

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: P219509

Luminaire Tested: **LDSQ4B20D010 EU4B10209027 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219509
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 EU4B10209027 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1297.7 lumens
Efficiency: N/A
Efficacy: 62.4 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

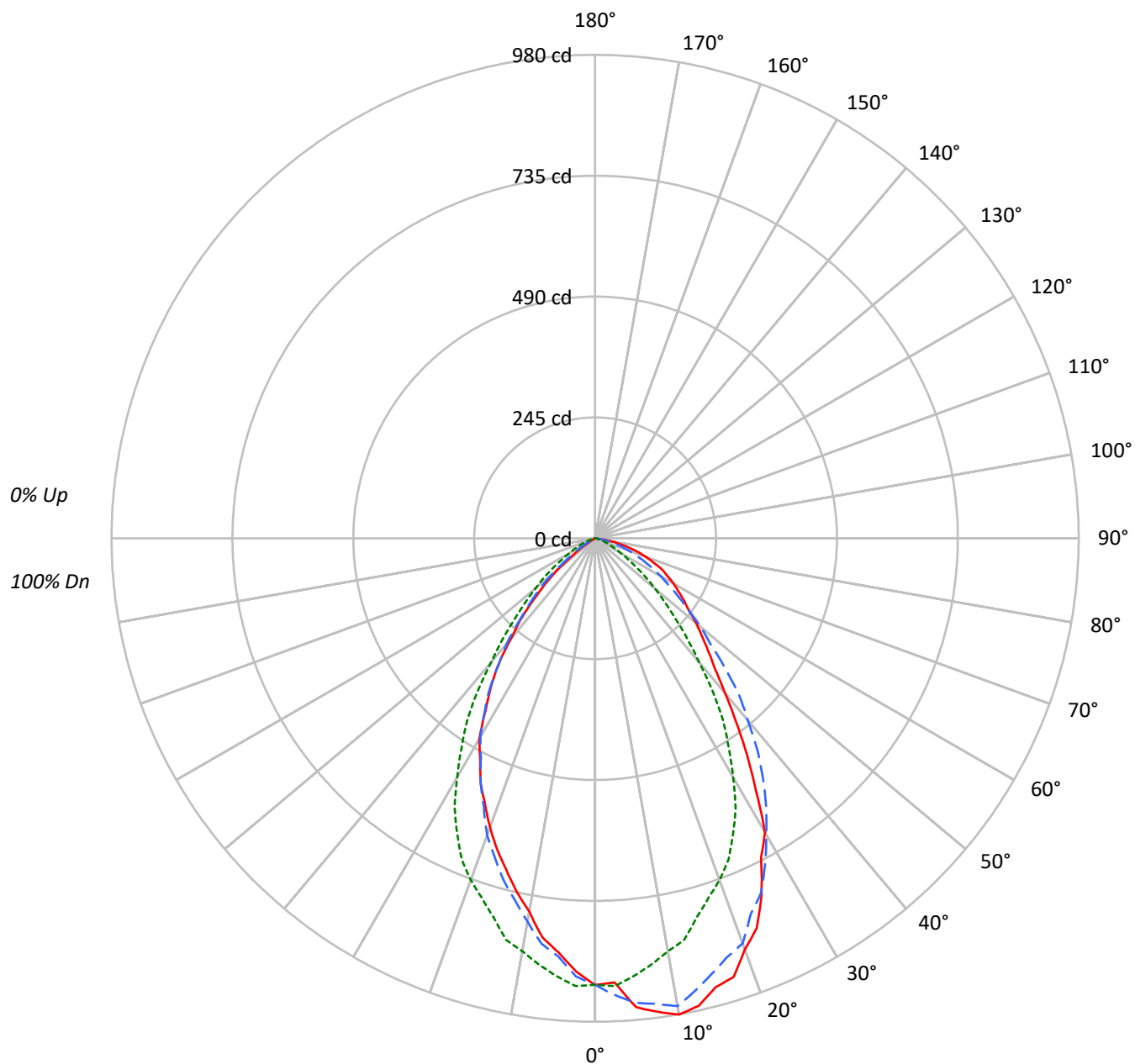
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	108	105	102	109	106	103	101		102	100	98		98	96	95		95	93	92
2	104	98	93	89	102	96	92	88		93	89	86		90	87	84		87	84	82
3	97	89	83	78	95	88	82	77		85	80	76		82	78	75		80	77	74
4	91	81	74	69	89	80	74	69		78	72	68		76	71	67		74	70	66
5	85	75	67	62	83	74	67	62		72	66	61		70	65	60		68	64	60
6	80	69	61	56	78	68	61	56		66	60	55		65	59	55		63	58	54
7	75	63	56	51	73	63	56	51		61	55	50		60	54	50		59	54	50
8	70	59	52	47	69	58	51	46		57	51	46		56	50	46		55	50	46
9	66	55	48	43	65	54	47	43		53	47	43		52	46	42		51	46	42
10	62	51	44	40	61	51	44	40		50	44	39		49	43	39		48	43	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	87711	87711	87711
5°	92792	86665	82027
10°	96432	83614	75607
15°	94506	79803	69784
20°	91433	75990	64237
25°	85288	70665	58597
30°	76984	62542	52463
35°	63424	53538	43521
40°	51761	41328	33500
45°	44471	31387	24099
50°	40240	23888	15222
55°	37039	17228	5506
60°	35553	11780	833
65°	34338	7954	252
70°	30760	5523	312
75°	25190	2845	0
80°	15732	1227	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	84.8	6.5
10°-20°	228.5	17.6
20°-30°	305.2	23.5
30°-40°	289.7	22.3
40°-50°	200.2	15.4
50°-60°	110.6	8.5
60°-70°	54.9	4.2
70°-80°	21.6	1.7
80°-90°	2.1	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°	618.5	47.7
0°-40°	908.2	70.0
0°-60°	1219.1	93.9
0°-90°	1297.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1297.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	905	905	905	905	905	
5°	954	946	891	851	844	91
15°	942	914	796	718	696	267
25°	798	795	661	548	548	364
35°	536	593	453	372	368	336
45°	325	372	229	188	176	253
55°	219	206	102	52	33	197
65°	150	109	35	1	1	145
75°	67	41	8	0	0	72
