

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: P219513

Luminaire Tested: **LDSQ4B20D010 EU4B10209050 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219513
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 EU4B10209050 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1377.3 lumens
Efficiency: N/A
Efficacy: 66.2 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

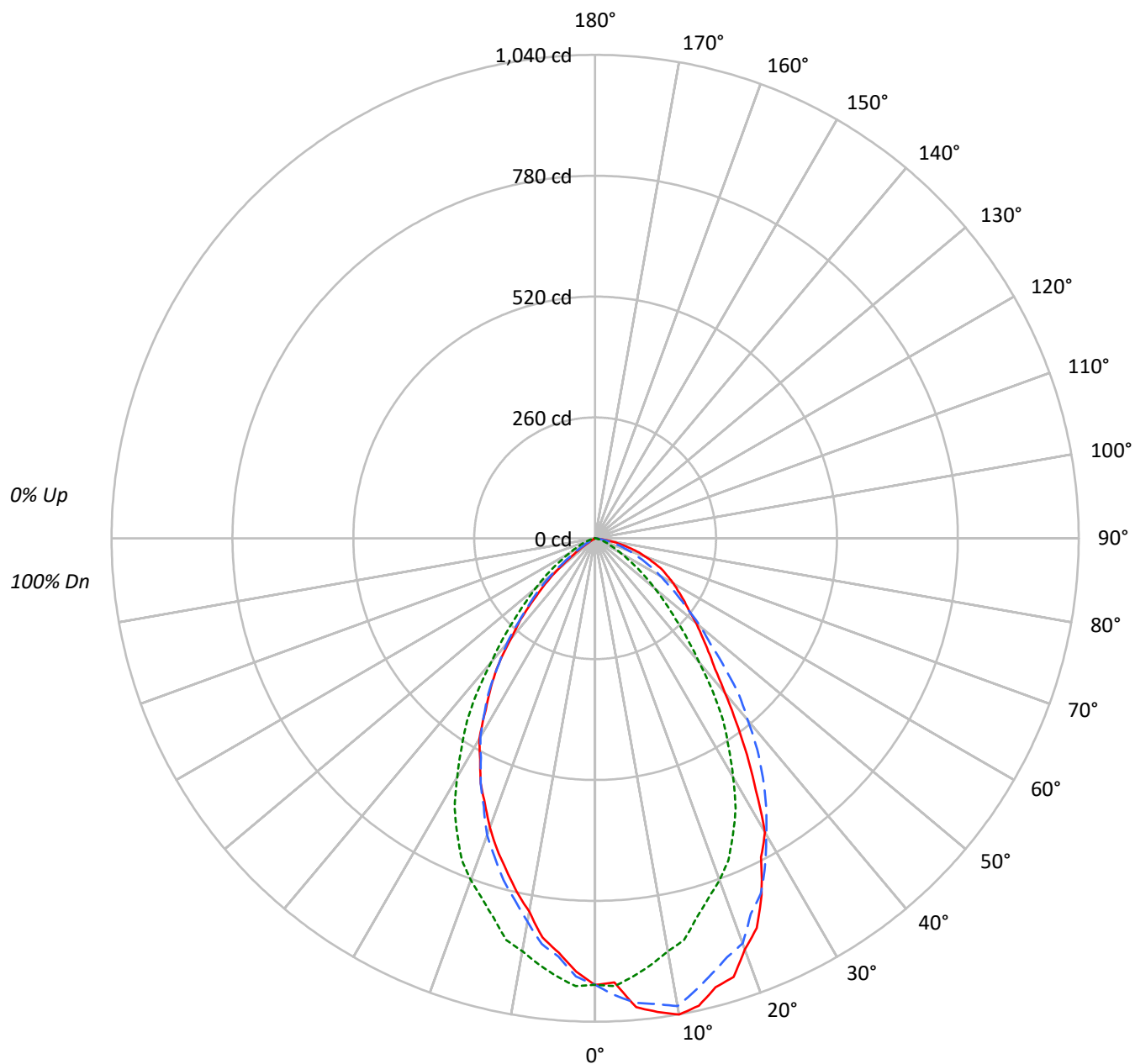
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90	90	90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80	80	80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72	72	72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64	64	64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58	58	58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53	53	53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48	48	48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44	44	44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41	41	41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38	38	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	93078	93078	93078
5°	98480	91984	87054
10°	102334	88739	80240
15°	100293	84697	74066
20°	97041	80649	68175
25°	90515	74994	62189
30°	81704	66368	55674
35°	67304	56814	46194
40°	54922	43857	35548
45°	47197	33305	25565
50°	42712	25350	16141
55°	39302	18292	5844
60°	37723	12497	891
65°	36447	8458	275
70°	32630	5863	340
75°	26725	3032	0
80°	16737	1283	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.0	6.5
10°-20°	242.5	17.6
20°-30°	323.9	23.5
30°-40°	307.4	22.3
40°-50°	212.5	15.4
50°-60°	117.4	8.5
60°-70°	58.3	4.2
70°-80°	23.0	1.7
80°-90°	2.2	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°	656.4	47.7
0°-40°	963.9	70.0
0°-60°	1293.8	93.9
0°-90°	1377.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1377.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	961	961	961	961	961	
5°	1013	1004	946	903	895	97
15°	1000	970	844	762	738	283
25°	847	843	702	582	582	386
35°	569	629	480	395	391	357
45°	344	395	243	199	187	269
55°	233	219	108	55	35	209
65°	159	115	37	1	1	154
75°	71	44	8	0	0	76
85°	0	1	0	0	0	7
