

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: C2103082A001

Luminaire Tested: **LT4069FS231EWHDMR**

Test Date: 2021-01-18



Test Information

Test Method: LM-41-14
Report Number: C2103082A001
Test Lab: EVERFINE
Test Date: 2021-01-18
Issue Date: 2021-02-19 10:08:23
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: LT4069FS231EWHDMR
Description: LT4069FS231EWHDMR
Light Source: -
Ballast/Driver: -

Summary

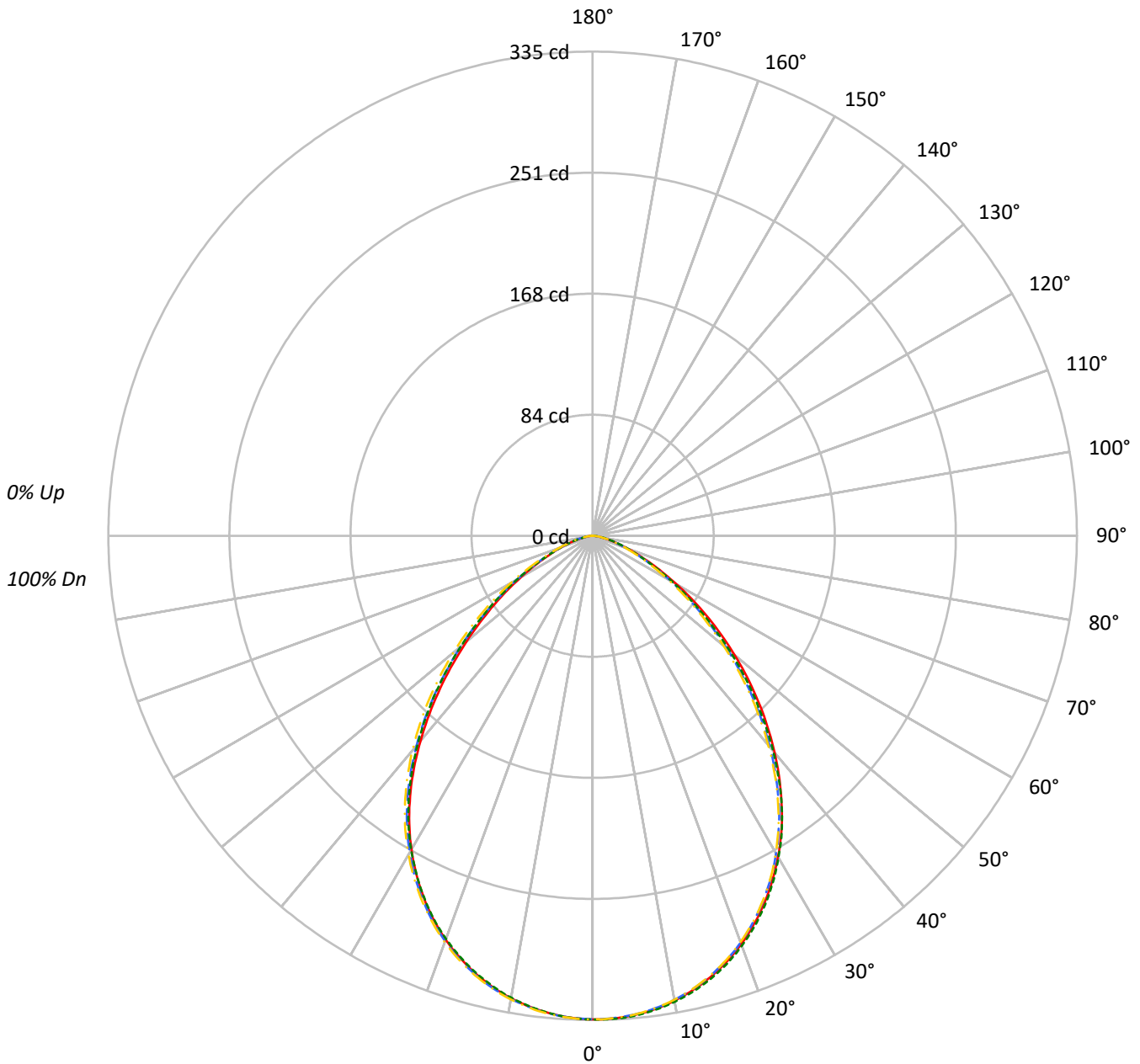
Lumens per Lamp: 645.62 (1 lamp)
Luminaire Lumens: 645.6 lumens
Efficiency: 100.0%
Efficacy: 86.2 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.14 / 1.2
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 7.49218
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

