

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P645739

Luminaire Tested: **FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI-D2W**

Issue Date: 12/13/2022

Test Information

Test Method: LM-79-08
Report Number: P645739
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P219529)
Test Lab: INNOVATION CENTER
Issue Date: 12/13/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FLDSQ4C10D010 FEU4C109030 F4LC-SQLWW-LI-D2W
Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQLWW TRIM WITH LI FINISH, DIM TO WARM
Light Source: -
Ballast/Driver: -

Summary

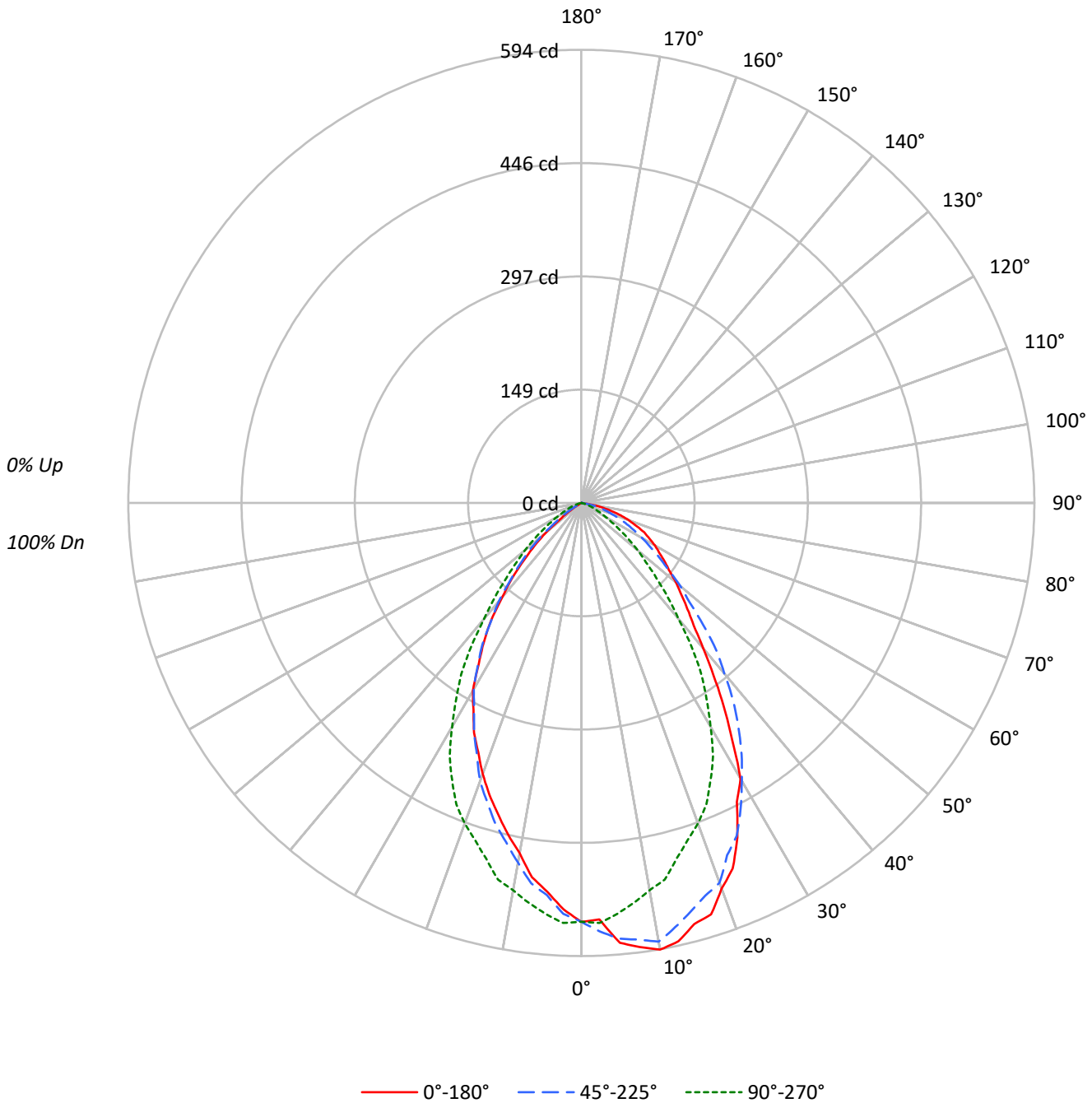
Lumens per Lamp: N/A
Luminaire Lumens: 787.0 lumens
Efficiency: N/A
Efficacy: 80.3 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 9.8
Input Voltage (V):
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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	52972	52972	52972
5°	56051	52351	49543
10°	58248	50507	45667
15°	57079	48198	42155
20°	55232	45899	38803
25°	51518	42681	35399
30°	46505	37770	31687
35°	38306	32334	26291
40°	31263	24965	20229
45°	26855	18954	14546
50°	24303	14426	9187
55°	22374	10413	3331
60°	21478	7121	502
65°	20731	4817	160
70°	18563	3329	197
75°	15210	1715	0
80°	9502	722	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.4	6.5
10°-20°	138.6	17.6
20°-30°	185.1	23.5
30°-40°	175.7	22.3
40°-50°	121.4	15.4
50°-60°	67.1	8.5
60°-70°	33.3	4.2
70°-80°	13.1	1.7
80°-90°	1.3	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°	375.1	47.7
0°-40°	550.8	70.0
0°-60°	739.3	93.9
0°-90°	787.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	787.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	549	549	549	549	549	
5°	579	573	540	516	512	55
15°	571	554	482	435	422	162
25°	484	482	401	332	332	221
35°	325	359	274	226	223	204
45°	197	226	139	114	107	154
55°	133	125	62	32	20	120
65°	91	66	21	1	1	88
75°	41	25	5	0	0	44
85°	0	1	0	0	0	4
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°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	546.4	561.5	562.9	561.5	563.5	562.9	566.2	562.9	566.8	560.9	562.2