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°	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8
2.5°	956.2	982.7	985.0	982.7	986.2	985.0	990.8	985.0	991.9	981.6	983.9
5°	1012.7	1002.3	1024.2	1012.7	1012.7	1011.5	1008.1	1006.9	1011.5	996.6	1003.5
7.5°	1027.7	1042.6	1062.2	1038.0	1039.2	1039.2	1032.3	1030.0	1030.0	1002.3	1010.4
10°	1040.3	1031.1	1041.5	1032.3	1040.3	1039.2	1043.8	1028.8	1039.2	1023.0	1021.9
12.5°	1030.0	1026.5	1040.3	1025.4	1020.7	1021.9	1016.1	1012.7	1016.1	997.7	996.6
15°	1000.0	1003.5	1024.2	1008.1	1005.8	1003.5	996.6	985.0	994.2	968.9	970.1
17.5°	989.6	983.9	987.3	973.5	977.0	974.7	973.5	963.1	960.8	944.7	944.7
20°	941.3	953.9	953.9	944.7	944.7	943.6	928.6	937.8	927.4	922.8	927.4
22.5°	907.8	909.0	909.0	900.9	902.1	897.5	889.4	883.6	889.4	883.6	874.4
25°	846.8	849.1	862.9	847.9	845.6	850.2	843.3	839.9	838.7	824.9	843.3
27.5°	773.0	796.1	794.9	789.2	796.1	786.9	783.4	784.6	788.0	786.9	791.5
30°	730.4	733.9	737.3	732.7	733.9	730.4	730.4	731.6	740.8	737.3	736.2
32.5°	644.0	655.5	664.8	664.8	665.9	669.4	668.2	692.4	698.2	686.6	684.3
35°	569.1	577.2	585.3	586.4	601.4	602.5	603.7	610.6	626.7	630.2	629.0
37.5°	497.7	505.8	508.1	518.4	526.5	534.6	543.8	553.0	566.8	578.3	572.6
40°	434.3	437.8	443.6	448.2	464.3	464.3	468.9	487.3	502.3	511.5	510.4
42.5°	381.3	382.5	387.1	395.2	410.1	406.7	410.1	422.8	444.7	445.9	458.5
45°	344.5	343.3	346.8	347.9	357.1	361.8	364.1	373.3	391.7	394.0	395.2
47.5°	311.1	309.9	315.7	318.0	321.4	326.0	326.0	327.2	334.1	339.9	335.3
50°	283.4	283.4	283.4	285.7	291.5	290.3	291.5	296.1	299.5	297.2	296.1
52.5°	253.5	258.1	261.5	262.7	263.8	263.8	265.0	262.7	261.5	258.1	251.2
55°	232.7	237.3	237.3	237.3	237.3	241.9	236.2	237.3	237.3	228.1	218.9
57.5°	212.0	216.6	220.0	215.4	220.0	215.4	213.1	212.0	209.7	200.5	186.6
60°	194.7	197.0	195.9	194.7	197.0	193.5	191.2	186.6	184.3	171.7	162.4
62.5°	175.1	176.3	177.4	175.1	172.8	171.7	167.1	160.1	155.5	145.2	137.1
65°	159.0	155.5	154.4	153.2	150.9	147.5	144.0	135.9	132.5	123.3	115.2
67.5°	134.8	133.6	135.9	132.5	126.7	126.7	123.3	116.4	108.3	102.5	94.5
70°	115.2	114.1	111.8	108.3	107.1	102.5	102.5	94.5	92.2	81.8	74.9
