

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: P251926

Luminaire Tested: **LD4B20D010 EU4B10209027 4LBDW1H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251926
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-15)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LD4B20D010 EU4B10209027 4LBDW1H
Description: PORTFOLIO 4 INCH DOUBLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1436.0 lumens
Efficiency: N/A
Efficacy: 69.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.18 / 1.19
Luminous Opening: Circular (Dia: 0.38' x H: 0')
CIE Type: Direct

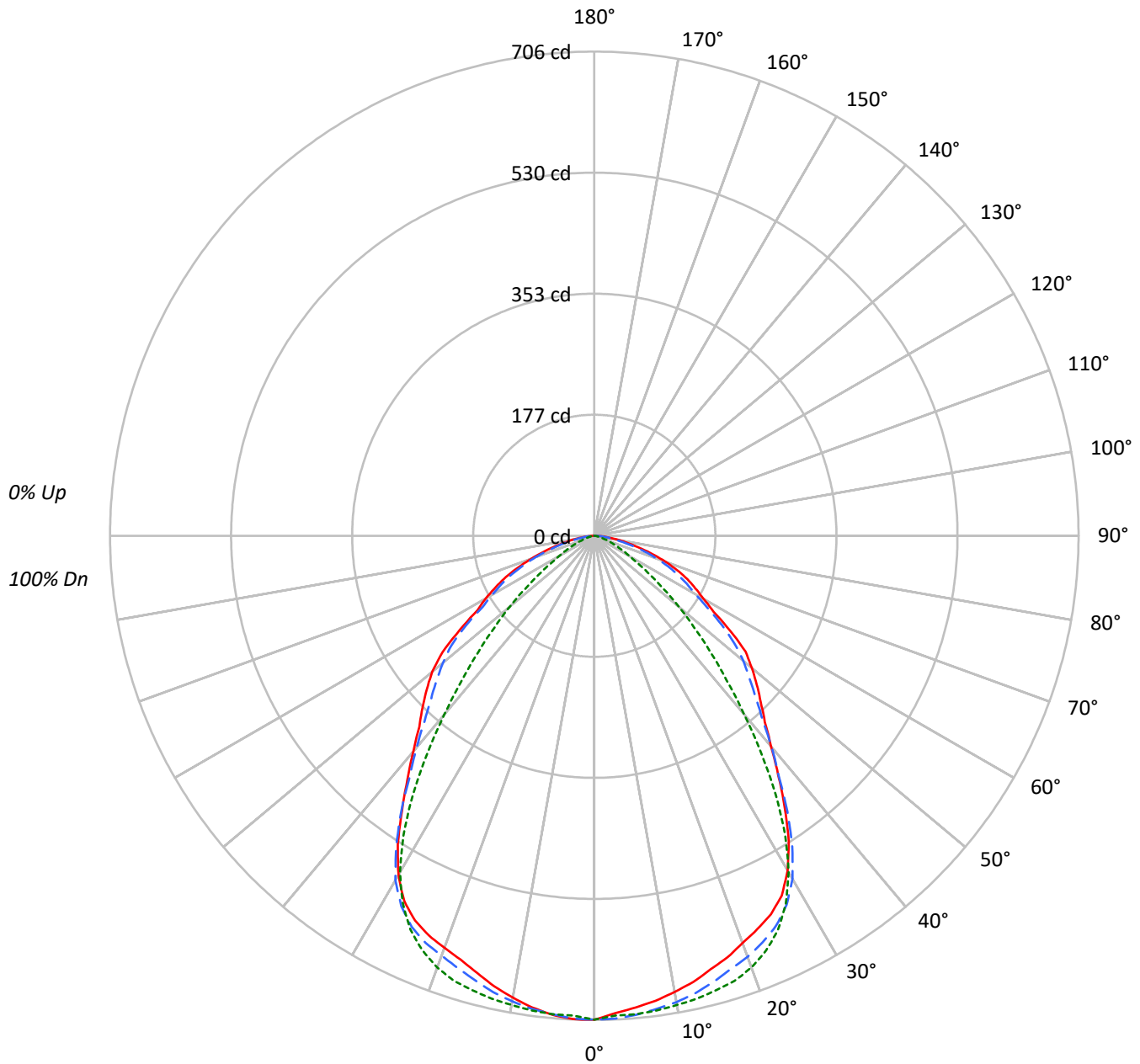
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