5°	578.7	572.7	585.2	578.7	578.7	578.0	576.0	575.4	578.0	569.5	573.4
7.5°	587.2	595.8	607.0	593.2	593.8	593.8	589.9	588.5	588.5	572.7	577.3
10°	594.5	589.2	595.1	589.9	594.5	593.8	596.4	587.9	593.8	584.6	583.9
12.5°	588.5	586.6	594.5	585.9	583.3	583.9	580.6	578.7	580.6	570.1	569.5
15°	571.4	573.4	585.2	576.0	574.7	573.4	569.5	562.9	568.1	553.6	554.3
17.5°	565.5	562.2	564.2	556.3	558.3	556.9	556.3	550.4	549.0	539.8	539.8
20°	537.9	545.1	545.1	539.8	539.8	539.2	530.6	535.9	529.9	527.3	529.9
22.5°	518.7	519.4	519.4	514.8	515.5	512.8	508.2	504.9	508.2	504.9	499.7
25°	483.9	485.2	493.1	484.5	483.2	485.8	481.9	479.9	479.3	471.4	481.9
27.5°	441.7	454.9	454.2	450.9	454.9	449.6	447.7	448.3	450.3	449.6	452.3
30°	417.4	419.3	421.3	418.7	419.3	417.4	417.4	418.0	423.3	421.3	420.7
32.5°	368.0	374.6	379.9	379.9	380.5	382.5	381.8	395.6	398.9	392.4	391.1
35°	325.2	329.8	334.4	335.1	343.6	344.3	345.0	348.9	358.1	360.1	359.4
37.5°	284.4	289.0	290.3	296.2	300.9	305.5	310.7	316.0	323.9	330.5	327.2
40°	248.2	250.2	253.5	256.1	265.3	265.3	267.9	278.5	287.0	292.3	291.6
42.5°	217.9	218.6	221.2	225.8	234.4	232.4	234.4	241.6	254.1	254.8	262.0
45°	196.8	196.2	198.2	198.8	204.1	206.7	208.0	213.3	223.8	225.1	225.8
47.5°	177.8	177.1	180.4	181.7	183.7	186.3	186.3	187.0	190.9	194.2	191.6
50°	161.9	161.9	161.9	163.3	166.6	165.9	166.6	169.2	171.2	169.8	169.2
52.5°	144.8	147.5	149.4	150.1	150.8	150.8	151.4	150.1	149.4	147.5	143.5
55°	133.0	135.6	135.6	135.6	135.6	138.2	135.0	135.6	135.6	130.4	125.1
57.5°	121.1	123.8	125.7	123.1	125.7	123.1	121.8	121.1	119.8	114.5	106.6
60°	111.3	112.6	111.9	111.3	112.6	110.6	109.3	106.6	105.3	98.1	92.8
62.5°	100.1	100.7	101.4	100.1	98.8	98.1	95.5	91.5	88.9	82.9	78.3
65°	90.8	88.9	88.2	87.6	86.2	84.3	82.3	77.7	75.7	70.4	65.8
67.5°	77.0	76.4	77.7	75.7	72.4	72.4	70.4	66.5	61.9	58.6	54.0
70°	65.8	65.2	63.9	61.9	61.2	58.6	58.6	54.0	52.7	46.7	42.8
72.5°	54.0	54.0	52.0	50.0	48.1	46.7	46.1	42.8	40.8	37.5	34.2
75°	40.8	40.8	40.2	38.2	36.9	35.5	34.9	32.3	30.3	27.0	25.0
77.5°	29.0	29.0	26.3	25.0	25.7	24.3	23.0	22.4	21.7	19.8	17.1