72.5°	94.5	94.5	91.0	87.6	84.1	81.8	80.6	74.9	71.4	65.7	59.9
75°	71.4	71.4	70.3	66.8	64.5	62.2	61.1	56.5	53.0	47.2	43.8
77.5°	50.7	50.7	46.1	43.8	44.9	42.6	40.3	39.2	38.0	34.6	30.0
80°	30.0	28.8	25.3	26.5	25.3	25.3	24.2	23.0	20.7	18.4	16.1
82.5°	8.1	9.2	9.2	9.2	10.4	8.1	8.1	8.1	9.2	9.2	5.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2
87.5°	1.2	2.3	4.6	4.6	4.6	4.6	4.6	3.5	3.5	3.5	2.3
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°	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8
2.5°	972.4	971.2	972.4	964.3	982.7	968.9	966.6	964.3	972.4	964.3	952.8
5°	993.1	981.6	978.1	974.7	985.0	968.9	965.4	966.6	960.8	945.9	947.0
7.5°	1000.0	989.6	979.3	957.4	966.6	963.1	953.9	947.0	937.8	925.1	922.8
10°	1002.3	990.8	975.8	968.9	955.1	950.5	947.0	935.5	924.0	902.1	896.3
12.5°	995.4	981.6	963.1	957.4	947.0	932.0	924.0	912.4	902.1	884.8	872.1
15°	965.4	953.9	948.2	928.6	924.0	914.8	898.6	882.5	867.5	844.5	837.6
17.5°	930.9	926.3	920.5	905.5	904.4	895.2	880.2	866.4	846.8	811.1	799.5
20°	895.2	895.2	876.7	871.0	882.5	864.1	852.5	839.9	799.5	782.3	761.5
22.5°	868.7	856.0	845.6	836.4	837.6	826.0	809.9	784.6	769.6	748.9	724.7
25°	816.8	821.4	798.4	794.9	798.4	771.9	763.8	743.1	721.2	701.6	683.2
27.5°	784.6	771.9	756.9	744.2	744.2	733.9	710.8	706.2	672.8	654.4	631.3
30°	736.2	727.0	714.3	695.9	693.6	685.5	667.1	655.5	621.0	593.3	580.6
32.5°	675.1	671.7	661.3	640.6	633.6	624.4	601.4	581.8	565.7	534.6	519.6
35°	631.3	618.7	596.8	579.5	573.7	557.6	539.2	525.3	508.1	480.4	460.8
37.5°	565.7	553.0	532.3	511.5	511.5	495.4	470.0	456.2	432.0	415.9	399.8
40°	508.1	491.9	471.2	447.0	443.6	420.5	410.1	387.1	372.1	346.8	344.5
42.5°	443.6	428.6	410.1	391.7	377.9	366.4	339.9	322.6	306.5	293.8	290.3
45°	384.8	365.2	349.1	326.0	312.2	298.4	281.1	269.6	256.9	243.1	235.0
47.5°	334.1	318.0	294.9	274.2	260.4	253.5	233.9	221.2	210.8	201.6	195.9
50°	282.3	262.7	250.0	227.0	224.7	208.5	192.4	182.0	176.3	168.2	160.1
52.5°	243.1	224.7	207.4	190.1	180.9	175.1	160.1	149.8	141.7	135.9	131.3
55°	205.1	188.9	175.1	157.8	152.1	144.0	126.7	124.4	116.4	108.3	102.5
57.5°	176.3	161.3	145.2	133.6	123.3	117.5	103.7	94.5	89.9	82.9	77.2
60°	149.8	133.6	121.0	107.1	102.5	94.5	84.1	76.0	70.3	64.5	58.8