85°	0	1	0	0	0	6
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°	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4
2.5°	901.0	926.0	928.2	926.0	929.2	928.2	933.6	928.2	934.7	924.9	927.1
5°	954.2	944.4	965.1	954.2	954.2	953.1	949.9	948.8	953.1	939.0	945.5
7.5°	968.3	982.4	1000.9	978.1	979.2	979.2	972.7	970.5	970.5	944.4	952.0
10°	980.3	971.6	981.4	972.7	980.3	979.2	983.5	969.4	979.2	964.0	962.9
12.5°	970.5	967.2	980.3	966.2	961.8	962.9	957.5	954.2	957.5	940.1	939.0
15°	942.3	945.5	965.1	949.9	947.7	945.5	939.0	928.2	936.8	913.0	914.0
17.5°	932.5	927.1	930.3	917.3	920.6	918.4	917.3	907.5	905.4	890.2	890.2
20°	886.9	898.8	898.8	890.2	890.2	889.1	875.0	883.7	873.9	869.5	873.9
22.5°	855.4	856.5	856.5	848.9	850.0	845.7	838.1	832.6	838.1	832.6	823.9
25°	797.9	800.1	813.1	799.0	796.8	801.1	794.6	791.4	790.3	777.3	794.6
27.5°	728.4	750.1	749.0	743.6	750.1	741.4	738.2	739.3	742.5	741.4	745.8
30°	688.2	691.5	694.8	690.4	691.5	688.2	688.2	689.3	698.0	694.8	693.7
32.5°	606.8	617.7	626.4	626.4	627.5	630.7	629.6	652.4	657.9	647.0	644.8
35°	536.3	543.9	551.5	552.6	566.7	567.8	568.8	575.3	590.5	593.8	592.7
37.5°	469.0	476.6	478.7	488.5	496.1	503.7	512.4	521.1	534.1	545.0	539.5
40°	409.3	412.5	417.9	422.3	437.5	437.5	441.8	459.2	473.3	482.0	480.9
42.5°	359.3	360.4	364.8	372.3	386.5	383.2	386.5	398.4	419.0	420.1	432.1
45°	324.6	323.5	326.8	327.8	336.5	340.9	343.0	351.7	369.1	371.3	372.3
47.5°	293.1	292.0	297.4	299.6	302.9	307.2	307.2	308.3	314.8	320.2	315.9
50°	267.0	267.0	267.0	269.2	274.6	273.6	274.6	279.0	282.2	280.1	279.0
52.5°	238.8	243.2	246.4	247.5	248.6	248.6	249.7	247.5	246.4	243.2	236.7
55°	219.3	223.6	223.6	223.6	223.6	228.0	222.5	223.6	223.6	214.9	206.3
57.5°	199.7	204.1	207.3	203.0	207.3	203.0	200.8	199.7	197.6	188.9	175.9
60°	183.5	185.6	184.5	183.5	185.6	182.4	180.2	175.9	173.7	161.7	153.1
62.5°	165.0	166.1	167.2	165.0	162.8	161.7	157.4	150.9	146.6	136.8	129.2
65°	149.8	146.6	145.5	144.4	142.2	139.0	135.7	128.1	124.8	116.2	108.6
67.5°	127.0	125.9	128.1	124.8	119.4	119.4	116.2	109.6	102.0	96.6	89.0
70°	108.6	107.5	105.3	102.0	101.0	96.6	96.6	89.0	86.8	77.1	70.6