80°	17.1	16.5	14.5	15.1	14.5	14.5	13.8	13.2	11.8	10.5	9.2
82.5°	4.6	5.3	5.3	5.3	5.9	4.6	4.6	4.6	5.3	5.3	3.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
87.5°	0.7	1.3	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	1.3
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°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	555.6	555.0	555.6	551.0	561.5	553.6	552.3	551.0	555.6	551.0	544.4
5°	567.5	560.9	558.9	556.9	562.9	553.6	551.7	552.3	549.0	540.5	541.1
7.5°	571.4	565.5	559.6	547.1	552.3	550.4	545.1	541.1	535.9	528.6	527.3
10°	572.7	566.2	557.6	553.6	545.8	543.1	541.1	534.6	528.0	515.5	512.2
12.5°	568.8	560.9	550.4	547.1	541.1	532.6	528.0	521.4	515.5	505.6	498.3
15°	551.7	545.1	541.8	530.6	528.0	522.7	513.5	504.3	495.7	482.5	478.6
17.5°	531.9	529.3	526.0	517.4	516.8	511.5	503.0	495.0	483.9	463.5	456.9
20°	511.5	511.5	501.0	497.7	504.3	493.7	487.2	479.9	456.9	447.0	435.2
22.5°	496.4	489.1	483.2	477.9	478.6	472.0	462.8	448.3	439.7	427.9	414.1
25°	466.8	469.4	456.2	454.2	456.2	441.1	436.5	424.6	412.1	400.9	390.4
27.5°	448.3	441.1	432.5	425.3	425.3	419.3	406.2	403.6	384.5	373.9	360.7
30°	420.7	415.4	408.2	397.6	396.3	391.7	381.2	374.6	354.8	339.0	331.8
32.5°	385.8	383.8	377.9	366.0	362.1	356.8	343.6	332.5	323.2	305.5	296.9
35°	360.7	353.5	341.0	331.1	327.8	318.6	308.1	300.2	290.3	274.5	263.3
37.5°	323.2	316.0	304.1	292.3	292.3	283.1	268.6	260.7	246.9	237.6	228.4
40°	290.3	281.1	269.3	255.4	253.5	240.3	234.4	221.2	212.6	198.2	196.8
42.5°	253.5	244.9	234.4	223.8	215.9	209.4	194.2	184.3	175.1	167.9	165.9
45°	219.9	208.7	199.5	186.3	178.4	170.5	160.6	154.1	146.8	138.9	134.3
47.5°	190.9	181.7	168.5	156.7	148.8	144.8	133.6	126.4	120.5	115.2	111.9
50°	161.3	150.1	142.9	129.7	128.4	119.2	110.0	104.0	100.7	96.1	91.5
52.5°	138.9	128.4	118.5	108.6	103.3	100.1	91.5	85.6	81.0	77.7	75.1
55°	117.2	108.0	100.1	90.2	86.9	82.3	72.4	71.1	66.5	61.9	58.6
57.5°	100.7	92.2	82.9	76.4	70.4	67.2	59.2	54.0	51.4	47.4	44.1
60°	85.6	76.4	69.1	61.2	58.6	54.0	48.1	43.5	40.2	36.9	33.6
62.5°	71.8	63.9	56.0	49.4	45.4	42.8	38.2	34.2	31.0	28.3	25.7
65°	59.2	52.0	45.4	38.8	36.9	33.6	30.3	27.0	24.3	21.1	18.4
