

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: iO LED

Report Number: P591982

Luminaire Tested: **GRZ-05L-935-ASYMx40-X-UNV-STD-2F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591982
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2111-457-24)
Test Lab: INNOVATION CENTER
Issue Date: 2/2/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: iO LED
Catalog Number: GRZ-05L-935-ASYMx40-X-UNV-STD-2F
Description: iO LED GRAZER WITH ASYMx40 OPTIC
500 LUMENS PER FOOT, 2 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

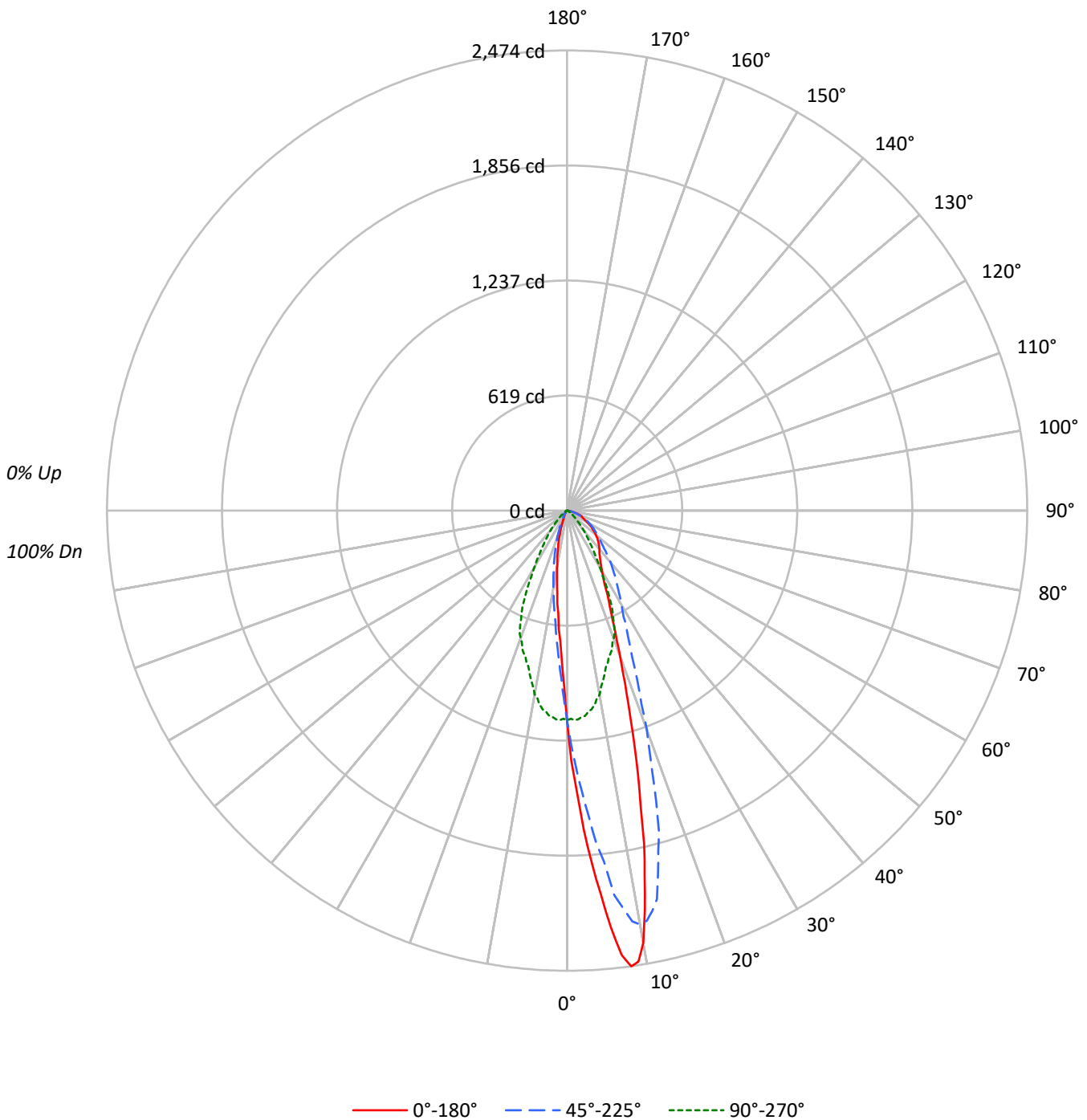
Lumens per Lamp: N/A
Luminaire Lumens: 934.0 lumens
Efficiency: N/A
Efficacy: 97.3 lumens/watt
Spacing Criteria (0/90/45): 0.61 / 0.78 / 0.71
Luminous Opening: Rectangular (W 2' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 9.6
Input Voltage (V): 120
Input Current (A_{in}): 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: 24 FT