72.5°	89.0	89.0	85.8	82.5	79.2	77.1	76.0	70.6	67.3	61.9	56.4
75°	67.3	67.3	66.2	63.0	60.8	58.6	57.5	53.2	49.9	44.5	41.3
77.5°	47.8	47.8	43.4	41.3	42.3	40.2	38.0	36.9	35.8	32.6	28.2
80°	28.2	27.1	23.9	25.0	23.9	23.9	22.8	21.7	19.5	17.4	15.2
82.5°	7.6	8.7	8.7	8.7	9.8	7.6	7.6	7.6	8.7	8.7	5.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
87.5°	1.1	2.2	4.3	4.3	4.3	4.3	4.3	3.3	3.3	3.3	2.2
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4
2.5°	916.2	915.1	916.2	908.6	926.0	913.0	910.8	908.6	916.2	908.6	897.8
5°	935.8	924.9	921.6	918.4	928.2	913.0	909.7	910.8	905.4	891.2	892.3
7.5°	942.3	932.5	922.7	902.1	910.8	907.5	898.8	892.3	883.7	871.7	869.5
10°	944.4	933.6	919.5	913.0	899.9	895.6	892.3	881.5	870.6	850.0	844.6
12.5°	937.9	924.9	907.5	902.1	892.3	878.2	870.6	859.8	850.0	833.7	821.8
15°	909.7	898.8	893.4	875.0	870.6	861.9	846.7	831.5	817.4	795.7	789.2
17.5°	877.1	872.8	867.4	853.3	852.2	843.5	829.4	816.3	797.9	764.2	753.4
20°	843.5	843.5	826.1	820.7	831.5	814.2	803.3	791.4	753.4	737.1	717.6
22.5°	818.5	806.6	796.8	788.1	789.2	778.4	763.2	739.3	725.2	705.6	682.8
25°	769.7	774.0	752.3	749.0	752.3	727.3	719.7	700.2	679.6	661.1	643.7
27.5°	739.3	727.3	713.2	701.3	701.3	691.5	669.8	665.5	634.0	616.6	594.9
30°	693.7	685.0	673.1	655.7	653.5	645.9	628.5	617.7	585.1	559.1	547.1
32.5°	636.1	632.9	623.1	603.6	597.1	588.4	566.7	548.2	533.0	503.7	489.6
35°	594.9	582.9	562.3	546.0	540.6	525.4	508.0	495.0	478.7	452.7	434.2
37.5°	533.0	521.1	501.5	482.0	482.0	466.8	442.9	429.9	407.1	391.9	376.7
40°	478.7	463.5	444.0	421.2	417.9	396.2	386.5	364.8	350.6	326.8	324.6
42.5°	417.9	403.8	386.5	369.1	356.1	345.2	320.2	304.0	288.8	276.8	273.6
45°	362.6	344.1	328.9	307.2	294.2	281.2	264.9	254.0	242.1	229.1	221.5
47.5°	314.8	299.6	277.9	258.4	245.3	238.8	220.4	208.4	198.7	190.0	184.5
50°	266.0	247.5	235.6	213.9	211.7	196.5	181.3	171.5	166.1	158.5	150.9
52.5°	229.1	211.7	195.4	179.1	170.4	165.0	150.9	141.1	133.5	128.1	123.8
55°	193.2	178.0	165.0	148.7	143.3	135.7	119.4	117.2	109.6	102.0	96.6
57.5°	166.1	152.0	136.8	125.9	116.2	110.7	97.7	89.0	84.7	78.2	72.7
60°	141.1	125.9	114.0	101.0	96.6	89.0	79.2	71.6	66.2	60.8	55.4
