

Project:

Lestijärvi

VE1

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23.5.2014 10:19 / 1

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Calculated:

22.5.2014 21:09/2.9.269

**SHADOW - Main Result**

Calculation: eno 126 x 118 x HH137 (real case)

**Assumptions for shadow calculations**

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence 3 °

Day step for calculation 1 days

Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) [UMEA]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
1,02 2,84 3,78 6,14 8,62 9,94 7,42 5,13 4,32 3,43 1,58 0,96

Operational hours are calculated from WTGs in calculation and wind distribution:

Lestijärvi Sodar

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
492 495 360 402 630 630 777 880 1 015 740 791 570 7 780

Idle start wind speed: Cut in wind speed from power curve

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: Lestijärvi height contour lines.wpo (1)

Obstacles not used in calculation

Eye height: 1,5 m

Grid resolution: 50,0 m

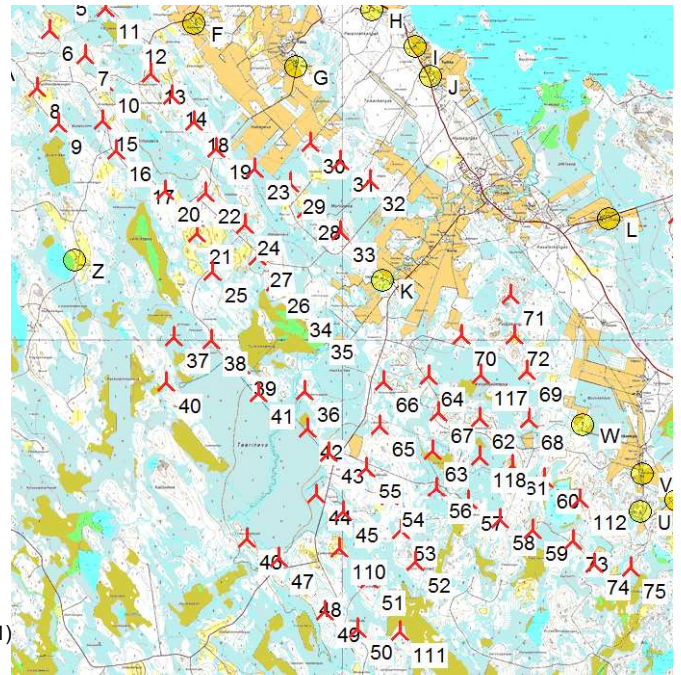
**WTGs**

Finish TM ETRS-TM35FIN-ETRS89

East North Z Row data/Description

[m]

	East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	380 941	7 046 061	152,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
2	381 023	7 045 401	154,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
3	381 418	7 045 063	149,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
4	381 221	7 044 351	158,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
5	381 390	7 043 863	156,4	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
6	381 174	7 043 115	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
7	381 752	7 042 705	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
8	380 967	7 042 155	172,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
9	381 318	7 041 573	172,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
10	382 080	7 042 248	160,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
11	382 085	7 043 484	152,6	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
12	382 516	7 043 058	155,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
13	382 835	7 042 394	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
14	383 187	7 042 030	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
15	382 040	7 041 612	168,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
16	382 269	7 041 122	166,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
17	382 640	7 040 744	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
18	383 550	7 041 610	155,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
19	383 914	7 041 160	155,3	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
20	383 078	7 040 455	163,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
21	383 595	7 039 761	172,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
22	383 748	7 040 425	166,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
23	384 559	7 040 821	151,4	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
24	384 394	7 039 905	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
25	383 853	7 039 134	166,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
26	384 886	7 038 956	167,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
27	384 599	7 039 384	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
28	385 392	7 040 156	155,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
29	385 131	7 040 594	152,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2



Scale 1:125 000  
 ▲ New WTG      ● Shadow receptor

To be continued on next page...

