

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: HALO

Report Number: C2104245A001

Luminaire Tested: **LT3059FS231EWHDMR**

Test Date: 2021-01-26



Test Information

Test Method: LM-41-14
Report Number: C2104245A001
Test Lab: EVERFINE
Test Date: 2021-01-26
Issue Date: 2021-02-19 09:49:23
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: LT3059FS231EWHDMR
Description: LT3059FS231EWHDMR
Light Source: -
Ballast/Driver: -

Summary

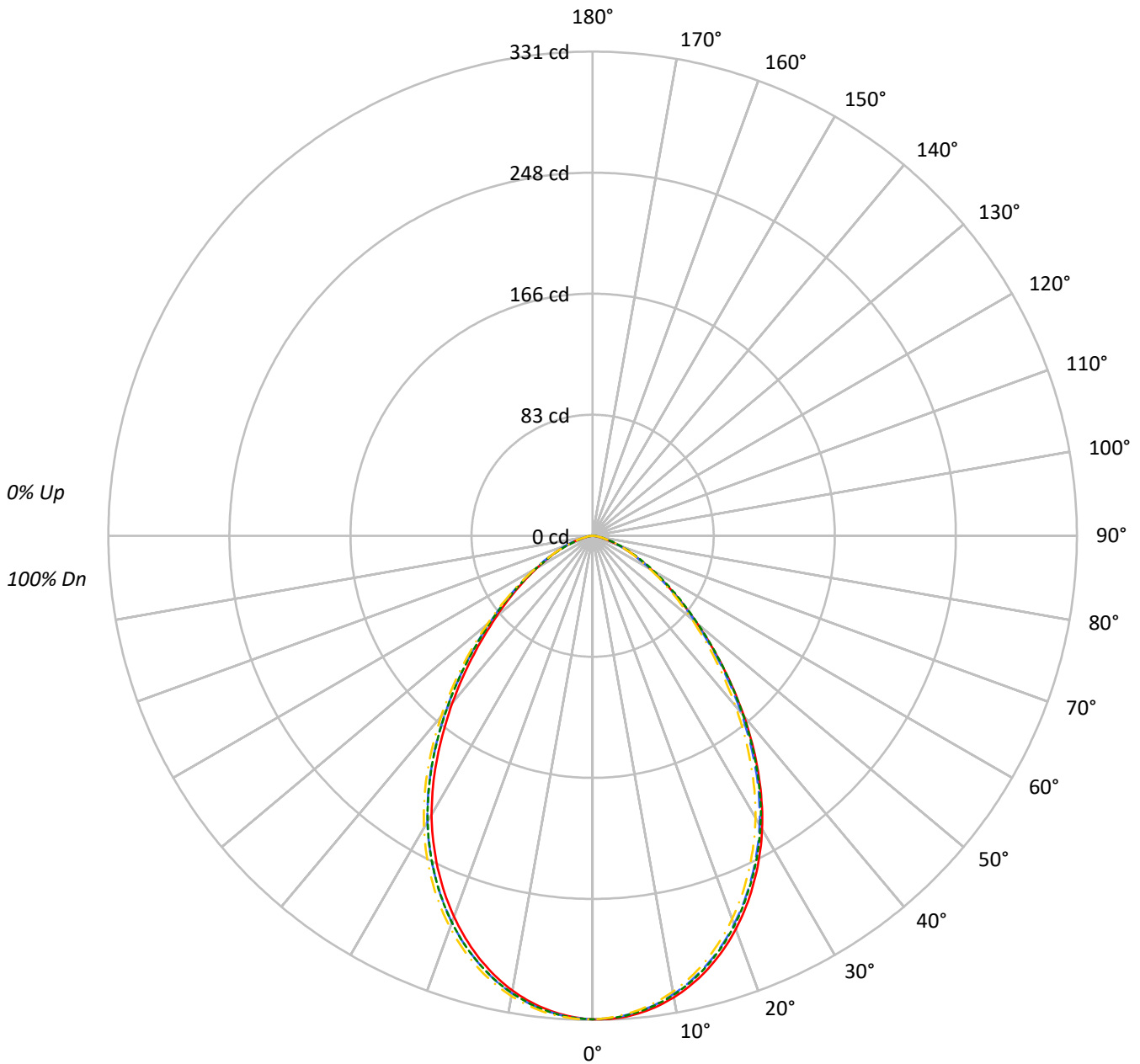
Lumens per Lamp: 550.45 (1 lamp)
Luminaire Lumens: 550.4 lumens
Efficiency: 100.0%
Efficacy: 84.2 lumens/watt
Spacing Criteria (0/90/45): 1.06 / 1.06 / 1.11
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