67.5°	48.7	42.1	35.5	31.0	29.0	27.6	23.7	20.4	18.4	16.5	13.8
70°	38.2	33.6	28.3	24.3	22.4	20.4	17.8	15.8	13.2	11.8	9.9
72.5°	29.6	25.7	21.1	17.8	16.5	15.1	12.5	10.5	9.2	7.9	6.6
75°	21.1	17.8	15.1	11.8	11.2	10.5	8.6	7.2	5.9	4.6	3.9
77.5°	14.5	11.8	9.2	7.9	7.2	5.9	5.3	3.9	3.3	2.6	2.0
80°	7.9	5.9	4.6	3.9	3.3	2.6	2.6	2.0	1.3	1.3	0.7
82.5°	2.6	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	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°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	548.4	541.1	543.1	543.1	541.8	541.8	540.5	538.5	539.2	535.2	526.7
5°	542.5	533.2	531.9	533.2	528.0	526.7	524.0	528.0	516.1	520.7	515.5
7.5°	525.4	516.8	514.8	519.4	512.8	508.9	508.2	513.5	503.0	497.7	491.8
10°	506.2	503.0	497.0	493.7	491.8	492.4	487.2	480.6	478.6	477.3	472.0
12.5°	489.1	481.9	476.6	472.7	471.4	471.4	462.8	461.5	455.6	454.2	446.4
15°	468.7	460.2	456.9	451.6	447.0	449.6	439.7	437.1	435.2	426.6	427.9
17.5°	450.9	441.7	433.8	430.5	426.6	422.6	413.4	415.4	410.8	410.8	398.9
20°	427.9	418.0	412.1	405.5	405.5	400.3	393.7	394.3	388.4	382.5	371.9
22.5°	403.6	393.0	385.8	383.1	376.6	375.2	367.4	365.4	357.5	358.1	348.9
25°	377.9	367.4	357.5	358.1	352.2	349.6	345.0	335.8	332.5	328.5	325.9
27.5°	347.6	340.3	331.8	331.1	319.9	320.6	314.7	312.1	304.1	306.1	300.2
30°	319.9	309.4	301.5	299.5	294.9	293.6	284.4	280.4	281.8	276.5	273.2
32.5°	291.6	275.8	272.5	268.6	266.0	262.7	256.1	258.7	252.8	254.1	248.8
35°	254.1	247.5	239.0	239.0	236.3	233.7	229.1	231.7	225.8	223.2	217.9
37.5°	222.5	216.6	208.0	210.7	206.1	202.1	198.2	198.8	193.5	192.9	187.6
40°	188.3	185.0	179.1	179.1	175.8	175.8	173.8	171.8	168.5	164.6	158.6
42.5°	156.0	153.4	150.8	151.4	146.8	150.8	145.5	148.8	138.2	137.6	133.6
45°	132.3	126.4	127.1	124.4	121.8	123.1	118.5	119.8	113.9	112.6	108.6
47.5°	107.3	105.3	101.4	100.1	100.1	98.1	96.1	95.5	92.8	89.5	84.3
50°	88.2	81.0	79.6	77.7	76.4	76.4	73.7	69.8	70.4	67.2	61.9
52.5°	69.1	63.2	60.6	59.9	57.3	56.0	52.7	50.0	48.1	46.7	43.5
55°	53.3	48.1	44.8	44.8	40.8	40.8	36.2	34.2	31.6	29.0	27.0