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**SHADOW - Main Result**

Calculation: eno 126 x 118 x HH137 (real case)

...continued from previous page

Finish TM ETRS-TM35FIN-ETRS89				WTG type			Shadow data				
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
			[m]				[kW]	[m]	[m]	[m]	[RPM]
30	385 471	7 041 253	153,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
31	385 957	7 040 959	152,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
32	386 457	7 040 632	157,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
33	385 962	7 039 788	164,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
34	385 246	7 038 560	158,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
35	385 598	7 038 184	157,3 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
36	385 379	7 037 159	167,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
37	383 214	7 038 051	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
38	383 832	7 037 999	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
39	384 327	7 037 593	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
40	383 092	7 037 301	167,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
41	384 613	7 037 125	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
42	385 429	7 036 540	158,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
43	385 771	7 036 142	162,4 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
44	385 574	7 035 448	161,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
45	386 019	7 035 156	165,2 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
46	384 428	7 034 714	162,3 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
47	384 951	7 034 400	162,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
48	385 404	7 033 931	168,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
49	385 705	7 033 531	163,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
50	386 249	7 033 243	168,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
51	386 432	7 034 054	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
52	387 194	7 034 338	175,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
53	386 957	7 034 855	173,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
54	386 779	7 035 413	172,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
55	386 388	7 035 889	172,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
56	387 543	7 035 554	167,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
57	388 068	7 035 350	167,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
58	388 601	7 035 036	168,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
59	389 142	7 034 863	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
60	389 335	7 035 711	157,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
61	388 812	7 035 931	166,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
62	388 258	7 036 710	166,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
63	387 483	7 036 176	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
64	387 428	7 037 413	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
65	386 613	7 036 589	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
66	386 682	7 037 317	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
67	387 589	7 036 813	159,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
68	389 069	7 036 700	155,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
69	389 049	7 037 497	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
70	387 958	7 038 081	151,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
71	388 777	7 038 743	155,8 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
72	388 842	7 038 086	161,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
73	389 803	7 034 677	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
74	390 150	7 034 309	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
75	390 759	7 034 232	167,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
76	397 333	7 036 381	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
77	396 965	7 036 743	164,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
78	396 564	7 037 130	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
79	396 143	7 037 483	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
80	394 574	7 037 720	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
81	395 726	7 037 887	161,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
82	395 335	7 038 211	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
83	393 892	7 037 826	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
84	393 597	7 038 264	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
85	392 748	7 037 433	162,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
86	392 412	7 037 870	154,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
87	393 108	7 038 455	162,2 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
88	392 676	7 038 780	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2

To be continued on next page...

Project:

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Calculated:

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### SHADOW - Main Result

Calculation: eno 126 x 118 x HH137 (real case)

...continued from previous page

Finish TM ETRS-TM35FIN-ETRS89				WTG type				Shadow data			
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
			[m]				[kW]	[m]	[m]	[m]	[RPM]
89	392 735	7 039 407	163,8 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
90	391 958	7 038 901	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
91	391 585	7 039 490	150,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
92	391 512	7 040 060	155,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
93	392 349	7 039 778	162,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
94	393 444	7 039 269	161,3 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
95	394 355	7 039 691	152,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
96	393 884	7 038 958	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
97	394 525	7 038 527	159,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
98	395 460	7 038 857	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
99	395 917	7 039 574	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
100	395 581	7 039 961	166,2 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
101	394 452	7 040 379	152,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
102	393 496	7 040 038	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
103	394 466	7 040 995	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
104	395 208	7 040 341	167,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
105	395 185	7 041 540	170,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
106	395 254	7 040 956	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
107	396 048	7 041 185	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
108	396 751	7 041 276	157,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
109	395 960	7 041 746	160,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
110	385 952	7 034 552	171,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
111	386 946	7 033 191	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
112	389 912	7 035 368	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
113	396 127	7 036 357	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
114	395 196	7 037 214	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
115	396 469	7 042 715	152,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
116	394 795	7 039 241	154,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
117	388 278	7 037 433	155,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2
118	388 263	7 036 086	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	137,0	1 910	11,2