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Luminous Intensity Polar Plot





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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	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88																			
2	103	96	90	86	100	94	89	85	91	86	83	88	84	81	85	82	79	77																			
3	95	86	79	74	93	85	78	73	82	76	72	79	75	71	77	73	70	68																			
4	88	78	70	64	86	76	69	64	74	68	63	72	67	62	70	65	61	60																			
5	82	70	63	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53																			
6	76	64	56	50	74	63	56	50	62	55	50	60	54	49	58	53	49	47																			
7	71	59	51	45	69	58	50	45	56	50	45	55	49	45	54	48	44	42																			
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40	38																			
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35																			
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	42116	42116	42116	42116
5°	42048	42124	41928	41919
10°	41739	41841	41514	41470
15°	41157	41307	40837	40756
20°	40258	40432	39822	39735
25°	38979	39164	38373	38317
30°	37273	37380	36420	36476
35°	35042	35030	33820	34051
40°	32177	31893	30422	30933
45°	28843	28256	26510	27314
50°	25086	24223	22310	23275
55°	21048	20048	18266	19203
60°	16892	16008	14359	15177
65°	12817	12310	10920	11369
70°	9420	9387	8338	8397
75°	6730	7133	5986	6132
80°	4356	5044	3979	4182
85°	2570	3971	2180	2686



