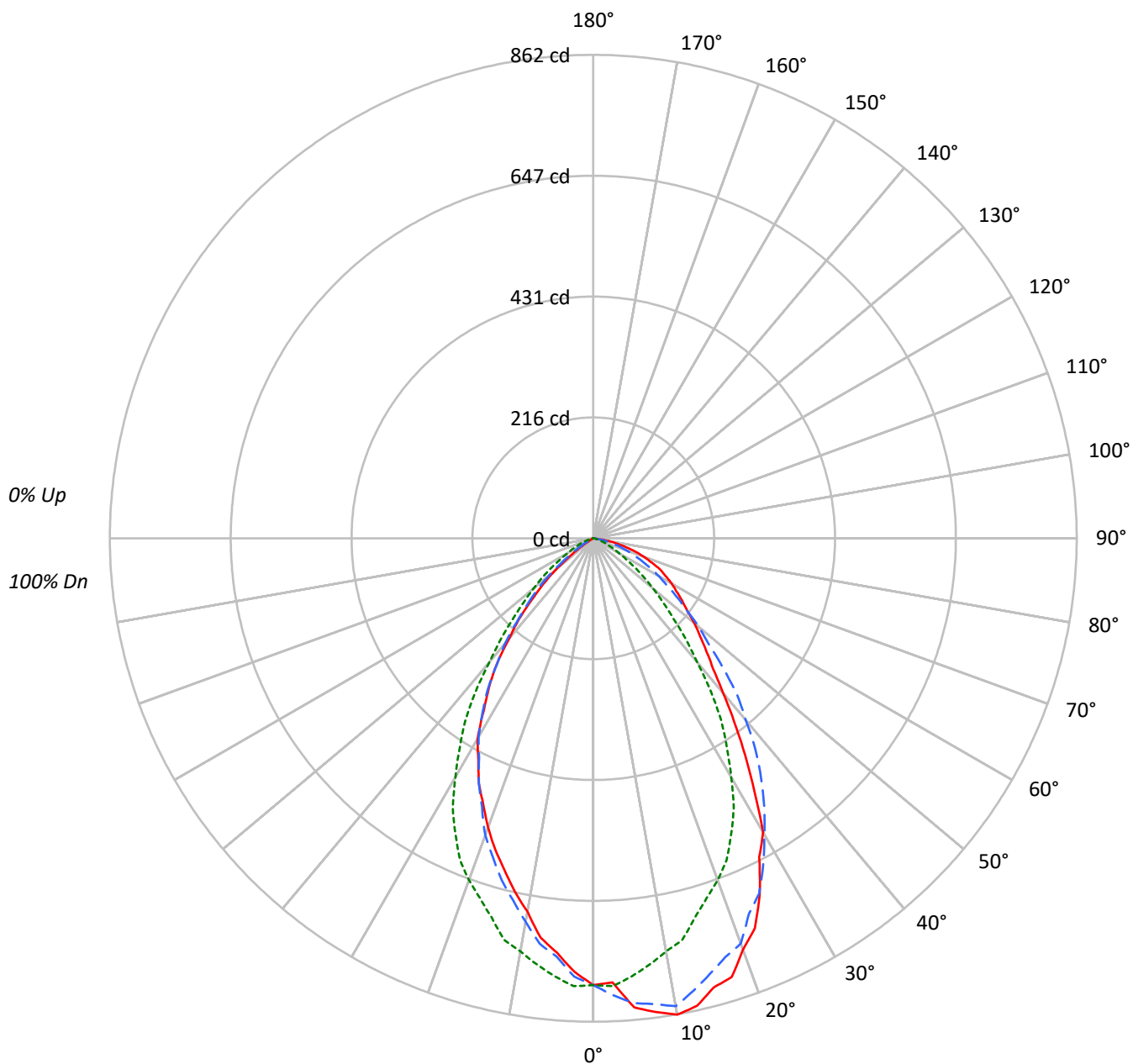
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	108	105	102	109	106	103	101	102	100	98		98	96	95		95
2	104	98	93	89	102	96	92	88	93	89	86		90	87	84		87
3	97	89	83	78	95	88	82	77	85	80	76		82	78	75		80
4	91	81	74	69	89	80	74	69	78	72	68		76	71	67		74
5	85	75	67	62	83	74	67	62	72	66	61		70	65	60		68
6	80	69	61	56	78	68	61	56	66	60	55		65	59	55		63
7	75	63	56	51	73	63	56	51	61	55	50		60	54	50		59
8	70	59	52	47	69	58	51	46	57	51	46		56	50	46		55
9	66	55	48	43	65	54	47	43	53	47	43		52	46	42		51
10	62	51	44	40	61	51	44	40	50	44	39		49	43	39		48

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	77171	77171	77171
5°	81647	76260	72166
10°	84844	73571	66518
15°	83153	70215	61399
20°	80443	66856	56515
25°	75037	62178	51553
30°	67744	55025	46154
35°	55797	47104	38294
40°	45539	36358	29478
45°	39128	27606	21194
50°	35417	21009	13383
55°	32580	15167	4847
60°	31271	10366	736
65°	30212	7014	229
70°	27050	4872	283
75°	22158	2508	0
80°	13836	1060	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.6	6.5
10°-20°	201.1	17.6
20°-30°	268.5	23.5
30°-40°	254.9	22.3
40°-50°	176.2	15.4
50°-60°	97.3	8.5
60°-70°	48.3	4.2
70°-80°	19.0	1.7
80°-90°	1.8	0.2
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°	544.2	47.7
0°-40°	799.1	70.0
0°-60°	1072.6	93.9
0°-90°	1141.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1141.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	797	797	797	797	797	
5°	840	832	784	749	742	80
15°	829	804	700	631	612	235
25°	702	699	582	482	482	320
35°	472	522	398	328	324	296
45°	286	328	202	165	155	223
55°	193	182	90	46	29	174
65°	132	96	31	1	1	128
75°	59	36	7	0	0	63
85°	0	1	0	0	0	5
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°	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6
2.5°	792.8	814.7	816.6	814.7	817.6	816.6	821.4	816.6	822.4	813.8	815.7
5°	839.6	831.0	849.1	839.6	839.6	838.6	835.7	834.8	838.6	826.2	831.9
7.5°	852.0	864.4	880.6	860.6	861.5	861.5	855.8	853.9	853.9	831.0	837.7