### Shadow receptor-Input

No.	Name	Finish TM ETRS-TM35FIN-ETRS89				Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
		East	North	Z							
		[m]	[m]	[m]	[m]	[m]	[m]	[°]	[°]		
A	Asuinrakennus (Kuusisto)	379 507	7 044 648	160,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
B	Asuinrakennus (Hauta-aho)	382 077	7 045 258	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
C	Asuinrakennus (Rämesaho)	382 407	7 045 431	154,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
D	Asuinrakennus (Ruisaho)	382 571	7 045 035	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
E	Asuinrakennus (Kotimäki)	383 166	7 044 365	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
F	Asuinrakennus (Korkiasari)	383 547	7 043 221	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
G	Asuinrakennus (Päiväniemi)	385 230	7 042 515	146,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
H	Asuinrakennus (Paranta)	386 491	7 043 438	148,4	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
I	Asuinrakennus (Uusi-Tuikka)	387 206	7 042 846	145,1	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
J	Asuinrakennus (Honkala)	387 456	7 042 356	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
K	Asuinrakennus (Hautamäki)	386 663	7 038 986	152,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
L	Asuinrakennus (Heinola)	390 396	7 040 006	144,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
M	Lomarakennus (Mustalahti)	392 740	7 041 095	142,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
N	Asuinrakennus (Koivukangas)	393 311	7 040 963	147,6	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
O	Asuinrakennus (Laaksola)	394 248	7 041 824	149,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
P	Asuinrakennus (Törtti)	395 603	7 042 806	142,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Q	Asuinrakennus (Hietala)	395 090	7 036 470	165,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
R	Leirintäalue (Valkeinen itäranta)	394 809	7 035 643	167,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
S	Lomarakennus (Valkeinen pohjoisranta)	394 177	7 036 621	167,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
T	Asuinrakennus (Ojala)	391 501	7 035 356	157,2	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
U	Asuinrakennus (Kivimäki)	390 914	7 035 162	157,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
V	Asuinrakennus (Kotiranta)	390 948	7 035 798	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	

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Project:

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22.5.2014 21:09/2.9.269

VE1

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH137 (real case)

...continued from previous page

No.	Name	Finish TM ETRS-TM35FIN-ETRS89							Degrees from south cw [°]	Slope of window [°]	Direction mode
		East	North	Z	Width	Height	Height a.g.l.				
				[m]	[m]	[m]	[m]				
W	Asuinrakennus (Koivula)	389 958	7 036 607	152,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
X	Lomarakennus (Vallansaari-Similänlahti)	386 719	7 032 023	170,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Y	Lomarakennus (Konttikoski)	386 164	7 032 263	166,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Z	Lomarakennus (Haukilampi)	381 581	7 039 318	175,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
AA	Lomarakennus (Pirun-Korpi / Iso-Lemmistö)	379 893	7 042 576	160,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	