Luminous Intensity Polar Plot





TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

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	111	107	103	100	108	104	101	98	100	98	95		96	94	92		93
2	102	95	89	84	100	93	88	83	90	85	81		87	83	80		84
3	94	85	78	72	92	84	77	72	81	75	70		78	73	69		76
4	87	77	69	63	85	75	68	62	73	67	62		71	65	61		69
5	81	69	61	55	79	68	61	55	66	60	54		64	58	54		63
6	75	63	55	49	73	62	55	49	60	54	49		59	53	48		57
7	70	58	50	44	68	57	49	44	56	49	44		54	48	43		53
8	66	53	45	40	64	52	45	40	51	44	40		50	44	39		49
9	62	49	41	36	60	49	41	36	47	41	36		46	40	36		45
10	58	46	38	33	57	45	38	33	44	38	33		43	37	33		42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	68766	68766	68766
5°	67542	68501	68608
10°	66819	68749	67680
15°	66047	69225	66591
20°	65526	69467	66314
25°	65488	68165	66541
30°	63402	63762	64257
35°	57595	54895	58119
40°	50965	43230	52199
45°	47275	32913	48777
50°	45425	24365	46744
55°	41136	16787	40575
60°	35767	11422	35553
65°	34545	8256	32792
70°	31230	5556	27839
75°	25756	3690	22066
80°	20710	2413	16444
85°	16997	1230	10958



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.6	4.6
10°-20°	190.4	13.3
20°-30°	287.7	20.0
30°-40°	301.1	21.0
40°-50°	243.9	17.0
50°-60°	177.4	12.4
60°-70°	109.4	7.6
70°-80°	49.4	3.4
80°-90°	10.1	0.7
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°	544.8	37.9
0°-40°	845.9	58.9
0°-60°	1267.1	88.2
0°-90°	1436.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1436.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	706	706	706	706	706	
5°	690	701	700	700	701	65
15°	655	673	686	671	660	185
25°	609	627	634	630	619	279
35°	484	491	461	491	488	302
45°	343	332	239	336	354	267
55°	242	227	99	229	239	216
65°	150	135	36	132	142	147
75°	68	59	10	51	59	74
85°	15	12	1	9	10	17
90°	0	0	0	0	0	