10°	862.5	854.8	863.4	855.8	862.5	861.5	865.3	852.9	861.5	848.2	847.2
12.5°	853.9	851.0	862.5	850.1	846.2	847.2	842.4	839.6	842.4	827.1	826.2
15°	829.1	831.9	849.1	835.7	833.8	831.9	826.2	816.6	824.3	803.3	804.2
17.5°	820.5	815.7	818.5	807.1	810.0	808.0	807.1	798.5	796.6	783.2	783.2
20°	780.3	790.8	790.8	783.2	783.2	782.3	769.8	777.5	768.9	765.1	768.9
22.5°	752.6	753.6	753.6	746.9	747.9	744.0	737.4	732.6	737.4	732.6	724.9
25°	702.0	703.9	715.4	703.0	701.1	704.9	699.2	696.3	695.3	683.9	699.2
27.5°	640.9	660.0	659.0	654.3	660.0	652.4	649.5	650.4	653.3	652.4	656.2
30°	605.6	608.4	611.3	607.5	608.4	605.6	605.6	606.5	614.1	611.3	610.3
32.5°	533.9	543.5	551.1	551.1	552.1	554.9	554.0	574.0	578.8	569.3	567.3
35°	471.8	478.5	485.2	486.2	498.6	499.5	500.5	506.2	519.6	522.5	521.5
37.5°	412.6	419.3	421.2	429.8	436.5	443.2	450.8	458.5	469.9	479.5	474.7
40°	360.1	362.9	367.7	371.5	384.9	384.9	388.7	404.0	416.4	424.1	423.1
42.5°	316.1	317.1	320.9	327.6	340.0	337.2	340.0	350.5	368.7	369.6	380.1
45°	285.6	284.6	287.5	288.4	296.1	299.9	301.8	309.5	324.7	326.7	327.6
47.5°	257.9	256.9	261.7	263.6	266.5	270.3	270.3	271.3	277.0	281.8	277.9
50°	235.0	235.0	235.0	236.9	241.6	240.7	241.6	245.5	248.3	246.4	245.5
52.5°	210.1	213.9	216.8	217.8	218.7	218.7	219.7	217.8	216.8	213.9	208.2
55°	192.9	196.8	196.8	196.8	196.8	200.6	195.8	196.8	196.8	189.1	181.5
57.5°	175.7	179.6	182.4	178.6	182.4	178.6	176.7	175.7	173.8	166.2	154.7
60°	161.4	163.3	162.4	161.4	163.3	160.5	158.6	154.7	152.8	142.3	134.7
62.5°	145.2	146.1	147.1	145.2	143.3	142.3	138.5	132.8	128.9	120.3	113.7
65°	131.8	128.9	128.0	127.0	125.1	122.3	119.4	112.7	109.8	102.2	95.5
67.5°	111.8	110.8	112.7	109.8	105.1	105.1	102.2	96.5	89.8	85.0	78.3
70°	95.5	94.6	92.6	89.8	88.8	85.0	85.0	78.3	76.4	67.8	62.1
72.5°	78.3	78.3	75.5	72.6	69.7	67.8	66.9	62.1	59.2	54.4	49.7
75°	59.2	59.2	58.3	55.4	53.5	51.6	50.6	46.8	43.9	39.2	36.3
77.5°	42.0	42.0	38.2	36.3	37.3	35.3	33.4	32.5	31.5	28.7	24.8
80°	24.8	23.9	21.0	22.0	21.0	21.0	20.1	19.1	17.2	15.3	13.4