**Calculation Results**

Shadow receptor

No.	Name	Shadow, expected values	
		Shadow hours per year [h/year]	
A	Asuinrakennus (Kuusisto)	2:15	
B	Asuinrakennus (Hauta-aho)	16:49	
C	Asuinrakennus (Rämesaho)	7:18	
D	Asuinrakennus (Ruisaho)	7:06	
E	Asuinrakennus (Kotimäki)	4:38	
F	Asuinrakennus (Korkiasari)	12:11	
G	Asuinrakennus (Päiväniemi)	5:23	
H	Asuinrakennus (Paranta)	0:00	
I	Asuinrakennus (Uusi-Tuikka)	0:00	
J	Asuinrakennus (Honkala)	0:00	
K	Asuinrakennus (Hautamäki)	12:04	
L	Asuinrakennus (Heinola)	4:15	
M	Lomarakennus (Mustalahti)	8:00	
N	Asuinrakennus (Koivukangas)	12:41	
O	Asuinrakennus (Laaksola)	12:08	
P	Asuinrakennus (Törtti)	10:07	
Q	Asuinrakennus (Hietala)	12:36	
R	Leirintäalue (Valkeinen itäranta)	2:18	
S	Lomarakennus (Valkeinen pohjoisranta)	6:37	
T	Asuinrakennus (Ojala)	4:33	
U	Asuinrakennus (Kivimäki)	12:44	
V	Asuinrakennus (Kotiranta)	7:07	
W	Asuinrakennus (Koivula)	19:34	
X	Lomarakennus (Vallansaari-Similänlahti)	0:00	
Y	Lomarakennus (Konttikoski)	0:00	
Z	Lomarakennus (Haukilampi)	1:40	
AA	Lomarakennus (Pirun-Korpi / Iso-Lemmistö)	6:07	

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (858)	20:45	4:42
2	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (859)	34:39	7:07
3	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (860)	52:55	10:09
4	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (861)	28:15	5:11
5	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (862)	26:06	3:44
6	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (863)	10:37	2:20
7	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (864)	7:46	1:32
8	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (865)	10:54	1:59
9	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (866)	5:09	0:58
10	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (867)	5:01	0:58
11	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (868)	42:26	6:09
12	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (869)	24:26	3:53
13	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (870)	14:29	2:39
14	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (871)	16:05	1:56

To be continued on next page...

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22.5.2014 21:09/2.9.269

VE1

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH137 (real case)

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
15	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (872)	0:00	0:00
16	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (873)	0:00	0:00
17	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (874)	0:00	0:00
18	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (875)	20:36	2:39
19	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (876)	4:48	0:47
20	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (877)	6:50	1:40
21	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (878)	0:00	0:00
22	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (879)	0:00	0:00
23	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (880)	8:12	0:57
24	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (881)	0:00	0:00
25	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (882)	0:00	0:00
26	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (883)	4:36	0:52
27	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (884)	0:00	0:00
28	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (885)	12:57	3:05
29	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (886)	0:00	0:00
30	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (887)	16:35	1:57
31	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (890)	7:55	0:57
32	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (892)	0:00	0:00
33	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (893)	4:10	1:07
34	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (894)	6:43	1:14
35	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (895)	9:04	1:44
36	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (896)	0:00	0:00
37	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (897)	0:00	0:00
38	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (898)	0:00	0:00
39	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (899)	0:00	0:00
40	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (900)	0:00	0:00
41	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (901)	0:00	0:00
42	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (902)	0:00	0:00
43	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (903)	0:00	0:00
44	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (904)	0:00	0:00
45	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (905)	0:00	0:00
46	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (906)	0:00	0:00
47	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (907)	0:00	0:00
48	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (908)	0:00	0:00
49	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (909)	0:00	0:00
50	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (910)	0:00	0:00
51	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (911)	0:00	0:00
52	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (912)	0:00	0:00
53	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (913)	0:00	0:00
54	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (914)	0:00	0:00
55	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (915)	0:00	0:00
56	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (916)	0:00	0:00
57	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (917)	0:00	0:00
58	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (918)	0:00	0:00
59	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (919)	3:59	0:44
60	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (920)	26:49	4:46
61	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (921)	8:37	1:40
62	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (922)	5:08	1:02
63	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (923)	0:00	0:00
64	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (924)	7:32	0:54
65	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (925)	0:00	0:00
66	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (926)	16:24	1:52
67	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (927)	0:00	0:00
68	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (928)	20:00	4:07
69	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (929)	21:03	5:16
70	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (930)	6:02	1:09
71	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (931)	0:00	0:00
72	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (932)	3:51	1:01
73	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (933)	18:48	3:28
74	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (934)	27:00	4:25
75	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (935)	47:56	6:17

To be continued on next page...