62.5°	125.6	111.8	97.9	86.4	79.5	74.9	66.8	59.9	54.1	49.5	44.9
65°	103.7	91.0	79.5	68.0	64.5	58.8	53.0	47.2	42.6	36.9	32.3
67.5°	85.3	73.7	62.2	54.1	50.7	48.4	41.5	35.7	32.3	28.8	24.2
70°	66.8	58.8	49.5	42.6	39.2	35.7	31.1	27.6	23.0	20.7	17.3
72.5°	51.8	44.9	36.9	31.1	28.8	26.5	21.9	18.4	16.1	13.8	11.5
75°	36.9	31.1	26.5	20.7	19.6	18.4	15.0	12.7	10.4	8.1	6.9
77.5°	25.3	20.7	16.1	13.8	12.7	10.4	9.2	6.9	5.8	4.6	3.5
80°	13.8	10.4	8.1	6.9	5.8	4.6	4.6	3.5	2.3	2.3	1.2
82.5°	4.6	3.5	2.3	1.2	1.2	1.2	1.2	1.2	1.2	0.0	1.2
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°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	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°	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8
2.5°	959.7	947.0	950.5	950.5	948.2	948.2	945.9	942.4	943.6	936.6	921.7
5°	949.3	933.2	930.9	933.2	924.0	921.7	917.1	924.0	903.2	911.3	902.1
7.5°	919.4	904.4	900.9	909.0	897.5	890.6	889.4	898.6	880.2	871.0	860.6
10°	886.0	880.2	869.8	864.1	860.6	861.8	852.5	841.0	837.6	835.3	826.0
12.5°	856.0	843.3	834.1	827.2	824.9	824.9	809.9	807.6	797.2	794.9	781.1
15°	820.3	805.3	799.5	790.3	782.3	786.9	769.6	765.0	761.5	746.5	748.9
17.5°	789.2	773.0	759.2	753.5	746.5	739.6	723.5	727.0	718.9	718.9	698.2
20°	748.9	731.6	721.2	709.7	709.7	700.5	688.9	690.1	679.7	669.4	650.9
22.5°	706.2	687.8	675.1	670.5	659.0	656.7	642.9	639.4	625.6	626.7	610.6
25°	661.3	642.9	625.6	626.7	616.4	611.8	603.7	587.6	581.8	574.9	570.3
27.5°	608.3	595.6	580.6	579.5	559.9	561.1	550.7	546.1	532.3	535.7	525.3
30°	559.9	541.5	527.7	524.2	516.1	513.8	497.7	490.8	493.1	483.9	478.1
32.5°	510.4	482.7	477.0	470.0	465.4	459.7	448.2	452.8	442.4	444.7	435.5
35°	444.7	433.2	418.2	418.2	413.6	409.0	400.9	405.5	395.2	390.6	381.3
37.5°	389.4	379.0	364.1	368.7	360.6	353.7	346.8	347.9	338.7	337.6	328.3
40°	329.5	323.7	313.4	313.4	307.6	307.6	304.1	300.7	294.9	288.0	277.7
42.5°	273.0	268.4	263.8	265.0	256.9	263.8	254.6	260.4	241.9	240.8	233.9
45°	231.6	221.2	222.4	217.7	213.1	215.4	207.4	209.7	199.3	197.0	190.1
47.5°	187.8	184.3	177.4	175.1	175.1	171.7	168.2	167.1	162.4	156.7	147.5