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6
2.5°	696.9	696.9	703.4	711.0	704.5	698.0	702.3	700.2	707.8	707.8	704.5
5°	690.4	692.6	698.0	704.5	699.1	692.6	698.0	695.8	703.4	703.4	701.3
7.5°	683.9	685.0	691.5	699.1	693.7	687.1	691.5	690.4	696.9	698.0	695.8
10°	675.2	676.3	682.8	690.4	685.0	679.5	683.9	682.8	691.5	691.5	690.4
12.5°	666.5	667.6	674.1	680.6	675.2	669.8	674.1	674.1	682.8	683.9	682.8
15°	654.6	656.7	662.2	668.7	665.4	658.9	663.3	663.3	670.9	673.0	673.0
17.5°	644.8	645.9	651.3	657.8	653.5	648.1	652.4	652.4	660.0	662.2	662.2
20°	631.8	633.9	639.4	645.9	642.6	638.3	641.5	641.5	650.2	652.4	653.5
22.5°	620.9	623.1	627.4	636.1	630.7	627.4	631.8	630.7	640.5	641.5	641.5
25°	609.0	611.2	616.6	622.0	618.8	615.5	618.8	618.8	626.4	627.4	627.4
27.5°	591.6	592.7	598.1	603.6	600.3	596.0	600.3	599.2	606.8	607.9	606.8
30°	563.4	565.6	567.7	575.3	572.1	568.8	573.2	571.0	578.6	578.6	577.5
32.5°	527.6	527.6	531.9	537.3	533.0	530.8	534.1	535.2	540.6	540.6	537.3
35°	484.1	486.3	489.6	492.8	489.6	487.4	490.7	489.6	496.1	493.9	490.7
37.5°	440.7	441.8	445.1	449.4	445.1	441.8	442.9	441.8	447.2	447.2	441.8
40°	400.6	402.7	404.9	409.2	404.9	402.7	403.8	400.6	407.1	404.9	401.6
42.5°	368.0	369.1	372.3	374.5	370.2	369.1	370.2	368.0	371.3	369.1	362.6
45°	343.0	343.0	344.1	347.4	343.0	341.9	341.9	339.8	343.0	338.7	332.2
47.5°	321.3	322.4	323.5	325.7	322.4	319.1	320.2	315.9	318.1	314.8	306.1
50°	299.6	301.8	302.9	305.0	301.8	299.6	300.7	296.3	296.3	290.9	283.3
52.5°	277.9	279.0	277.9	280.1	277.9	274.6	275.7	271.4	271.4	264.9	257.3
55°	242.1	243.2	244.2	246.4	244.2	241.0	243.2	239.9	239.9	235.6	226.9
57.5°	206.3	207.3	208.4	209.5	209.5	207.3	208.4	206.3	205.2	201.9	195.4
60°	183.5	183.5	183.5	184.5	183.5	182.4	182.4	180.2	180.2	175.9	169.3
62.5°	166.1	167.2	167.2	168.3	167.2	166.1	165.0	162.8	161.7	157.4	152.0
65°	149.8	149.8	148.7	150.9	149.8	148.7	148.7	146.5	144.4	140.0	134.6
67.5°	130.3	131.3	130.3	131.3	131.3	130.3	129.2	127.0	125.9	122.7	116.2
70°	109.6	109.6	109.6	110.7	109.6	109.6	110.7	107.5	106.4	102.0	96.6
72.5°	89.0	90.1	90.1	89.0	90.1	87.9	87.9	87.9	86.8	82.5	77.1
75°	68.4	69.5	69.5	70.6	69.5	68.4	68.4	67.3	66.2	63.0	58.6
77.5°	51.0	51.0	52.1	52.1	52.1	51.0	51.0	48.8	48.8	46.7	42.3
80°	36.9	36.9	35.8	36.9	36.9	35.8	35.8	34.7	34.7	32.6	29.3
82.5°	23.9	25.0	25.0	25.0	25.0	23.9	23.9	23.9	22.8	21.7	19.5
85°	15.2	15.2	15.2	15.2	16.3	15.2	16.3	15.2	15.2	13.0	11.9
87.5°	6.5	6.5	6.5	7.6	7.6	6.5	6.5	6.5	6.5	6.5	5.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6
2.5°	704.5	705.6	702.3	706.7	703.4	704.5	705.6	704.5	700.2	700.2	712.1
5°	700.2	702.3	699.1	704.5	702.3	702.3	704.5	703.4	699.1	700.2	711.0
7.5°	695.8	699.1	696.9	702.3	699.1	699.1	701.3	701.3	696.9	698.0	707.8
10°	689.3	693.7	692.6	698.0	694.7	694.7	698.0	698.0	693.7	694.7	704.5
12.5°	683.9	688.2	687.1	692.6	690.4	691.5	692.6	694.7	689.3	691.5	700.2
15°	675.2	679.5	679.5	685.0	682.8	685.0	687.1	690.4	686.1	686.1	694.7
17.5°	665.4	670.9	670.9	675.2	675.2	676.3	680.6	683.9	679.5	680.6	688.2
20°	654.6	661.1	661.1	666.5	665.4	667.6	670.9	674.1	669.8	669.8	678.5
22.5°	643.7	649.1	650.2	653.5	653.5	654.6	657.8	660.0	654.6	654.6	663.3
25°	628.5	633.9	635.0	637.2	635.0	635.0	637.2	639.4	633.9	633.9	641.5
27.5°	607.9	613.3	613.3	612.2	610.1	611.2	610.1	611.2	605.7	604.6	612.2
30°	577.5	580.8	580.8	579.7	576.4	576.4	573.2	574.2	566.6	566.6	573.2
32.5°	536.3	539.5	537.3	535.2	530.8	528.7	526.5	525.4	517.8	517.8	525.4
35°	487.4	489.6	486.3	482.0	476.5	473.3	470.0	465.7	460.3	461.4	465.7
37.5°	437.5	437.5	433.1	424.4	420.1	414.7	409.2	409.2	400.6	399.5	402.7
40°	395.1	390.8	383.2	371.3	363.7	358.2	350.6	346.3	339.8	339.8	345.2
42.5°	357.1	348.5	338.7	322.4	314.8	308.3	298.5	294.2	286.6	285.5	288.8
45°	323.5	314.8	300.7	283.3	273.6	266.0	251.8	246.4	239.9	238.8	241.0
47.5°	296.3	286.6	269.2	246.4	236.6	226.9	212.8	205.2	199.7	196.5	199.7
50°	272.5	259.4	241.0	217.1	204.1	195.4	178.0	170.4	162.8	160.7	161.7
52.5°	246.4	233.4	213.8	188.9	176.9	163.9	147.6	136.8	130.3	127.0	130.3
55°	218.2	205.2	185.6	160.7	147.6	135.7	118.3	109.6	102.0	98.8	102.0
57.5°	187.8	175.9	158.5	133.5	121.6	110.7	94.4	85.8	78.2	76.0	78.2
60°	161.7	152.0	134.6	110.7	101.0	89.0	74.9	66.2	59.7	58.6	59.7
62.5°	144.4	133.5	117.2	94.4	84.7	74.9	61.9	53.2	47.8	46.7	47.8
65°	127.0	115.1	99.9	80.3	70.6	63.0	49.9	42.3	36.9	35.8	36.9
67.5°	107.5	96.6	83.6	66.2	58.6	51.0	40.2	32.6	28.2	27.1	28.2
70°	89.0	79.2	66.2	53.2	45.6	40.2	30.4	25.0	20.6	19.5	20.6
72.5°	70.6	61.9	51.0	40.2	35.8	30.4	23.9	18.5	15.2	14.1	15.2
75°	54.3	47.8	39.1	29.3	26.1	22.8	16.3	13.0	10.9	9.8	10.9
77.5°	38.0	33.7	27.1	21.7	18.5	16.3	11.9	8.7	7.6	6.5	7.6
80°	26.1	22.8	18.5	14.1	11.9	9.8	7.6	5.4	4.3	4.3	4.3
82.5°	17.4	14.1	10.9	8.7	7.6	6.5	4.3	3.3	3.3	2.2	2.2
85°	9.8	8.7	6.5	5.4	4.3	3.3	2.2	2.2	1.1	1.1	1.1
87.5°	4.3	3.3	2.2	2.2	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