TEST NUMBER: P591982
CATALOG NUMBER: GRZ-05L-935-ASYMx40-X-UNV-STD-2F

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	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					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	96	92	104	98	94	91	95	92	89	92	89	87	89	87	85	83					83			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76					76			
4	94	86	79	75	92	84	79	74	82	77	73	80	76	72	78	74	71	70					70			
5	89	80	73	68	87	79	73	68	77	71	67	75	70	67	73	69	66	65					65			
6	84	74	68	63	83	74	67	63	72	67	62	71	66	62	69	65	62	60					60			
7	80	70	63	59	79	69	63	59	68	62	58	67	62	58	65	61	58	56					56			
8	76	66	59	55	75	65	59	55	64	59	55	63	58	54	62	57	54	53					53			
9	72	62	56	52	71	62	56	52	61	55	51	60	55	51	59	54	51	50					50			
10	69	59	53	49	68	59	53	49	58	52	49	57	52	48	56	52	48	47					47			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	36406	36406	36406
5°	67038	35916	17896
10°	77292	32941	10240
15°	49421	28249	5884
20°	28474	25151	2959
25°	18741	20152	1550
30°	13953	13121	1010
35°	12122	8613	725
40°	11373	5746	569
45°	10819	3530	484
50°	10103	2135	387
55°	9199	1306	327
60°	7995	814	310
65°	7022	588	222
70°	7024	453	179
75°	5427	362	125
80°	3236	186	186
85°	1445	371	0



TEST NUMBER: P591982

CATALOG NUMBER: GRZ-05L-935-ASYMx40-X-UNV-STD-2F

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.0	12.7
10°-20°	261.2	28.0
20°-30°	199.5	21.4
30°-40°	134.0	14.3
40°-50°	96.3	10.3
50°-60°	67.0	7.2
60°-70°	38.4	4.1
70°-80°	15.9	1.7
80°-90°	2.6	0.3
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°	579.7	62.1
0°-40°	713.8	76.4
0°-60°	877.1	93.9
0°-90°	934.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	934.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1127	1127	1127	1127	1127	
5°	2068	1796	1108	675	552	212
15°	1478	1894	845	265	176	406
25°	526	795	566	81	44	246
35°	308	459	218	26	18	195
45°	237	274	77	13	11	182
55°	163	178	23	7	6	145
65°	92	102	8	5	3	95
75°	44	38	3	2	1	46
85°	4	5	1	0	0	6
90°	0	0	0	0	0	