WindPRO is developed by EMD International A/S, Niels Jernesvej 10, DK-9220 Aalborg Ø, Tel. +45 96 35 44 44, Fax +45 96 35 44 46, e-mail: windpro@emrd.dk

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**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH137 (real case)

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
76	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (936)	0:00	0:00
77	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (937)	3:42	0:45
78	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (938)	7:14	1:36
79	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (939)	16:44	4:16
80	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (940)	0:00	0:00
81	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (941)	0:00	0:00
82	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (942)	0:00	0:00
83	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (943)	12:47	3:16
84	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (944)	0:00	0:00
85	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (945)	7:01	1:33
86	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (946)	0:00	0:00
87	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (947)	0:00	0:00
88	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (948)	0:00	0:00
89	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (949)	23:41	2:42
90	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (950)	0:00	0:00
91	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (951)	8:42	1:37
92	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (952)	19:18	3:54
93	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (953)	21:57	2:56
94	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (954)	13:50	1:34
95	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (955)	6:42	1:07
96	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (956)	0:00	0:00
97	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (957)	0:00	0:00
98	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (958)	0:00	0:00
99	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (959)	0:00	0:00
100	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (960)	0:00	0:00
101	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (961)	28:48	4:14
102	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (962)	33:38	5:10
103	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (963)	42:38	7:27
104	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (964)	6:39	0:57
105	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (965)	28:08	4:20
106	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (966)	19:30	2:51
107	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (967)	10:16	1:10
108	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (968)	0:00	0:00
109	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (969)	21:51	3:17
110	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (970)	0:00	0:00
111	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (971)	0:00	0:00
112	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (972)	52:32	8:44
113	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (973)	23:25	4:59
114	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (974)	20:49	5:04
115	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (975)	19:44	4:01
116	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (976)	0:00	0:00
117	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (977)	4:48	1:00
118	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 137,0 m (TOT: 200,0 m) (978)	4:26	0:49

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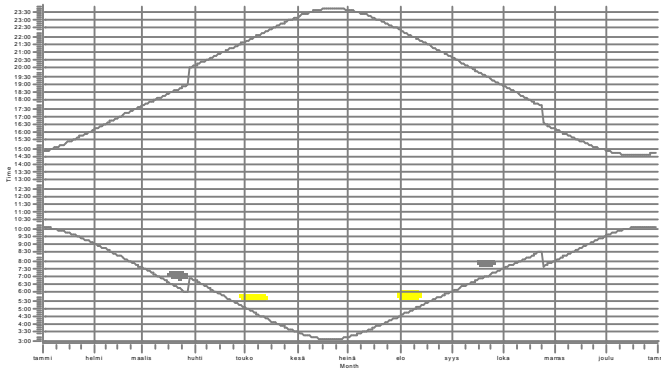
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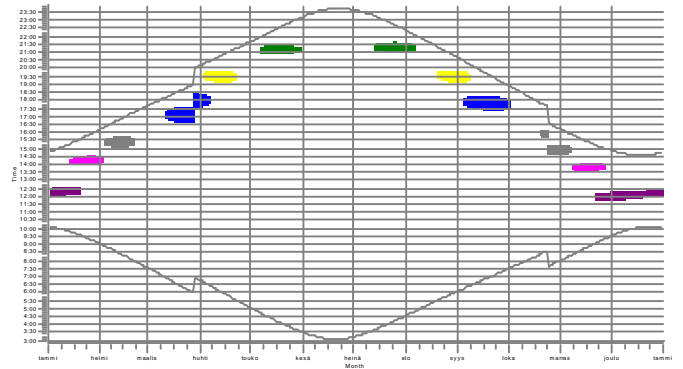
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH137 (real case)

