

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: P591983

Luminaire Tested: **GRZ-05L-935-ASYMx40-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591983
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-4F
Description: iO LED GRAZER WITH ASYMx40 OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

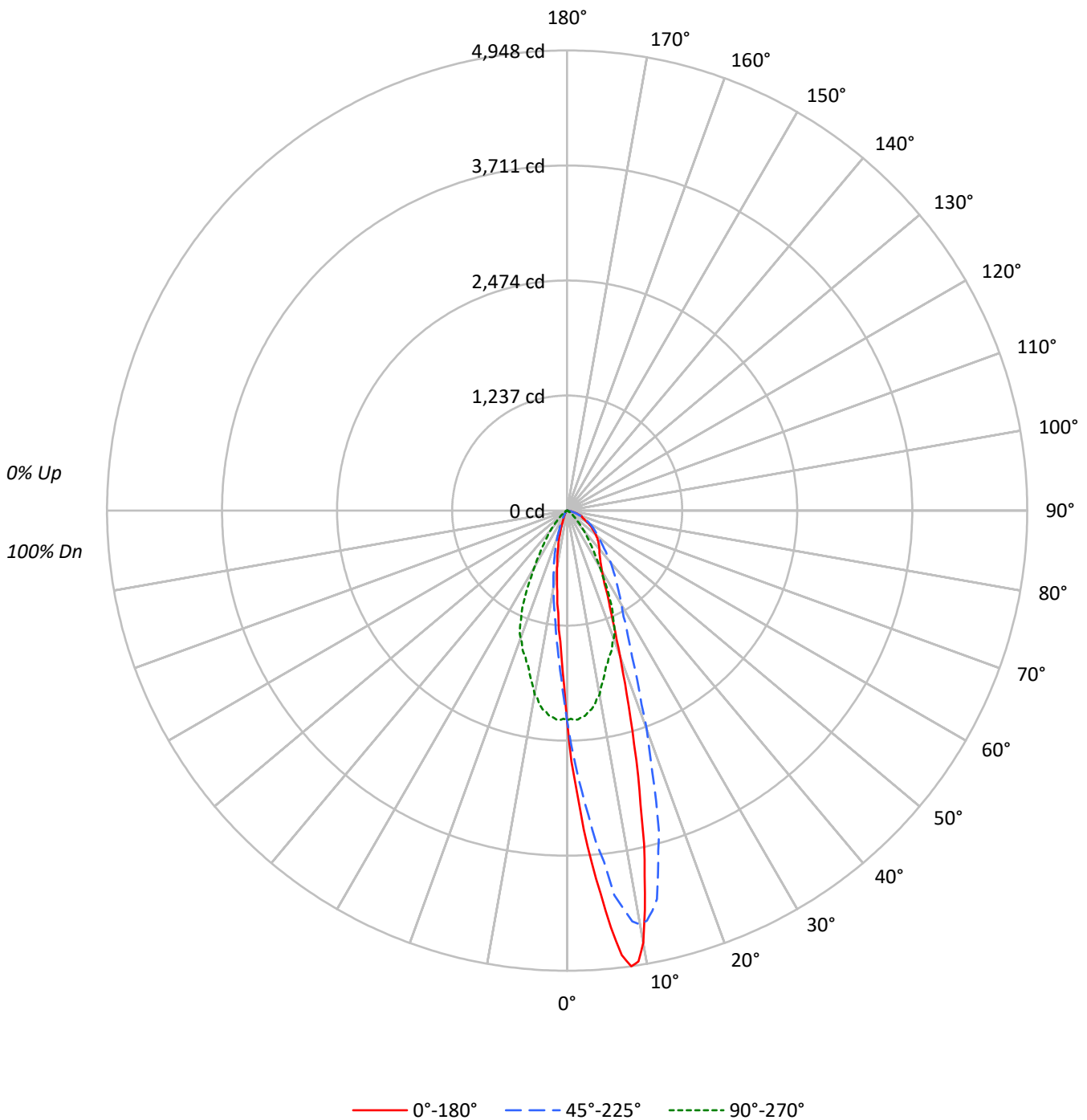
Lumens per Lamp: N/A
Luminaire Lumens: 1868.0 lumens
Efficiency: N/A
Efficacy: 96.8 lumens/watt
Spacing Criteria (0/90/45): 0.61 / 0.78 / 0.71
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 19.3
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



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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	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°	36404	36404	36404
5°	67039	35917	17896
10°	77292	32941	10240
15°	49422	28251	5882
20°	28474	25151	2957
25°	18741	20152	1550
30°	13953	13123	1009
35°	12120	8613	723
40°	11371	5748	571
45°	10819	3532	486
50°	10103	2138	389
55°	9199	1306	327
60°	7992	811	313
65°	7018	592	222
70°	7029	458	184
75°	5427	362	119
80°	3236	177	177
85°	1426	352	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.0	12.7
10°-20°	522.4	28.0
20°-30°	399.1	21.4
30°-40°	268.0	14.3
40°-50°	192.7	10.3
50°-60°	134.0	7.2
60°-70°	76.9	4.1
70°-80°	31.7	1.7
80°-90°	5.2	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°	1159.5	62.1
0°-40°	1427.5	76.4
0°-60°	1754.2	93.9
0°-90°	1868.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1868.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2255	2255	2255	2255	2255	
5°	4136	3591	2216	1350	1104	425
15°	2957	3788	1690	530	352	812
25°	1052	1590	1131	162	87	493
35°	615	918	437	52	37	390
45°	474	547	155	25	21	365
55°	327	356	46	14	12	291
65°	184	205	16	10	6	190
75°	87	75	6	4	2	92
85°	8	10	2	0	0	12
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7
1°	2695.6	2597.0	2627.9	2597.0	2550.6	2517.7	2463.6	2409.4	2334.0	2258.6	2239.3
2°	3034.0	2991.5	2921.9	2879.3	2796.2	2774.9	2664.7	2560.3	2452.0	2285.7	2252.8
3°	3432.4	3331.8	3299.0	3210.0	3113.3	3024.4	2869.7	2709.2	2502.3	2312.7	2248.9
4°	3803.7	3726.3	3714.7	3598.7	3424.6	3289.3	3103.6	2846.5	2595.1	2336.0	2225.7
5°	4136.3	4132.4	4024.1	3979.6	3774.7	3590.9	3326.0	3008.9	2672.4	2368.8	2216.1