62.5°	118.3	105.3	92.3	81.4	74.9	70.6	63.0	56.4	51.0	46.7	42.3
65°	97.7	85.8	74.9	64.0	60.8	55.4	49.9	44.5	40.2	34.7	30.4
67.5°	80.3	69.5	58.6	51.0	47.8	45.6	39.1	33.7	30.4	27.1	22.8
70°	63.0	55.4	46.7	40.2	36.9	33.7	29.3	26.1	21.7	19.5	16.3
72.5°	48.9	42.3	34.7	29.3	27.1	25.0	20.6	17.4	15.2	13.0	10.9
75°	34.7	29.3	25.0	19.5	18.5	17.4	14.1	11.9	9.8	7.6	6.5
77.5°	23.9	19.5	15.2	13.0	11.9	9.8	8.7	6.5	5.4	4.3	3.3
80°	13.0	9.8	7.6	6.5	5.4	4.3	4.3	3.3	2.2	2.2	1.1
82.5°	4.3	3.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1
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°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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°	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4
2.5°	904.3	892.3	895.6	895.6	893.4	893.4	891.2	888.0	889.1	882.6	868.5
5°	894.5	879.3	877.1	879.3	870.6	868.5	864.1	870.6	851.1	858.7	850.0
7.5°	866.3	852.2	848.9	856.5	845.7	839.1	838.1	846.7	829.4	820.7	810.9
10°	834.8	829.4	819.6	814.2	810.9	812.0	803.3	792.5	789.2	787.0	778.4
12.5°	806.6	794.6	785.9	779.4	777.3	777.3	763.2	761.0	751.2	749.0	736.0
15°	772.9	758.8	753.4	744.7	737.1	741.4	725.2	720.8	717.6	703.4	705.6
17.5°	743.6	728.4	715.4	710.0	703.4	696.9	681.7	685.0	677.4	677.4	657.9
20°	705.6	689.3	679.6	668.7	668.7	660.0	649.2	650.3	640.5	630.7	613.3
22.5°	665.5	648.1	636.1	631.8	620.9	618.8	605.7	602.5	589.5	590.5	575.3
25°	623.1	605.7	589.5	590.5	580.8	576.4	568.8	553.6	548.2	541.7	537.4
27.5°	573.2	561.2	547.1	546.0	527.6	528.7	518.9	514.6	501.5	504.8	495.0
30°	527.6	510.2	497.2	493.9	486.3	484.2	469.0	462.5	464.6	455.9	450.5
32.5°	480.9	454.9	449.4	442.9	438.6	433.1	422.3	426.6	416.9	419.0	410.3
35°	419.0	408.2	394.1	394.1	389.7	385.4	377.8	382.1	372.3	368.0	359.3
37.5°	366.9	357.2	343.0	347.4	339.8	333.3	326.8	327.8	319.2	318.1	309.4
40°	310.5	305.0	295.3	295.3	289.8	289.8	286.6	283.3	277.9	271.4	261.6
42.5°	257.3	252.9	248.6	249.7	242.1	248.6	239.9	245.3	228.0	226.9	220.4
45°	218.2	208.4	209.5	205.2	200.8	203.0	195.4	197.6	187.8	185.6	179.1
47.5°	176.9	173.7	167.2	165.0	165.0	161.7	158.5	157.4	153.1	147.6	139.0