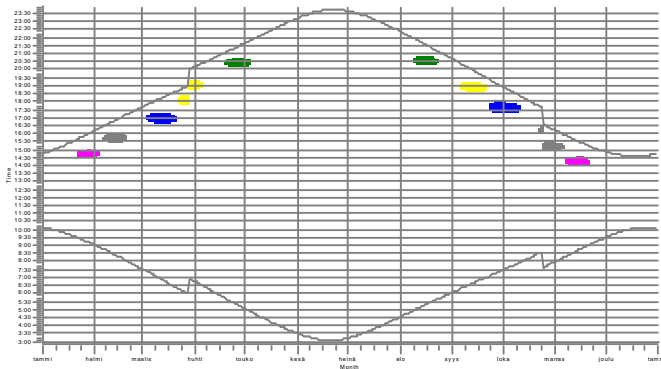
A: Asuinrakennus (Kuusisto)



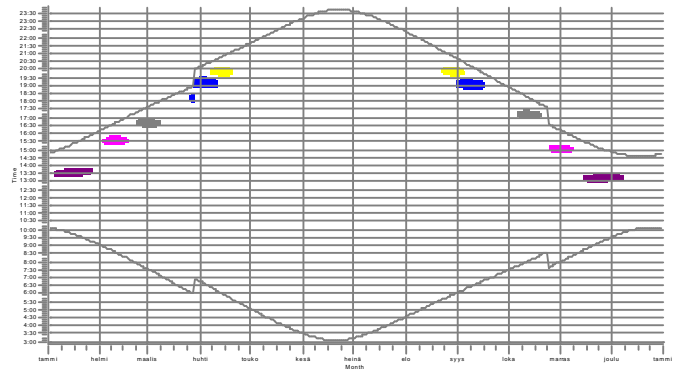
B: Asuinrakennus (Hauta-aho)



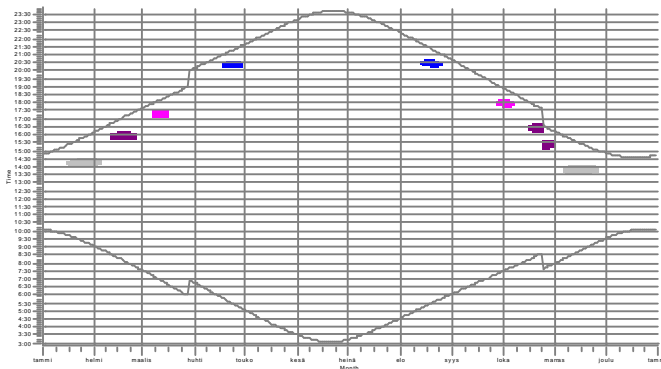
C: Asuinrakennus (Rämesaho)



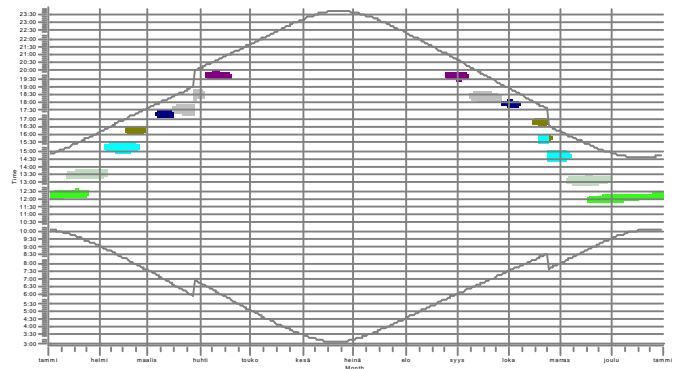
D: Asuinrakennus (Ruisaho)



E: Asuinrakennus (Kotimäki)



F: Asuinrakennus (Korkiasari)



WTG:

- 1 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (858)
- 2 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (859)
- 3 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (860)
- 4 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (861)
- 5 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (862)
- 6 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (863)
- 7 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (864)
- 8 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (865)
- 9 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (866)
- 10 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (867)
- 11 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (868)
- 12 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (869)
- 13 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (870)
- 14 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (871)
- 15 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (872)
- 16 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (873)
- 17 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (874)
- 18 h.a.a. a.n.a. 126 3500 126.0 IO' hub. 137.0 m (TOT: 200.0 m) (875)