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6
2.5°	708.9	705.6	709.9	705.6	703.4	705.6	703.4	709.9	704.5	700.2	704.5
5°	707.8	703.4	707.8	704.5	701.3	702.3	700.2	706.7	700.2	696.9	699.1
7.5°	705.6	702.3	704.5	701.3	698.0	699.1	696.9	702.3	695.8	692.6	694.7
10°	702.3	699.1	700.2	698.0	694.7	694.7	692.6	696.9	689.3	685.0	687.1
12.5°	698.0	693.7	695.8	692.6	688.2	688.2	686.1	689.3	681.7	677.4	678.5
15°	692.6	688.2	688.2	685.0	680.6	680.6	676.3	679.5	670.9	666.5	666.5
17.5°	686.1	680.6	680.6	677.4	671.9	670.9	667.6	670.9	661.1	656.7	656.7
20°	676.3	671.9	670.9	668.7	663.3	662.2	657.8	658.9	651.3	648.1	647.0
22.5°	663.3	658.9	660.0	656.7	652.4	651.3	647.0	650.2	642.6	639.4	640.5
25°	640.5	638.3	640.5	639.4	636.1	636.1	633.9	636.1	629.6	627.4	628.5
27.5°	614.4	613.3	614.4	614.4	612.2	612.2	612.2	615.5	609.0	607.9	607.9
30°	576.4	576.4	577.5	578.6	578.6	580.8	579.7	584.0	579.7	577.5	579.7
32.5°	526.5	530.8	534.1	534.1	534.1	536.3	538.4	541.7	537.3	538.4	538.4
35°	470.0	473.3	475.5	480.9	477.6	485.2	487.4	491.7	490.7	492.8	491.7
37.5°	407.1	411.4	415.8	423.4	422.3	431.0	435.3	444.0	441.8	446.2	448.3
40°	348.5	355.0	361.5	366.9	371.3	379.9	388.6	399.5	402.7	406.0	407.1
42.5°	292.0	298.5	309.4	317.0	323.5	337.6	349.5	362.6	365.8	372.3	374.5
45°	246.4	251.8	264.9	274.6	280.1	300.7	314.8	331.1	336.5	344.1	347.4
47.5°	204.1	213.8	226.9	238.8	246.4	268.1	286.6	303.9	311.5	320.2	324.6
50°	167.2	178.0	195.4	206.3	217.1	241.0	261.6	280.1	287.7	297.4	301.8
52.5°	136.8	148.7	165.0	176.9	188.9	213.8	235.6	252.9	262.7	269.2	275.7
55°	107.5	120.5	136.8	149.8	159.6	186.7	205.2	222.5	229.0	234.5	237.7
57.5°	83.6	93.4	109.6	120.5	132.4	156.3	174.8	187.8	193.2	199.7	201.9
60°	65.1	74.9	90.1	101.0	111.8	134.6	153.1	166.1	171.5	176.9	180.2
62.5°	52.1	61.9	76.0	85.8	95.5	116.2	132.4	145.5	152.0	157.4	160.7
65°	41.3	49.9	61.9	71.6	79.2	97.7	114.0	125.9	132.4	137.9	141.1
67.5°	32.6	40.2	51.0	57.5	65.1	80.3	94.4	105.3	110.7	117.2	120.5
70°	25.0	30.4	40.2	45.6	51.0	64.0	74.9	85.8	91.2	95.5	97.7
72.5°	18.5	22.8	30.4	34.7	38.0	48.8	57.5	65.1	69.5	73.8	76.0
75°	13.0	16.3	21.7	25.0	27.1	34.7	42.3	47.8	51.0	54.3	57.5
77.5°	8.7	10.9	14.1	16.3	18.5	23.9	28.2	32.6	35.8	39.1	40.2
80°	5.4	7.6	9.8	10.9	11.9	15.2	19.5	21.7	23.9	26.1	27.1
82.5°	3.3	4.3	5.4	6.5	7.6	9.8	11.9	14.1	15.2	17.4	18.5
85°	1.1	2.2	2.2	3.3	3.3	5.4	6.5	7.6	8.7	9.8	10.9
87.5°	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2	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