TEST NUMBER: P591982

CATALOG NUMBER: GRZ-05L-935-ASYMx40-X-UNV-STD-2F

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4
1°	1347.8	1298.5	1314.0	1298.5	1275.3	1258.9	1231.8	1204.7	1167.0	1129.3	1119.6
2°	1517.0	1495.7	1460.9	1439.7	1398.1	1387.5	1332.3	1280.1	1226.0	1142.8	1126.4
3°	1716.2	1665.9	1649.5	1605.0	1556.7	1512.2	1434.8	1354.6	1251.1	1156.4	1124.5
4°	1901.8	1863.2	1857.4	1799.3	1712.3	1644.6	1551.8	1423.2	1297.5	1168.0	1112.9
5°	2068.1	2066.2	2012.1	1989.8	1887.3	1795.5	1663.0	1504.4	1336.2	1184.4	1108.0
6°	2253.8	2239.3	2229.6	2167.7	2046.9	1898.9	1779.0	1576.0	1399.1	1190.2	1086.8
7°	2407.5	2400.7	2382.4	2323.4	2209.3	2083.6	1882.5	1619.5	1400.0	1169.9	1077.1
8°	2474.2	2455.8	2477.1	2423.0	2337.9	2158.0	1943.4	1694.9	1426.1	1172.8	1055.8
9°	2454.9	2432.6	2489.7	2464.5	2395.9	2236.4	1994.6	1707.5	1429.0	1151.5	1022.9
10°	2357.2	2380.4	2423.9	2461.6	2407.5	2260.5	2012.1	1725.9	1411.6	1130.3	1004.6
11°	2188.0	2204.5	2286.6	2383.3	2361.1	2246.0	2041.1	1717.2	1387.5	1100.3	963.0
12°	2006.3	2067.2	2115.5	2236.4	2284.7	2199.6	1989.8	1676.5	1365.2	1064.5	931.1
13°	1839.0	1856.4	1934.7	2069.1	2164.8	2143.5	1943.4	1648.5	1334.3	1037.4	898.2
14°	1628.2	1647.5	1768.4	1900.9	1996.6	2017.9	1860.3	1606.0	1305.3	1006.5	862.4
15°	1478.3	1476.4	1589.5	1707.5	1866.1	1894.1	1774.2	1548.9	1285.9	989.1	845.0
16°	1308.2	1319.8	1406.8	1547.0	1708.5	1788.7	1702.7	1489.9	1256.9	968.8	815.1
17°	1167.0	1186.3	1269.5	1396.2	1549.9	1635.0	1554.7	1428.1	1217.3	949.5	800.6
18°	1035.5	1047.1	1124.5	1233.7	1389.4	1480.3	1466.7	1351.7	1188.3	931.1	780.3
19°	924.3	931.1	984.3	1110.0	1264.7	1354.6	1346.8	1273.4	1163.1	906.9	748.4
20°	828.6	840.2	884.7	985.2	1122.5	1250.2	1239.5	1200.9	1123.5	889.5	731.9
21°	743.5	745.5	797.7	903.1	1023.9	1117.7	1143.8	1130.3	1069.4	865.3	710.6
22.5°	642.0	653.6	683.6	765.8	892.4	983.3	1024.9	1021.0	995.9	811.2	660.4
23°	612.0	620.7	656.5	742.6	844.1	941.7	977.5	977.5	968.8	785.1	636.2
24°	562.7	561.8	590.8	670.0	786.1	858.6	920.5	922.4	908.9	748.4	603.3
25°	526.0	518.2	539.5	610.1	716.4	794.8	833.4	854.7	843.1	694.2	565.6
26°	484.4	487.3	500.8	563.7	663.3	741.6	769.6	798.6	782.2	643.9	518.2
27°	442.8	445.7	458.3	524.0	626.5	701.0	727.1	737.7	727.1	582.1	476.7
28°	416.7	418.7	428.3	481.5	588.8	645.9	677.8	689.4	657.5	537.6	430.3
29°	393.5	399.3	405.1	447.7	548.2	612.0	633.3	639.1	606.2	482.5	385.8
30°	374.2	371.3	383.8	421.6	507.6	585.0	597.5	592.7	562.7	435.1	351.9
32.5°	334.5	334.5	342.3	370.3	454.4	514.4	526.0	504.7	444.8	344.2	276.5
35°	307.5	307.5	314.2	331.6	391.6	459.3	465.1	427.4	363.5	276.5	218.5
37.5°	284.3	287.2	292.0	303.6	350.0	407.1	403.2	362.6	305.5	221.4	174.0
40°	269.8	269.8	270.7	280.4	312.3	363.5	349.0	304.6	257.2	177.9	136.3
42.5°	253.3	254.3	256.2	260.1	283.3	314.2	302.6	270.7	221.4	143.1	103.5
45°	236.9	235.9	237.8	240.8	256.2	273.6	267.8	239.8	190.5	111.2	77.3
47.5°	219.5	220.4	218.5	222.4	234.0	244.6	238.8	214.6	158.6	85.1	57.0
50°	201.1	202.1	199.2	204.0	214.6	218.5	214.6	190.5	133.4	62.8	42.5
52.5°	181.8	180.8	178.9	185.6	192.4	196.3	193.4	166.3	105.4	47.4	30.9
55°	163.4	161.5	160.5	164.4	172.1	177.9	173.1	143.1	81.2	33.8	23.2
57.5°	143.1	142.1	141.2	144.1	152.8	158.6	150.8	118.0	61.9	25.1	17.4
60°	123.8	125.7	121.8	123.8	134.4	140.2	131.5	96.7	45.4	18.4	12.6
62.5°	107.3	106.4	102.5	105.4	115.1	120.9	110.2	74.4	33.8	13.5	9.7
65°	91.9	90.9	86.1	88.0	95.7	102.5	90.9	59.0	25.1	10.6	7.7