Input Watts (W): 6.53717
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: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

Luminous Intensity Polar Plot





TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	111	108	104	101	109	105	102	100	101	99	97	98	96	94	94	92	91	89																			
2	103	97	91	87	101	95	90	86	92	88	84	89	85	82	86	83	80	78																			
3	96	87	81	75	94	86	80	75	83	78	74	80	76	72	78	74	71	69																			
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	62																			
5	83	72	65	59	81	71	64	59	69	63	58	67	62	57	66	61	57	55																			
6	77	66	58	53	76	65	58	53	63	57	52	62	56	52	60	55	51	50																			
7	72	61	53	48	71	60	53	47	58	52	47	57	51	47	56	51	47	45																			
8	68	56	48	43	67	55	48	43	54	48	43	53	47	43	52	47	43	41																			
9	64	52	45	40	63	51	44	40	50	44	39	49	43	39	48	43	39	37																			
10	60	48	41	36	59	48	41	36	47	41	36	46	40	36	45	40	36	34																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	72488	72488	72488	72488
5°	72337	72124	71794	71996
10°	71350	70974	70284	70691
15°	69476	68990	67903	68579
20°	66769	66123	64655	65626
25°	63161	62464	60618	61806
30°	58670	58092	55760	57110
35°	52818	52452	49579	51247
40°	46041	45803	42640	44512
45°	38782	38785	35678	37477
50°	31883	32122	29345	30829
55°	25714	26234	23833	24812
60°	20433	21134	19130	19485
65°	15971	16853	15234	14980
70°	12220	12996	11765	10617
75°	7769	8913	7303	6981
80°	5064	6516	4811	4849
85°	1258	4730	931	2969



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	30.9	5.6	5.6
10°-20°	85.0	15.4	15.4
20°-30°	117.6	21.4	21.4
30°-40°	119.9	21.8	21.8
40°-50°	94.1	17.1	17.1
50°-60°	59.5	10.8	10.8
60°-70°	30.6	5.6	5.6
70°-80°	11.1	2.0	2.0
80°-90°	1.9	0.3	0.3
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	233.5	42.4	42.4
0°-40°	353.4	64.2	64.2
0°-60°	506.9	92.1	92.1
0°-90°	550.4	100.0	100.0
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	550.4	100.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	331	331	331	331	331	
5°	329	328	326	327	329	31
15°	306	304	299	302	306	86
25°	261	258	251	255	261	120
35°	197	196	185	191	197	123
45°	125	125	115	121	125	97
55°	67	69	62	65	67	61
65°	31	32	29	29	31	31
75°	9	11	9	8	9	11
85°	0	2	0	1	0	1
90°	0	0	0	0	0	