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	31.5	4.9	4.9
10°-20°	88.6	13.7	13.7
20°-30°	128.0	19.8	19.8
30°-40°	139.7	21.6	21.6
40°-50°	119.8	18.6	18.6
50°-60°	80.2	12.4	12.4
60°-70°	40.3	6.2	6.2
70°-80°	14.8	2.3	2.3
80°-90°	2.7	0.4	0.4
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°	248.1	38.4	38.4
0°-40°	387.8	60.1	60.1
0°-60°	587.8	91.0	91.0
0°-90°	645.6	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°	645.6	100.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	335	335	335	335	335	
5°	333	333	332	332	333	32
15°	316	317	313	313	316	89
25°	281	282	276	276	281	129
35°	228	228	220	222	228	142
45°	162	159	149	153	162	125
55°	96	91	83	88	96	86
65°	43	41	37	38	43	44
75°	14	15	12	13	14	15
85°	2	3	2	2	2	2
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
0°	334.7	334.7	334.7	334.7	334.7	334.7	334.7	334.7	334.7	334.7	334.7
1°	334.6	334.5	334.4	334.8	334.7	334.6	334.4	334.3	334.3	334.6	334.6
2°	334.4	334.3	334.2	334.8	334.3	334.3	334.1	334.1	334.1	334.1	334.3
3°	334.0	333.9	333.8	334.5	333.9	333.7	333.6	333.6	333.6	333.6	333.8
4°	333.6	333.3	333.2	334.0	333.4	333.2	332.8	332.9	333.0	332.8	333.1
5°	332.8	332.6	332.4	333.4	332.6	332.4	331.9	332.1	332.1	331.8	332.4
6°	332.0	331.7	331.5	332.5	331.7	331.4	330.9	331.1	331.1	330.7	331.3
7°	330.9	330.6	330.4	331.6	330.5	330.2	329.6	329.8	330.0	329.4	330.2
8°	329.7	329.4	329.0	330.3	329.3	328.9	328.3	328.5	328.6	327.9	328.8
9°	328.3	327.8	327.5	329.0	327.7	327.5	326.6	327.0	327.2	326.3	327.4
10°	326.6	326.2	325.9	327.4	326.0	325.7	324.9	325.4	325.5	324.5	325.7
11°	324.8	324.3	324.1	325.7	324.2	323.9	323.0	323.4	323.6	322.6	323.8
12°	322.9	322.4	322.1	323.8	322.2	322.0	320.9	321.3	321.5	320.3	321.8
13°	320.7	320.2	319.8	321.7	320.1	319.6	318.6	319.1	319.3	318.0	319.5
14°	318.5	317.8	317.4	319.5	317.6	317.1	316.1	316.7	317.0	315.5	317.2
15°	315.9	315.3	314.9	317.0	315.1	314.5	313.4	314.1	314.4	312.8	314.6
16°	313.2	312.6	312.1	314.5	312.4	311.9	310.6	311.3	311.7	310.0	311.8
17°	310.4	309.6	309.2	311.7	309.4	308.9	307.5	308.3	308.7	306.9	308.9
18°	307.3	306.6	306.0	308.5	306.2	305.8	304.3	305.2	305.6	303.7	305.8
19°	304.1	303.2	302.7	305.3	303.0	302.4	301.0	301.8	302.3	300.3	302.4
20°	300.6	299.7	299.1	301.9	299.5	298.9	297.3	298.2	298.8	296.7	299.0
21°	297.1	296.1	295.4	298.4	295.7	295.2	293.5	294.5	295.0	293.0	295.3
22°	293.2	292.1	291.4	294.6	291.8	291.2	289.5	290.5	291.2	289.0	291.4
23°	289.3	288.1	287.3	290.6	287.7	287.1	285.4	286.4	287.2	284.9	287.4
24°	285.0	283.8	283.0	286.3	283.5	282.9	280.9	282.1	282.9	280.5	283.3
25°	280.7	279.4	278.4	282.0	279.0	278.4	276.3	277.6	278.5	275.9	278.8
26°	276.2	274.7	273.6	277.5	274.3	273.7	271.5	272.9	273.9	271.3	274.3
27°	271.6	269.9	268.9	272.6	269.5	268.8	266.6	268.0	269.2	266.4	269.6
28°	266.6	265.0	263.8	267.7	264.5	263.7	261.4	263.0	264.2	261.4	264.8
29°	261.6	259.8	258.6	262.5	259.3	258.5	256.2	257.8	259.1	256.2	259.7
30°	256.5	254.4	253.2	257.2	254.0	253.0	250.6	252.4	253.8	251.0	254.5
31°	251.2	249.0	247.6	251.8	248.3	247.5	245.0	246.8	248.2	245.5	249.2
32°	245.8	243.4	241.9	246.3	242.7	241.7	239.1	241.1	242.7	239.9	243.6
33°	240.1	237.6	235.9	240.4	236.8	235.8	233.0	235.1	236.9	234.1	238.1
34°	234.2	231.6	229.8	234.3	230.6	229.5	226.6	228.9	230.8	227.8	232.1
35°	228.1	225.3	223.3	228.0	224.1	222.9	220.1	222.4	224.5	221.6	226.1
36°	221.8	218.9	216.7	221.5	217.5	216.4	213.4	215.9	218.0	215.1	219.7
37°	215.5	212.4	210.1	214.9	210.6	209.5	206.5	209.1	211.4	208.6	213.4
38°	209.0	205.7	203.2	208.0	203.7	202.5	199.5	202.3	204.6	201.9	206.9
39°	202.4	199.0	196.3	201.1	196.7	195.5	192.4	195.1	197.7	195.1	200.3
40°	195.9	192.1	189.3	194.1	189.5	188.4	185.2	188.3	190.7	188.3	193.6
41°	189.1	185.2	182.1	187.1	182.4	181.3	177.9	181.3	183.8	181.4	186.8
42°	182.5	178.2	175.0	179.9	175.2	174.1	170.7	174.1	176.7	174.5	180.0