TEST NUMBER: P591982

CATALOG NUMBER: GRZ-05L-935-ASYMx40-X-UNV-STD-2F

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
67.5°	85.1	84.1	71.5	70.6	80.3	83.2	72.5	43.5	18.4	7.7	5.8
70°	74.4	73.5	62.8	56.1	62.8	65.7	56.1	31.9	12.6	5.8	4.8
72.5°	57.0	58.0	53.2	43.5	48.3	51.2	41.6	22.2	8.7	4.8	3.9
75°	43.5	42.5	40.6	33.8	36.7	37.7	30.0	15.5	6.8	2.9	2.9
77.5°	29.0	28.0	29.0	25.1	25.1	26.1	20.3	10.6	4.8	1.9	1.9
80°	17.4	18.4	19.3	18.4	16.4	16.4	12.6	6.8	2.9	1.9	1.0
82.5°	8.7	9.7	10.6	10.6	9.7	9.7	7.7	3.9	1.9	1.0	1.0
85°	3.9	3.9	4.8	4.8	3.9	4.8	2.9	1.9	1.0	1.0	1.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4	1127.4
1°	1101.3	1076.1	1076.1	1040.3	1013.3	996.8	967.8	968.8	954.3	945.6
2°	1091.6	1037.4	991.0	945.6	903.1	881.8	858.6	835.4	818.0	813.1
3°	1078.1	1005.5	931.1	870.2	817.0	783.2	749.3	728.1	720.3	703.9
4°	1060.7	962.0	867.3	800.6	735.8	689.4	669.1	639.1	630.4	641.0
5°	1039.4	920.5	818.9	738.7	674.9	618.8	589.8	574.3	551.1	552.1
6°	1015.2	868.2	758.0	668.1	603.3	561.8	531.8	510.5	494.1	502.8
7°	984.3	821.8	704.8	615.9	554.0	509.5	485.4	455.4	437.0	437.0
8°	958.2	782.2	655.5	569.5	507.6	459.3	426.4	406.1	392.5	389.6
9°	915.6	737.7	615.9	529.8	467.0	416.7	380.0	360.6	349.0	347.1
10°	890.5	698.1	584.0	487.3	422.5	380.0	344.2	323.9	312.3	312.3
11°	849.9	658.4	536.6	452.5	387.7	338.4	309.4	293.0	279.4	276.5
12°	812.2	625.6	505.7	424.5	355.8	306.5	279.4	262.0	252.4	252.4
13°	776.4	597.5	478.6	390.6	320.0	282.3	252.4	233.0	223.3	222.4
14°	747.4	558.8	444.8	360.6	293.0	253.3	223.3	209.8	200.1	199.2
15°	722.3	532.7	424.5	327.8	264.9	224.3	198.2	186.6	176.9	176.0
16°	697.1	506.6	396.4	301.7	240.8	205.0	177.9	161.5	155.7	155.7
17°	676.8	491.2	370.3	280.4	215.6	180.8	155.7	140.2	136.3	130.5
18°	650.7	460.2	347.1	255.3	198.2	159.5	135.4	122.8	115.1	112.2
19°	625.6	433.2	324.9	229.1	176.0	139.2	118.9	104.4	97.7	97.7