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (FULL):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
0°	330.6	330.6	330.6	330.6	330.6	330.6	330.6	330.6	330.6	330.6	330.6
1°	330.6	330.5	330.2	330.4	330.2	330.2	330.2	330.2	330.2	330.3	330.5
2°	330.6	330.1	329.8	330.1	329.7	329.6	329.6	329.7	329.9	329.9	330.4
3°	330.2	329.6	329.1	329.5	328.9	328.8	328.6	329.0	329.3	329.2	329.8
4°	329.6	328.8	328.2	328.7	327.8	327.7	327.5	328.0	328.5	328.3	329.1
5°	328.6	327.8	327.1	327.7	326.6	326.5	326.2	326.7	327.4	327.1	328.2
6°	327.5	326.5	325.6	326.3	325.1	324.9	324.6	325.4	326.0	325.6	326.9
7°	326.1	325.0	324.0	324.8	323.3	323.0	322.6	323.7	324.5	323.9	325.4
8°	324.4	323.2	322.1	323.0	321.3	321.0	320.6	321.7	322.6	322.0	323.6
9°	322.5	321.1	320.0	321.1	319.1	318.8	318.2	319.4	320.5	319.9	321.6
10°	320.4	318.9	317.6	318.8	316.7	316.3	315.7	317.0	318.1	317.5	319.5
11°	318.1	316.4	315.0	316.2	314.0	313.5	312.8	314.4	315.7	314.8	317.0
12°	315.4	313.7	312.2	313.5	310.9	310.5	309.7	311.4	312.9	312.0	314.4
13°	312.4	310.7	309.1	310.4	307.7	307.3	306.3	308.2	309.9	309.0	311.4
14°	309.4	307.5	305.8	307.2	304.3	303.8	302.7	304.7	306.6	305.6	308.3
15°	306.0	304.1	302.2	303.9	300.7	300.1	299.1	301.2	303.1	302.1	304.9
16°	302.5	300.5	298.5	300.1	296.8	296.1	295.1	297.4	299.5	298.4	301.4
17°	298.8	296.6	294.6	296.3	292.7	292.0	290.9	293.3	295.5	294.4	297.6
18°	294.8	292.5	290.5	292.2	288.5	287.6	286.4	289.1	291.4	290.3	293.6
19°	290.6	288.2	286.1	287.9	284.0	283.0	281.9	284.6	287.1	285.8	289.3
20°	286.1	283.7	281.6	283.4	279.3	278.2	277.1	279.9	282.6	281.2	284.8
21°	281.6	279.1	276.9	278.7	274.3	273.3	272.1	275.0	277.8	276.5	280.2
22°	276.7	274.3	271.9	273.9	269.3	268.3	266.9	270.0	273.0	271.5	275.4
23°	271.7	269.2	266.8	268.7	264.1	263.0	261.6	264.8	267.8	266.3	270.4
24°	266.5	264.0	261.6	263.4	258.7	257.4	256.1	259.3	262.5	261.1	265.2
25°	261.1	258.6	256.2	258.2	253.2	251.9	250.5	253.9	257.1	255.5	259.9
26°	255.5	253.0	250.7	252.7	247.6	246.2	244.7	248.3	251.6	249.9	254.2
27°	249.8	247.3	245.0	247.1	241.7	240.3	238.8	242.5	245.8	244.1	248.7
28°	243.9	241.6	239.2	241.4	235.9	234.4	232.8	236.6	239.9	238.1	242.8
29°	238.0	235.6	233.3	235.4	229.9	228.2	226.6	230.3	233.8	232.0	236.9
30°	231.7	229.4	227.2	229.4	223.5	221.9	220.2	224.1	227.6	225.6	230.6
31°	225.1	222.8	221.0	223.3	216.8	215.2	213.4	217.5	221.1	219.1	224.1
32°	218.4	216.1	214.2	216.8	210.1	208.4	206.5	210.8	214.4	212.2	217.6
33°	211.4	209.2	207.5	210.0	203.0	201.3	199.5	203.8	207.5	205.4	210.8
34°	204.5	202.2	200.5	203.0	195.9	194.1	192.3	196.7	200.6	198.4	204.0
35°	197.3	195.1	193.3	195.9	188.8	186.9	185.2	189.7	193.5	191.4	197.0
36°	190.1	187.7	186.3	188.8	181.5	179.8	177.9	182.6	186.2	184.2	189.9
37°	182.9	180.6	179.2	181.6	174.1	172.6	170.6	175.4	179.0	177.1	182.9
38°	175.5	173.2	172.0	174.4	166.8	165.5	163.3	168.2	171.9	169.9	175.8
39°	168.2	165.8	164.9	167.2	159.5	158.1	156.2	161.0	164.7	162.6	168.7
40°	160.8	158.4	157.7	160.0	152.3	151.0	149.0	154.0	157.5	155.5	161.6
41°	153.5	151.1	150.5	152.8	145.3	144.0	141.9	146.9	150.3	148.3	154.3
42°	146.2	143.9	143.4	145.7	138.2	136.9	134.9	139.8	143.3	141.3	147.3