50°	154.4	141.7	139.4	135.9	133.6	133.6	129.0	122.1	123.3	117.5	108.3
52.5°	121.0	110.6	106.0	104.8	100.2	97.9	92.2	87.6	84.1	81.8	76.0
55°	93.3	84.1	78.3	78.3	71.4	71.4	63.4	59.9	55.3	50.7	47.2
57.5°	70.3	65.7	59.9	55.3	53.0	47.2	42.6	36.9	33.4	26.5	21.9
60°	53.0	48.4	42.6	39.2	36.9	31.1	25.3	20.7	12.7	10.4	9.2
62.5°	39.2	34.6	28.8	26.5	24.2	19.6	13.8	6.9	3.5	3.5	3.5
65°	28.8	23.0	18.4	16.1	13.8	10.4	4.6	2.3	1.2	1.2	1.2
67.5°	19.6	15.0	10.4	9.2	6.9	3.5	1.2	1.2	1.2	1.2	1.2
70°	12.7	9.2	4.6	3.5	2.3	1.2	1.2	1.2	1.2	1.2	1.2
72.5°	8.1	4.6	2.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.2	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	1.2	1.2	1.2
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	960.8	960.8	960.8	960.8	960.8	960.8	960.8	960.8
2.5°	937.8	929.7	934.3	924.0	928.6	936.6	930.9	933.2
5°	905.5	900.9	895.2	880.2	891.7	900.9	896.3	895.2
7.5°	871.0	854.8	862.9	858.3	856.0	865.2	854.8	866.4
10°	835.3	823.7	822.6	814.5	814.5	821.4	822.6	815.7
12.5°	782.3	776.5	776.5	775.4	774.2	781.1	782.3	778.8
15°	744.2	741.9	736.2	735.0	728.1	738.5	739.6	738.5
17.5°	698.2	699.3	693.6	693.6	698.2	701.6	692.4	701.6
20°	667.1	661.3	659.0	648.6	654.4	660.1	660.1	661.3
22.5°	622.1	612.9	616.4	610.6	607.1	615.2	615.2	618.7
25°	571.4	571.4	573.7	570.3	572.6	577.2	573.7	581.8
27.5°	523.0	527.7	527.7	523.0	525.3	539.2	544.9	535.7
30°	478.1	479.3	482.7	480.4	487.3	491.9	490.8	497.7
32.5°	427.4	433.2	435.5	432.0	434.3	444.7	438.9	437.8
35°	388.3	377.9	376.7	377.9	382.5	384.8	382.5	390.6
37.5°	331.8	328.3	323.7	324.9	328.3	333.0	335.3	341.0
40°	277.7	273.0	273.0	271.9	268.4	281.1	281.1	281.1
42.5°	230.4	229.3	223.5	223.5	228.1	231.6	229.3	237.3
45°	188.9	184.3	180.9	180.9	184.3	184.3	187.8	186.6
47.5°	148.6	144.0	145.2	141.7	145.2	149.8	144.0	145.2
50°	111.8	111.8	109.4	111.8	110.6	111.8	109.4	107.1
52.5°	76.0	86.4	87.6	82.9	72.6	63.4	57.6	62.2
55°	43.8	39.2	39.2	38.0	35.7	34.6	31.1	34.6
57.5°	21.9	19.6	19.6	19.6	18.4	17.3	15.0	15.0
60°	9.2	8.1	8.1	6.9	5.8	4.6	3.5	4.6
62.5°	3.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3
65°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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)