82.5°	6.7	7.6	7.6	7.6	8.6	6.7	6.7	6.7	7.6	7.6	4.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
87.5°	1.0	1.9	3.8	3.8	3.8	3.8	3.8	2.9	2.9	2.9	1.9
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°	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6
2.5°	806.1	805.2	806.1	799.4	814.7	803.3	801.4	799.4	806.1	799.4	789.9
5°	823.3	813.8	810.9	808.0	816.6	803.3	800.4	801.4	796.6	784.2	785.1
7.5°	829.1	820.5	811.9	793.7	801.4	798.5	790.8	785.1	777.5	767.0	765.1
10°	831.0	821.4	809.0	803.3	791.8	788.0	785.1	775.6	766.0	747.9	743.1
12.5°	825.2	813.8	798.5	793.7	785.1	772.7	766.0	756.5	747.9	733.5	723.0
15°	800.4	790.8	786.1	769.8	766.0	758.4	745.0	731.6	719.2	700.1	694.4
17.5°	771.7	767.9	763.2	750.7	749.8	742.1	729.7	718.3	702.0	672.4	662.9
20°	742.1	742.1	726.9	722.1	731.6	716.3	706.8	696.3	662.9	648.5	631.3
22.5°	720.2	709.7	701.1	693.4	694.4	684.8	671.5	650.4	638.0	620.8	600.8
25°	677.2	681.0	661.9	659.0	661.9	639.9	633.3	616.1	597.9	581.7	566.4
27.5°	650.4	639.9	627.5	617.0	617.0	608.4	589.3	585.5	557.8	542.5	523.4
30°	610.3	602.7	592.2	576.9	575.0	568.3	553.0	543.5	514.8	491.9	481.4
32.5°	559.7	556.8	548.2	531.1	525.3	517.7	498.6	482.3	469.0	443.2	430.8
35°	523.4	512.9	494.8	480.4	475.7	462.3	447.0	435.5	421.2	398.3	382.1
37.5°	469.0	458.5	441.3	424.1	424.1	410.7	389.7	378.2	358.2	344.8	331.4
40°	421.2	407.8	390.6	370.6	367.7	348.6	340.0	320.9	308.5	287.5	285.6
42.5°	367.7	355.3	340.0	324.7	313.3	303.7	281.8	267.4	254.1	243.6	240.7
45°	319.0	302.8	289.4	270.3	258.8	247.4	233.1	223.5	213.0	201.5	194.8
47.5°	277.0	263.6	244.5	227.3	215.9	210.1	193.9	183.4	174.8	167.1	162.4
50°	234.0	217.8	207.3	188.2	186.3	172.9	159.5	150.9	146.1	139.4	132.8
52.5°	201.5	186.3	171.9	157.6	150.0	145.2	132.8	124.2	117.5	112.7	108.9
55°	170.0	156.6	145.2	130.9	126.1	119.4	105.1	103.2	96.5	89.8	85.0
57.5°	146.1	133.7	120.3	110.8	102.2	97.4	86.0	78.3	74.5	68.8	64.0
60°	124.2	110.8	100.3	88.8	85.0	78.3	69.7	63.0	58.3	53.5	48.7
62.5°	104.1	92.6	81.2	71.6	65.9	62.1	55.4	49.7	44.9	41.1	37.3