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (continued):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
45°	125.1	123.1	123.0	125.1	118.2	117.1	115.1	119.7	122.9	120.9	126.4
46°	118.3	116.4	116.4	118.5	111.8	110.8	108.8	113.2	116.3	114.2	119.7
47°	111.8	110.0	110.1	112.2	105.6	104.7	102.6	107.0	110.0	107.9	113.2
48°	105.4	103.7	103.9	106.0	99.7	98.8	96.8	101.0	103.7	101.7	106.9
49°	99.3	97.6	97.9	100.0	93.9	93.1	91.0	95.1	97.7	95.8	100.6
50°	93.5	91.7	92.2	94.2	88.8	87.7	86.0	89.5	91.9	90.4	94.7
51°	87.7	86.5	86.6	88.7	83.7	82.4	81.0	84.1	86.7	85.0	88.9
52°	82.3	81.2	81.2	83.4	78.7	77.4	76.1	78.9	81.6	79.6	83.3
53°	77.1	76.1	76.1	78.2	73.8	72.6	71.3	73.9	76.5	74.5	77.9
54°	72.0	71.3	71.2	73.3	69.2	68.0	66.7	69.2	71.5	69.6	72.7
55°	67.3	66.5	66.5	68.6	64.7	63.6	62.3	64.6	66.8	64.9	67.8
56°	62.7	62.0	62.0	64.1	60.5	59.4	58.2	60.3	62.3	60.4	63.1
57°	58.4	57.7	57.7	59.9	56.5	55.4	54.3	56.1	57.9	56.1	58.5
58°	54.2	53.6	53.6	55.8	52.7	51.7	50.6	52.2	53.9	51.9	54.2
59°	50.3	49.8	49.8	51.9	49.0	48.1	47.0	48.5	49.9	48.1	50.1
60°	46.6	46.1	46.1	48.2	45.5	44.6	43.6	44.9	46.2	44.4	46.3
61°	43.1	42.6	42.6	44.7	42.3	41.4	40.4	41.6	42.7	40.9	42.6
62°	39.7	39.3	39.3	41.4	39.2	38.4	37.4	38.4	39.4	37.6	39.1
63°	36.6	36.2	36.2	38.2	36.3	35.5	34.6	35.4	36.2	34.5	35.9
64°	33.6	33.3	33.3	35.3	33.5	32.8	31.9	32.6	33.3	31.6	32.8
65°	30.8	30.5	30.5	32.5	30.9	30.2	29.4	30.0	30.5	28.9	29.9
66°	28.2	27.9	28.0	29.8	28.4	27.8	27.0	27.5	28.0	26.2	27.3
67°	25.7	25.5	25.5	27.4	26.1	25.5	24.7	25.2	25.5	23.5	24.8
68°	23.4	23.2	23.3	25.0	23.9	23.4	22.6	22.9	23.2	20.9	22.4
69°	21.2	21.1	21.1	22.6	21.7	21.3	20.5	20.8	21.0	18.7	20.1
70°	19.1	19.0	19.1	20.3	19.7	19.3	18.4	18.9	19.0	16.6	17.9
71°	16.9	17.1	17.2	18.1	17.7	17.4	16.2	16.9	17.1	14.5	16.0
72°	14.8	15.3	15.4	16.0	15.8	15.5	14.2	15.0	15.3	12.6	14.2
73°	12.8	13.4	13.7	14.1	14.1	13.6	12.2	13.1	13.6	10.9	12.5
74°	10.9	11.6	12.1	12.2	12.5	11.9	10.3	11.4	12.0	9.5	10.9
75°	9.2	10.0	10.6	10.5	10.9	10.3	8.6	9.8	10.5	8.2	9.5
76°	7.8	8.6	9.3	9.1	9.4	8.8	7.5	8.4	9.1	7.1	8.1
77°	6.8	7.4	8.0	7.9	8.1	7.6	6.5	7.2	7.9	6.2	6.9
78°	5.8	6.4	7.0	6.8	6.9	6.6	5.5	6.3	6.9	5.4	6.0
79°	4.9	5.5	6.2	6.0	6.1	5.7	4.7	5.4	6.1	4.6	5.2
80°	4.0	4.7	5.4	5.2	5.2	4.9	3.8	4.6	5.4	3.8	4.3
81°	3.2	3.9	4.6	4.4	4.5	4.1	3.0	3.8	4.6	3.1	3.7
82°	2.5	3.1	3.9	3.7	3.8	3.3	2.3	3.1	3.9	2.6	3.0
83°	1.8	2.5	3.3	3.0	3.1	2.6	1.6	2.4	3.3	2.1	2.5
84°	1.1	1.8	2.6	2.4	2.5	2.0	0.9	1.7	2.6	1.6	1.9
85°	0.5	1.3	2.0	1.9	2.0	1.4	0.4	1.2	2.0	1.2	1.5
86°	0.2	0.8	1.5	1.4	1.5	1.0	0.2	0.8	1.5	0.8	1.0
87°	0.1	0.5	1.0	1.0	1.0	0.6	0.1	0.5	0.9	0.4	0.5