57.5°	40.2	37.5	34.2	31.6	30.3	27.0	24.3	21.1	19.1	15.1	12.5
60°	30.3	27.6	24.3	22.4	21.1	17.8	14.5	11.8	7.2	5.9	5.3
62.5°	22.4	19.8	16.5	15.1	13.8	11.2	7.9	3.9	2.0	2.0	2.0
65°	16.5	13.2	10.5	9.2	7.9	5.9	2.6	1.3	0.7	0.7	0.7
67.5°	11.2	8.6	5.9	5.3	3.9	2.0	0.7	0.7	0.7	0.7	0.7
70°	7.2	5.3	2.6	2.0	1.3	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	4.6	2.6	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.7	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	0.7	0.7	0.7
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: P645739
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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	549.0	549.0	549.0	549.0	549.0	549.0	549.0	549.0
2.5°	535.9	531.3	533.9	528.0	530.6	535.2	531.9	533.2
5°	517.4	514.8	511.5	503.0	509.5	514.8	512.2	511.5
7.5°	497.7	488.5	493.1	490.5	489.1	494.4	488.5	495.0
10°	477.3	470.7	470.1	465.4	465.4	469.4	470.1	466.1
12.5°	447.0	443.7	443.7	443.1	442.4	446.4	447.0	445.0
15°	425.3	424.0	420.7	420.0	416.1	422.0	422.6	422.0
17.5°	398.9	399.6	396.3	396.3	398.9	400.9	395.6	400.9
20°	381.2	377.9	376.6	370.6	373.9	377.2	377.2	377.9
22.5°	355.5	350.2	352.2	348.9	346.9	351.5	351.5	353.5
25°	326.5	326.5	327.8	325.9	327.2	329.8	327.8	332.5
27.5°	298.9	301.5	301.5	298.9	300.2	308.1	311.4	306.1
30°	273.2	273.9	275.8	274.5	278.5	281.1	280.4	284.4
32.5°	244.2	247.5	248.8	246.9	248.2	254.1	250.8	250.2
35°	221.9	215.9	215.3	215.9	218.6	219.9	218.6	223.2
37.5°	189.6	187.6	185.0	185.6	187.6	190.3	191.6	194.9
40°	158.6	156.0	156.0	155.4	153.4	160.6	160.6	160.6
42.5°	131.7	131.0	127.7	127.7	130.4	132.3	131.0	135.6
45°	108.0	105.3	103.3	103.3	105.3	105.3	107.3	106.6
47.5°	84.9	82.3	82.9	81.0	82.9	85.6	82.3	82.9
50°	63.9	63.9	62.5	63.9	63.2	63.9	62.5	61.2
52.5°	43.5	49.4	50.0	47.4	41.5	36.2	32.9	35.5
55°	25.0	22.4	22.4	21.7	20.4	19.8	17.8	19.8
57.5°	12.5	11.2	11.2	11.2	10.5	9.9	8.6	8.6
60°	5.3	4.6	4.6	3.9	3.3	2.6	2.0	2.6
62.5°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
65°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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

(END OF REPORT)