TEST NUMBER: P251926

CATALOG NUMBER: LD4B20D010 EU4B10209027 4LBDW1H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	705.6	705.6	705.6	705.6	705.6	705.6	705.6	705.6
2.5°	708.9	705.6	703.4	702.3	709.9	700.2	704.5	705.6
5°	704.5	701.3	699.1	698.0	704.5	695.8	699.1	701.3
7.5°	698.0	695.8	692.6	691.5	698.0	688.2	692.6	693.7
10°	690.4	687.1	685.0	683.9	689.3	679.5	683.9	683.9
12.5°	680.6	678.5	674.1	674.1	678.5	669.8	673.0	673.0
15°	667.6	665.4	661.1	661.1	665.4	656.7	660.0	660.0
17.5°	656.7	654.6	651.3	650.2	654.6	645.9	649.1	648.1
20°	648.1	645.9	641.5	641.5	644.8	636.1	639.4	639.4
22.5°	640.5	639.4	635.0	635.0	639.4	630.7	632.9	630.7
25°	628.5	627.4	623.1	624.2	626.4	617.7	620.9	618.8
27.5°	609.0	609.0	604.6	603.6	606.8	599.2	601.4	600.3
30°	578.6	579.7	574.2	574.2	575.3	568.8	572.1	571.0
32.5°	537.3	538.4	534.1	533.0	536.3	530.8	533.0	533.0
35°	491.7	492.8	489.6	489.6	492.8	489.6	489.6	488.5
37.5°	446.2	448.3	446.2	447.2	449.4	446.2	448.3	447.2
40°	409.2	411.4	408.2	410.3	412.5	409.2	412.5	410.3
42.5°	375.6	378.8	376.7	378.8	381.0	378.8	381.0	377.8
45°	350.6	352.8	351.7	352.8	355.0	353.9	355.0	353.9
47.5°	326.7	331.1	328.9	331.1	334.3	332.2	334.3	331.1
50°	305.0	308.3	307.2	309.4	310.5	309.4	311.5	308.3
52.5°	276.8	280.1	279.0	279.0	281.2	279.0	281.2	279.0
55°	239.9	241.0	241.0	242.1	241.0	239.9	241.0	238.8
57.5°	204.1	206.3	203.0	206.3	205.2	204.1	204.1	201.9
60°	181.3	184.5	182.4	184.5	183.5	183.5	183.5	182.4
62.5°	162.8	165.0	162.8	163.9	163.9	163.9	162.8	161.7
65°	142.2	145.5	143.3	144.4	143.3	142.2	143.3	142.2
67.5°	121.6	122.7	122.7	121.6	121.6	121.6	121.6	119.4
70°	98.8	99.9	98.8	101.0	99.9	98.8	99.9	97.7
72.5°	77.1	78.2	77.1	78.2	77.1	77.1	77.1	77.1
75°	57.5	58.6	58.6	58.6	58.6	58.6	56.4	58.6
77.5°	41.3	41.3	41.3	42.3	41.3	41.3	41.3	41.3
80°	28.2	28.2	28.2	29.3	28.2	29.3	28.2	29.3
82.5°	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5
85°	9.8	10.9	10.9	9.8	9.8	9.8	9.8	9.8
87.5°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)