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (continued):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
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: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (continued):

	330°	360°
0°	330.6	330.6
1°	330.7	330.6
2°	330.4	330.6
3°	329.9	330.2
4°	329.3	329.6
5°	328.3	328.6
6°	327.1	327.5
7°	325.6	326.1
8°	323.9	324.4
9°	321.9	322.5
10°	319.7	320.4
11°	317.2	318.1
12°	314.6	315.4
13°	311.6	312.4
14°	308.5	309.4
15°	305.2	306.0
16°	301.6	302.5
17°	297.8	298.8
18°	293.8	294.8
19°	289.5	290.6
20°	285.0	286.1
21°	280.4	281.6
22°	275.6	276.7
23°	270.5	271.7
24°	265.3	266.5
25°	259.9	261.1
26°	254.3	255.5
27°	248.7	249.8
28°	242.9	243.9
29°	236.8	238.0
30°	230.5	231.7
31°	224.0	225.1
32°	217.4	218.4
33°	210.6	211.4
34°	203.7	204.5
35°	196.5	197.3
36°	189.4	190.1
37°	182.2	182.9
38°	174.9	175.5
39°	167.6	168.2
40°	160.4	160.8
41°	153.1	153.5
42°	146.0	146.2



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (continued):

	330°	360°
45°	124.9	125.1
46°	118.1	118.3
47°	111.6	111.8
48°	105.2	105.4
49°	99.0	99.3
50°	92.9	93.5
51°	87.6	87.7
52°	82.3	82.3
53°	77.0	77.1
54°	71.9	72.0
55°	67.0	67.3
56°	62.4	62.7
57°	57.9	58.4
58°	53.7	54.2
59°	49.7	50.3
60°	45.9	46.6
61°	42.3	43.1
62°	38.9	39.7
63°	35.8	36.6
64°	32.8	33.6
65°	30.0	30.8
66°	27.3	28.2
67°	24.9	25.7
68°	22.6	23.4
69°	20.5	21.2
70°	18.4	19.1
71°	16.6	16.9
72°	14.7	14.8
73°	12.9	12.8
74°	11.2	10.9
75°	9.7	9.2
76°	8.4	7.8
77°	7.2	6.8
78°	6.3	5.8
79°	5.4	4.9
80°	4.6	4.0
81°	3.8	3.2
82°	3.1	2.5
83°	2.4	1.8
84°	1.7	1.1
85°	1.2	0.5
86°	0.8	0.2
87°	0.5	0.1



TEST NUMBER: C2104245A001

CATALOG NUMBER: LT3059FS231EWHDMR

CANDELA DISTRIBUTION (continued):

	330°	360°
90°	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°







43°	139.0	136.9	136.5	138.7	131.4	130.2	128.1	133.0	136.4	134.3	140.3
44°	131.9	129.9	129.7	131.8	124.7	123.5	121.5	126.2	129.5	127.5	133.3



88°	0.0	0.3	0.4	0.6	0.6	0.3	0.0	0.2	0.4	0.0	0.1
89°	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0





43°	138.8	139.0
44°	131.8	131.9



88°	0.2	0.0
89°	0.0	0.0



(END OF REPORT)