20°	596.6	416.7	300.7	209.8	154.7	124.7	100.6	89.9	86.1	86.1
21°	566.6	388.7	273.6	186.6	137.3	106.4	89.9	78.3	73.5	71.5
22.5°	524.0	345.2	241.7	159.5	111.2	87.0	72.5	63.8	60.9	59.9
23°	502.8	329.7	224.3	150.8	104.4	80.3	67.7	59.0	56.1	55.1
24°	469.9	305.5	203.0	131.5	89.9	70.6	58.0	52.2	50.3	49.3
25°	435.1	280.4	181.8	117.0	81.2	61.9	52.2	46.4	44.5	43.5
26°	399.3	252.4	159.5	101.5	71.5	54.1	46.4	41.6	40.6	39.6
27°	362.6	228.2	141.2	89.9	62.8	49.3	41.6	37.7	35.8	36.7
28°	327.8	205.0	122.8	79.3	54.1	43.5	37.7	33.8	32.9	31.9
29°	303.6	182.7	110.2	68.6	48.3	38.7	33.8	30.9	30.0	30.0
30°	276.5	164.4	97.7	61.9	43.5	34.8	30.9	28.0	28.0	27.1
32.5°	218.5	124.7	71.5	46.4	33.8	27.1	24.2	23.2	22.2	22.2
35°	170.2	92.8	53.2	34.8	26.1	22.2	19.3	19.3	19.3	18.4
37.5°	130.5	68.6	40.6	27.1	21.3	18.4	16.4	16.4	15.5	15.5
40°	99.6	51.2	30.0	21.3	17.4	15.5	13.5	13.5	13.5	13.5
42.5°	74.4	38.7	24.2	17.4	14.5	12.6	11.6	11.6	11.6	11.6
45°	55.1	29.0	18.4	14.5	12.6	11.6	10.6	9.7	10.6	10.6
47.5°	40.6	22.2	14.5	11.6	10.6	9.7	9.7	8.7	8.7	8.7
50°	30.0	17.4	12.6	10.6	9.7	8.7	7.7	7.7	7.7	7.7
52.5°	22.2	13.5	10.6	8.7	7.7	7.7	6.8	6.8	6.8	6.8
55°	16.4	10.6	8.7	7.7	6.8	6.8	5.8	5.8	5.8	5.8
57.5°	12.6	8.7	7.7	6.8	6.8	5.8	5.8	4.8	4.8	4.8
60°	9.7	7.7	5.8	5.8	5.8	5.8	4.8	4.8	4.8	4.8
62.5°	7.7	5.8	4.8	4.8	4.8	4.8	3.9	3.9	3.9	3.9
65°	5.8	4.8	4.8	4.8	4.8	3.9	3.9	2.9	2.9	2.9



TEST NUMBER: P591982

CATALOG NUMBER: GRZ-05L-935-ASYMx40-X-UNV-STD-2F

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
67.5°	4.8	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9
70°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9
72.5°	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0
77.5°	1.9	1.0	1.0	1.0	1.9	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0
85°	1.0	1.0	1.0	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	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)