6°	4507.5	4478.5	4459.2	4335.4	4093.7	3797.9	3558.1	3152.0	2798.1	2380.4	2173.5
7°	4815.0	4801.5	4764.7	4646.8	4418.6	4167.2	3765.0	3239.0	2800.0	2339.8	2154.2
8°	4948.4	4911.7	4954.2	4845.9	4675.8	4316.1	3886.8	3389.8	2852.3	2345.6	2111.6
9°	4909.8	4865.3	4979.4	4929.1	4791.8	4472.7	3989.3	3415.0	2858.1	2303.1	2045.9
10°	4714.4	4760.9	4847.9	4923.3	4815.0	4521.1	4024.1	3451.7	2823.3	2260.5	2009.2
11°	4376.0	4408.9	4573.3	4766.7	4722.2	4492.1	4082.1	3434.3	2774.9	2200.6	1926.0
12°	4012.5	4134.3	4231.0	4472.7	4569.4	4399.2	3979.6	3353.1	2730.4	2129.0	1862.2
13°	3678.0	3712.8	3869.4	4138.2	4329.6	4287.1	3886.8	3297.0	2668.6	2074.9	1796.4
14°	3256.4	3295.1	3536.8	3801.7	3993.2	4035.7	3720.5	3211.9	2610.5	2013.0	1724.9
15°	2956.7	2952.8	3179.1	3415.0	3732.1	3788.2	3548.4	3097.8	2571.9	1978.2	1690.1
16°	2616.3	2639.5	2813.6	3094.0	3416.9	3577.4	3405.3	2979.9	2513.9	1937.6	1630.1
17°	2334.0	2372.7	2539.0	2792.3	3099.8	3269.9	3109.4	2856.1	2434.6	1898.9	1601.1
18°	2071.0	2094.2	2248.9	2467.4	2778.8	2960.5	2933.5	2703.4	2376.6	1862.2	1560.5
19°	1848.7	1862.2	1968.5	2219.9	2529.3	2709.2	2693.7	2546.7	2326.3	1813.8	1496.7
20°	1657.2	1680.4	1769.4	1970.5	2245.1	2500.3	2479.0	2401.7	2247.0	1779.0	1463.8
21°	1487.0	1490.9	1595.3	1806.1	2047.8	2235.4	2287.6	2260.5	2138.7	1730.7	1421.3
22.5°	1284.0	1307.2	1367.2	1531.5	1784.8	1966.6	2049.8	2042.0	1991.7	1622.4	1320.7
23°	1224.1	1241.5	1313.0	1485.1	1688.2	1883.5	1955.0	1955.0	1937.6	1570.2	1272.4
24°	1125.4	1123.5	1181.5	1340.1	1572.1	1717.2	1840.9	1844.8	1817.7	1496.7	1206.7
25°	1052.0	1036.5	1079.0	1220.2	1432.9	1589.5	1666.9	1709.4	1686.2	1388.4	1131.2
26°	968.8	974.6	1001.7	1127.4	1326.5	1483.2	1539.3	1597.3	1564.4	1287.9	1036.5
27°	885.7	891.5	916.6	1048.1	1253.1	1402.0	1454.2	1475.4	1454.2	1164.1	953.3
28°	833.4	837.3	856.6	963.0	1177.6	1291.7	1355.5	1378.8	1314.9	1075.2	860.5
29°	787.0	798.6	810.2	895.3	1096.4	1224.1	1266.6	1278.2	1212.5	964.9	771.6
30°	748.4	742.6	767.7	843.1	1015.2	1169.9	1195.0	1185.4	1125.4	870.2	703.9
32.5°	669.1	669.1	684.5	740.6	908.9	1028.7	1052.0	1009.4	889.5	688.4	553.0
35°	614.9	614.9	628.5	663.3	783.2	918.5	930.1	854.7	727.1	553.0	437.0
37.5°	568.5	574.3	584.0	607.2	700.0	814.1	806.4	725.2	611.1	442.8	348.1
40°	539.5	539.5	541.4	560.8	624.6	727.1	698.1	609.1	514.4	355.8	272.7