65°	86.0	75.5	65.9	56.4	53.5	48.7	43.9	39.2	35.3	30.6	26.7
67.5°	70.7	61.1	51.6	44.9	42.0	40.1	34.4	29.6	26.7	23.9	20.1
70°	55.4	48.7	41.1	35.3	32.5	29.6	25.8	22.9	19.1	17.2	14.3
72.5°	43.0	37.3	30.6	25.8	23.9	22.0	18.1	15.3	13.4	11.5	9.6
75°	30.6	25.8	22.0	17.2	16.2	15.3	12.4	10.5	8.6	6.7	5.7
77.5°	21.0	17.2	13.4	11.5	10.5	8.6	7.6	5.7	4.8	3.8	2.9
80°	11.5	8.6	6.7	5.7	4.8	3.8	3.8	2.9	1.9	1.9	1.0
82.5°	3.8	2.9	1.9	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6
2.5°	795.6	785.1	788.0	788.0	786.1	786.1	784.2	781.3	782.3	776.5	764.1
5°	787.0	773.7	771.7	773.7	766.0	764.1	760.3	766.0	748.8	755.5	747.9
7.5°	762.2	749.8	746.9	753.6	744.0	738.3	737.4	745.0	729.7	722.1	713.5
10°	734.5	729.7	721.1	716.3	713.5	714.4	706.8	697.2	694.4	692.5	684.8
12.5°	709.7	699.2	691.5	685.8	683.9	683.9	671.5	669.5	661.0	659.0	647.6
15°	680.1	667.6	662.9	655.2	648.5	652.4	638.0	634.2	631.3	618.9	620.8
17.5°	654.3	640.9	629.4	624.7	618.9	613.2	599.8	602.7	596.0	596.0	578.8
20°	620.8	606.5	597.9	588.4	588.4	580.7	571.2	572.1	563.5	554.9	539.6
22.5°	585.5	570.2	559.7	555.9	546.3	544.4	533.0	530.1	518.6	519.6	506.2
25°	548.2	533.0	518.6	519.6	511.0	507.2	500.5	487.1	482.3	476.6	472.8
27.5°	504.3	493.8	481.4	480.4	464.2	465.1	456.6	452.7	441.3	444.1	435.5
30°	464.2	448.9	437.5	434.6	427.9	426.0	412.6	406.9	408.8	401.2	396.4
32.5°	423.1	400.2	395.4	389.7	385.9	381.1	371.5	375.4	366.8	368.7	361.0
35°	368.7	359.1	346.7	346.7	342.9	339.1	332.4	336.2	327.6	323.8	316.1
37.5°	322.8	314.2	301.8	305.6	299.0	293.2	287.5	288.4	280.8	279.9	272.2
40°	273.2	268.4	259.8	259.8	255.0	255.0	252.2	249.3	244.5	238.8	230.2
42.5°	226.4	222.5	218.7	219.7	213.0	218.7	211.1	215.9	200.6	199.6	193.9
45°	192.0	183.4	184.3	180.5	176.7	178.6	171.9	173.8	165.2	163.3	157.6
47.5°	155.7	152.8	147.1	145.2	145.2	142.3	139.4	138.5	134.7	129.9	122.3
50°	128.0	117.5	115.6	112.7	110.8	110.8	107.0	101.2	102.2	97.4	89.8
52.5°	100.3	91.7	87.9	86.9	83.1	81.2	76.4	72.6	69.7	67.8	63.0
55°	77.4	69.7	64.9	64.9	59.2	59.2	52.5	49.7	45.8	42.0	39.2