50°	145.5	133.5	131.4	128.1	125.9	125.9	121.6	115.1	116.2	110.7	102.0
52.5°	114.0	104.2	99.9	98.8	94.4	92.3	86.8	82.5	79.2	77.1	71.6
55°	87.9	79.2	73.8	73.8	67.3	67.3	59.7	56.4	52.1	47.8	44.5
57.5°	66.2	61.9	56.4	52.1	49.9	44.5	40.2	34.7	31.5	25.0	20.6
60°	49.9	45.6	40.2	36.9	34.7	29.3	23.9	19.5	11.9	9.8	8.7
62.5°	36.9	32.6	27.1	25.0	22.8	18.5	13.0	6.5	3.3	3.3	3.3
65°	27.1	21.7	17.4	15.2	13.0	9.8	4.3	2.2	1.1	1.1	1.1
67.5°	18.5	14.1	9.8	8.7	6.5	3.3	1.1	1.1	1.1	1.1	1.1
70°	11.9	8.7	4.3	3.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1
72.5°	7.6	4.3	2.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.1	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	1.1	1.1	1.1
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	905.4	905.4	905.4	905.4	905.4	905.4	905.4	905.4
2.5°	883.7	876.1	880.4	870.6	875.0	882.6	877.1	879.3
5°	853.3	848.9	843.5	829.4	840.2	848.9	844.6	843.5
7.5°	820.7	805.5	813.1	808.7	806.6	815.3	805.5	816.3
10°	787.0	776.2	775.1	767.5	767.5	774.0	775.1	768.6
12.5°	737.1	731.7	731.7	730.6	729.5	736.0	737.1	733.8
15°	701.3	699.1	693.7	692.6	686.1	695.8	696.9	695.8
17.5°	657.9	658.9	653.5	653.5	657.9	661.1	652.4	661.1
20°	628.5	623.1	620.9	611.2	616.6	622.0	622.0	623.1
22.5°	586.2	577.5	580.8	575.3	572.1	579.7	579.7	582.9
25°	538.4	538.4	540.6	537.4	539.5	543.9	540.6	548.2
27.5°	492.8	497.2	497.2	492.8	495.0	508.0	513.5	504.8
30°	450.5	451.6	454.9	452.7	459.2	463.5	462.5	469.0
32.5°	402.7	408.2	410.3	407.1	409.3	419.0	413.6	412.5
35°	365.8	356.1	355.0	356.1	360.4	362.6	360.4	368.0
37.5°	312.6	309.4	305.0	306.1	309.4	313.7	315.9	321.3
40°	261.6	257.3	257.3	256.2	252.9	264.9	264.9	264.9
42.5°	217.1	216.0	210.6	210.6	214.9	218.2	216.0	223.6
45°	178.0	173.7	170.4	170.4	173.7	173.7	176.9	175.9
47.5°	140.0	135.7	136.8	133.5	136.8	141.1	135.7	136.8
50°	105.3	105.3	103.1	105.3	104.2	105.3	103.1	101.0
52.5°	71.6	81.4	82.5	78.2	68.4	59.7	54.3	58.6
55°	41.3	36.9	36.9	35.8	33.7	32.6	29.3	32.6
57.5°	20.6	18.5	18.5	18.5	17.4	16.3	14.1	14.1
60°	8.7	7.6	7.6	6.5	5.4	4.3	3.3	4.3
62.5°	3.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2
65°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)