42.5°	506.6	508.6	512.4	520.2	566.6	628.5	605.3	541.4	442.8	286.2	206.9
45°	473.8	471.8	475.7	481.5	512.4	547.2	535.6	479.6	380.9	222.4	154.7
47.5°	439.0	440.9	437.0	444.8	468.0	489.2	477.6	429.3	317.1	170.2	114.1
50°	402.2	404.2	398.3	408.0	429.3	437.0	429.3	380.9	266.9	125.7	85.1
52.5°	363.5	361.6	357.7	371.3	384.8	392.5	386.7	332.6	210.8	94.8	61.9
55°	326.8	322.9	321.0	328.7	344.2	355.8	346.1	286.2	162.4	67.7	46.4
57.5°	286.2	284.3	282.3	288.1	305.5	317.1	301.7	235.9	123.8	50.3	34.8
60°	247.5	251.4	243.7	247.5	268.8	280.4	263.0	193.4	90.9	36.7	25.1
62.5°	214.6	212.7	205.0	210.8	230.1	241.7	220.4	148.9	67.7	27.1	19.3
65°	183.7	181.8	172.1	176.0	191.4	205.0	181.8	118.0	50.3	21.3	15.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
67.5°	170.2	168.2	143.1	141.2	160.5	166.3	145.0	87.0	36.7	15.5	11.6
70°	148.9	147.0	125.7	112.2	125.7	131.5	112.2	63.8	25.1	11.6	9.7
72.5°	114.1	116.0	106.4	87.0	96.7	102.5	83.2	44.5	17.4	9.7	7.7
75°	87.0	85.1	81.2	67.7	73.5	75.4	59.9	30.9	13.5	5.8	5.8
77.5°	58.0	56.1	58.0	50.3	50.3	52.2	40.6	21.3	9.7	3.9	3.9
80°	34.8	36.7	38.7	36.7	32.9	32.9	25.1	13.5	5.8	3.9	1.9
82.5°	17.4	19.3	21.3	21.3	19.3	19.3	15.5	7.7	3.9	1.9	1.9
85°	7.7	7.7	9.7	9.7	7.7	9.7	5.8	3.9	1.9	1.9	1.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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°	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7	2254.7
1°	2202.5	2152.2	2152.2	2080.7	2026.6	1993.7	1935.7	1937.6	1908.6	1891.2
2°	2183.2	2074.9	1982.1	1891.2	1806.1	1763.6	1717.2	1670.7	1635.9	1626.3
3°	2156.1	2011.1	1862.2	1740.4	1634.0	1566.3	1498.6	1456.1	1440.6	1407.8
4°	2121.3	1924.1	1734.6	1601.1	1471.6	1378.8	1338.1	1278.2	1260.8	1282.1
5°	2078.8	1840.9	1637.9	1477.4	1349.7	1237.6	1179.6	1148.6	1102.2	1104.2
6°	2030.4	1736.5	1516.0	1336.2	1206.7	1123.5	1063.6	1021.0	988.1	1005.5
7°	1968.5	1643.7	1409.7	1231.8	1108.0	1019.1	970.7	910.8	874.0	874.0
8°	1916.3	1564.4	1311.1	1139.0	1015.2	918.5	852.8	812.2	785.1	779.3
9°	1831.2	1475.4	1231.8	1059.7	934.0	833.4	760.0	721.3	698.1	694.2
10°	1781.0	1396.2	1168.0	974.6	845.0	760.0	688.4	647.8	624.6	624.6
11°	1699.8	1316.9	1073.2	905.0	775.4	676.8	618.8	585.9	558.8	553.0
12°	1624.3	1251.1	1011.3	848.9	711.6	613.0	558.8	524.0	504.7	504.7
13°	1552.8	1195.0	957.2	781.2	640.1	564.7	504.7	466.0	446.7	444.8