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CANDELA DISTRIBUTION (continued):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
45°	162.1	157.3	153.6	158.8	153.7	152.3	149.0	152.6	155.4	153.5	159.7
46°	155.2	150.2	146.5	151.6	146.5	145.2	141.8	145.4	148.2	146.4	152.7
47°	148.4	143.3	139.4	144.6	139.4	138.0	134.6	138.3	141.1	139.4	145.9
48°	141.6	136.4	132.4	137.5	132.5	131.0	127.6	131.3	134.2	132.5	139.0
49°	134.8	129.5	125.5	130.6	125.6	124.1	120.7	124.3	127.2	125.7	132.2
50°	128.1	122.8	118.7	123.7	118.8	117.3	114.0	117.6	120.4	118.9	125.5
51°	121.4	116.1	112.0	117.0	112.1	110.6	107.4	110.9	113.7	112.3	118.7
52°	115.0	109.5	105.5	110.4	105.5	104.2	100.9	104.4	107.1	105.8	112.2
53°	108.5	103.1	99.3	103.9	99.2	97.8	94.6	97.9	100.6	99.4	105.8
54°	102.1	96.9	93.2	97.6	93.0	91.7	88.9	91.8	94.3	93.2	99.4
55°	95.9	90.6	87.2	91.4	87.4	85.7	83.3	85.7	88.6	87.5	93.2
56°	89.9	85.1	81.5	85.5	81.7	80.0	77.6	80.0	82.9	81.8	87.2
57°	84.0	79.6	76.0	79.7	76.2	74.4	72.1	74.3	77.2	76.3	81.4
58°	78.1	74.1	70.7	74.1	70.8	69.1	66.9	69.0	71.7	70.7	75.6
59°	72.5	68.7	65.5	68.8	65.6	63.9	61.9	63.8	66.4	65.4	70.1
60°	67.1	63.5	60.7	63.6	60.5	59.0	57.1	58.8	61.3	60.3	64.8
61°	61.8	58.6	56.0	58.6	55.8	54.3	52.5	54.1	56.4	55.4	59.6
62°	56.8	53.8	51.5	53.9	51.2	49.9	48.1	49.6	51.7	50.7	54.7
63°	52.0	49.3	47.3	49.5	46.9	45.7	44.1	45.4	47.3	46.3	50.0
64°	47.3	45.0	43.2	45.3	42.8	41.7	40.3	41.5	43.2	42.1	45.5
65°	43.0	41.0	39.5	41.3	39.0	38.1	36.7	37.7	39.2	38.2	41.2
66°	39.0	37.2	36.0	37.7	35.5	34.6	33.4	34.3	35.6	34.6	37.3
67°	35.1	33.7	32.6	34.2	32.2	31.5	30.3	31.1	32.3	31.2	33.6
68°	31.7	30.5	29.6	31.1	29.2	28.6	27.6	28.3	29.2	28.1	30.3
69°	28.5	27.6	26.8	28.2	26.5	25.9	25.0	25.6	26.4	25.3	27.2
70°	25.6	24.9	24.2	25.5	24.0	23.5	22.7	23.2	23.9	22.8	24.4
71°	22.9	22.4	21.8	23.1	21.7	21.2	20.3	21.0	21.6	20.4	21.9
72°	20.3	20.1	19.7	20.8	19.6	19.1	18.2	18.9	19.4	18.2	19.6
73°	18.0	18.0	17.7	18.6	17.6	17.1	16.1	16.9	17.4	16.2	17.5
74°	15.8	16.0	15.7	16.6	15.8	15.2	14.2	15.0	15.5	14.3	15.6
75°	13.8	14.0	13.9	14.7	14.0	13.4	12.3	13.2	13.7	12.6	13.8
76°	11.9	12.2	12.1	12.9	12.4	11.6	10.5	11.4	12.0	11.0	12.1
77°	10.0	10.5	10.6	11.3	10.8	10.0	8.7	9.8	10.5	9.4	10.5
78°	8.2	9.0	9.1	9.6	9.3	8.6	7.4	8.3	9.0	7.9	9.0
79°	7.0	7.5	7.6	8.2	7.9	7.3	6.4	7.0	7.5	6.7	7.6
80°	6.0	6.3	6.4	7.0	6.8	6.2	5.5	5.9	6.4	5.8	6.5
81°	5.0	5.4	5.5	6.0	5.9	5.3	4.6	5.0	5.5	4.9	5.6
82°	4.2	4.5	4.6	5.1	5.1	4.4	3.8	4.2	4.6	4.1	4.7
83°	3.3	3.6	3.8	4.3	4.2	3.6	3.0	3.4	3.8	3.3	3.9
84°	2.5	2.8	3.0	3.5	3.5	2.8	2.2	2.6	3.0	2.5	3.1
85°	1.8	2.1	2.3	2.8	2.7	2.1	1.5	1.9	2.3	1.9	2.4
86°	1.1	1.4	1.6	2.1	2.1	1.5	0.9	1.3	1.7	1.3	1.8
87°	0.5	0.9	1.1	1.4	1.5	0.9	0.4	0.8	1.1	0.8	1.2