57.5°	58.3	54.4	49.7	45.8	43.9	39.2	35.3	30.6	27.7	22.0	18.1
60°	43.9	40.1	35.3	32.5	30.6	25.8	21.0	17.2	10.5	8.6	7.6
62.5°	32.5	28.7	23.9	22.0	20.1	16.2	11.5	5.7	2.9	2.9	2.9
65°	23.9	19.1	15.3	13.4	11.5	8.6	3.8	1.9	1.0	1.0	1.0
67.5°	16.2	12.4	8.6	7.6	5.7	2.9	1.0	1.0	1.0	1.0	1.0
70°	10.5	7.6	3.8	2.9	1.9	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	6.7	3.8	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	3.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
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°	796.6	796.6	796.6	796.6	796.6	796.6	796.6	796.6
2.5°	777.5	770.8	774.6	766.0	769.8	776.5	771.7	773.7
5°	750.7	746.9	742.1	729.7	739.3	746.9	743.1	742.1
7.5°	722.1	708.7	715.4	711.6	709.7	717.3	708.7	718.3
10°	692.5	682.9	682.0	675.3	675.3	681.0	682.0	676.2
12.5°	648.5	643.8	643.8	642.8	641.8	647.6	648.5	645.7
15°	617.0	615.1	610.3	609.4	603.6	612.2	613.2	612.2
17.5°	578.8	579.8	575.0	575.0	578.8	581.7	574.0	581.7
20°	553.0	548.2	546.3	537.7	542.5	547.3	547.3	548.2
22.5°	515.8	508.1	511.0	506.2	503.4	510.0	510.0	512.9
25°	473.7	473.7	475.7	472.8	474.7	478.5	475.7	482.3
27.5°	433.6	437.5	437.5	433.6	435.5	447.0	451.8	444.1
30°	396.4	397.3	400.2	398.3	404.0	407.8	406.9	412.6
32.5°	354.4	359.1	361.0	358.2	360.1	368.7	363.9	362.9
35°	321.9	313.3	312.3	313.3	317.1	319.0	317.1	323.8
37.5°	275.1	272.2	268.4	269.3	272.2	276.0	277.9	282.7
40°	230.2	226.4	226.4	225.4	222.5	233.1	233.1	233.1
42.5°	191.0	190.1	185.3	185.3	189.1	192.0	190.1	196.8
45°	156.6	152.8	150.0	150.0	152.8	152.8	155.7	154.7
47.5°	123.2	119.4	120.3	117.5	120.3	124.2	119.4	120.3
50°	92.6	92.6	90.7	92.6	91.7	92.6	90.7	88.8
52.5°	63.0	71.6	72.6	68.8	60.2	52.5	47.8	51.6
55°	36.3	32.5	32.5	31.5	29.6	28.7	25.8	28.7
57.5°	18.1	16.2	16.2	16.2	15.3	14.3	12.4	12.4
60°	7.6	6.7	6.7	5.7	4.8	3.8	2.9	3.8
62.5°	2.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
65°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	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)