14°	1494.8	1117.7	889.5	721.3	585.9	506.6	446.7	419.6	400.3	398.3
15°	1444.5	1065.5	848.9	655.5	529.8	448.6	396.4	373.2	353.9	351.9
16°	1394.2	1013.3	792.8	603.3	481.5	410.0	355.8	322.9	311.3	311.3
17°	1353.6	982.3	740.6	560.8	431.2	361.6	311.3	280.4	272.7	261.1
18°	1301.4	920.5	694.2	510.5	396.4	319.1	270.7	245.6	230.1	224.3
19°	1251.1	866.3	649.7	458.3	351.9	278.5	237.8	208.8	195.3	195.3
20°	1193.1	833.4	601.4	419.6	309.4	249.5	201.1	179.8	172.1	172.1
21°	1133.2	777.4	547.2	373.2	274.6	212.7	179.8	156.6	147.0	143.1
22.5°	1048.1	690.3	483.4	319.1	222.4	174.0	145.0	127.6	121.8	119.9
23°	1005.5	659.4	448.6	301.7	208.8	160.5	135.4	118.0	112.2	110.2
24°	939.8	611.1	406.1	263.0	179.8	141.2	116.0	104.4	100.6	98.6
25°	870.2	560.8	363.5	234.0	162.4	123.8	104.4	92.8	89.0	87.0
26°	798.6	504.7	319.1	203.0	143.1	108.3	92.8	83.2	81.2	79.3
27°	725.2	456.4	282.3	179.8	125.7	98.6	83.2	75.4	71.5	73.5
28°	655.5	410.0	245.6	158.6	108.3	87.0	75.4	67.7	65.7	63.8
29°	607.2	365.5	220.4	137.3	96.7	77.3	67.7	61.9	59.9	59.9
30°	553.0	328.7	195.3	123.8	87.0	69.6	61.9	56.1	56.1	54.1
32.5°	437.0	249.5	143.1	92.8	67.7	54.1	48.3	46.4	44.5	44.5
35°	340.3	185.6	106.4	69.6	52.2	44.5	38.7	38.7	38.7	36.7
37.5°	261.1	137.3	81.2	54.1	42.5	36.7	32.9	32.9	30.9	30.9
40°	199.2	102.5	59.9	42.5	34.8	30.9	27.1	27.1	27.1	27.1
42.5°	148.9	77.3	48.3	34.8	29.0	25.1	23.2	23.2	23.2	23.2
45°	110.2	58.0	36.7	29.0	25.1	23.2	21.3	19.3	21.3	21.3
47.5°	81.2	44.5	29.0	23.2	21.3	19.3	19.3	17.4	17.4	17.4
50°	59.9	34.8	25.1	21.3	19.3	17.4	15.5	15.5	15.5	15.5
52.5°	44.5	27.1	21.3	17.4	15.5	15.5	13.5	13.5	13.5	13.5
55°	32.9	21.3	17.4	15.5	13.5	13.5	11.6	11.6	11.6	11.6
57.5°	25.1	17.4	15.5	13.5	13.5	11.6	11.6	9.7	9.7	9.7
60°	19.3	15.5	11.6	11.6	11.6	11.6	9.7	9.7	9.7	9.7
62.5°	15.5	11.6	9.7	9.7	9.7	9.7	7.7	7.7	7.7	7.7
65°	11.6	9.7	9.7	9.7	9.7	7.7	7.7	5.8	5.8	5.8



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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
67.5°	9.7	7.7	7.7	7.7	7.7	7.7	5.8	5.8	5.8	5.8
70°	7.7	5.8	5.8	5.8	5.8	5.8	5.8	3.9	3.9	3.9
72.5°	5.8	5.8	5.8	5.8	5.8	3.9	3.9	3.9	3.9	3.9
75°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	1.9	1.9	1.9
77.5°	3.9	1.9	1.9	1.9	3.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	0.0	0.0	0.0	0.0
85°	1.9	1.9	1.9	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)