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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



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CANDELA DISTRIBUTION (continued):

	330°	360°
0°	334.7	334.7
1°	334.6	334.6
2°	334.3	334.4
3°	333.9	334.0
4°	333.3	333.6
5°	332.5	332.8
6°	331.6	332.0
7°	330.5	330.9
8°	329.1	329.7
9°	327.6	328.3
10°	325.9	326.6
11°	324.1	324.8
12°	322.1	322.9
13°	319.8	320.7
14°	317.4	318.5
15°	314.9	315.9
16°	312.2	313.2
17°	309.2	310.4
18°	306.1	307.3
19°	302.8	304.1
20°	299.3	300.6
21°	295.6	297.1
22°	291.7	293.2
23°	287.8	289.3
24°	283.5	285.0
25°	279.2	280.7
26°	274.6	276.2
27°	269.9	271.6
28°	265.1	266.6
29°	260.1	261.6
30°	254.8	256.5
31°	249.6	251.2
32°	244.2	245.8
33°	238.5	240.1
34°	232.6	234.2
35°	226.4	228.1
36°	220.2	221.8
37°	213.9	215.5
38°	207.3	209.0
39°	200.8	202.4
40°	194.1	195.9
41°	187.4	189.1
42°	180.6	182.5



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CANDELA DISTRIBUTION (continued):

	330°	360°
45°	160.0	162.1
46°	153.2	155.2
47°	146.3	148.4
48°	139.4	141.6
49°	132.7	134.8
50°	126.0	128.1
51°	119.3	121.4
52°	112.8	115.0
53°	106.4	108.5
54°	100.0	102.1
55°	93.9	95.9
56°	88.2	89.9
57°	82.5	84.0
58°	76.8	78.1
59°	71.3	72.5
60°	65.9	67.1
61°	60.7	61.8
62°	55.7	56.8
63°	51.0	52.0
64°	46.4	47.3
65°	42.1	43.0
66°	38.1	39.0
67°	34.4	35.1
68°	30.9	31.7
69°	27.8	28.5
70°	24.9	25.6
71°	22.3	22.9
72°	20.0	20.3
73°	17.8	18.0
74°	15.7	15.8
75°	13.8	13.8
76°	12.0	11.9
77°	10.3	10.0
78°	8.8	8.2
79°	7.3	7.0
80°	6.2	6.0
81°	5.3	5.0
82°	4.4	4.2
83°	3.5	3.3
84°	2.7	2.5
85°	2.0	1.8
86°	1.3	1.1
87°	0.9	0.5



TEST NUMBER: C2103082A001

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CANDELA DISTRIBUTION (continued):

	330°	360°
90°	0.0	0.0



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







43°	175.7	171.3	168.0	172.8	168.1	166.9	163.5	167.0	169.6	167.5	173.3
44°	168.9	164.3	160.9	165.6	160.9	159.6	156.2	159.8	162.5	160.4	166.5



88°	0.3	0.5	0.6	0.9	0.9	0.5	0.2	0.4	0.6	0.3	0.6
89°	0.1	0.2	0.1	0.4	0.3	0.2	0.0	0.1	0.2	0.0	0.0





43°	173.8	175.7
44°	167.0	168.9



88°	0.5	0.3
89°	0.1	0.1



(END OF REPORT)