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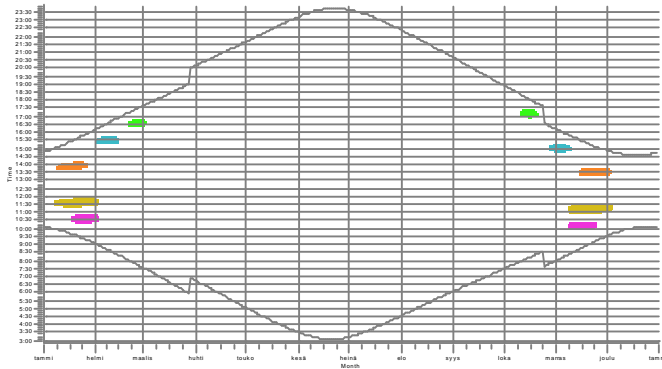
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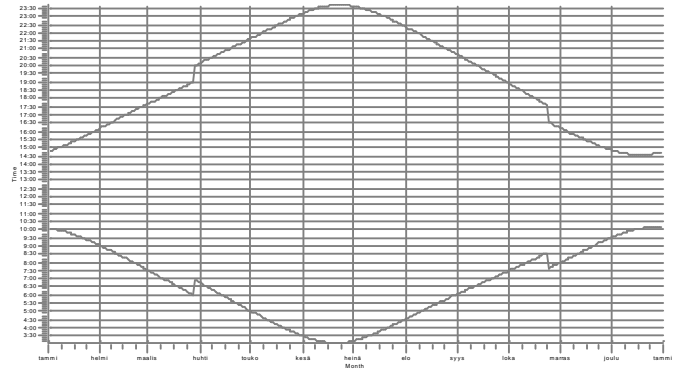
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 118 x HH137 (real case)

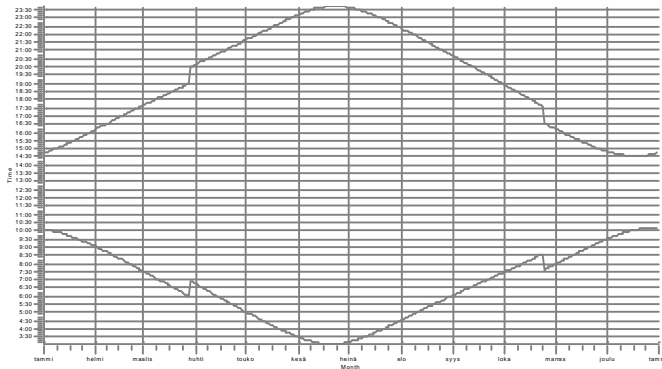
G: Asuinrakennus (Päiväniemi)



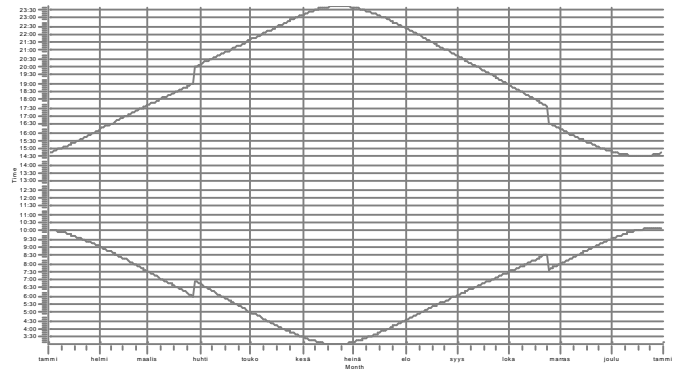
H: Asuinrakennus (Paranta)



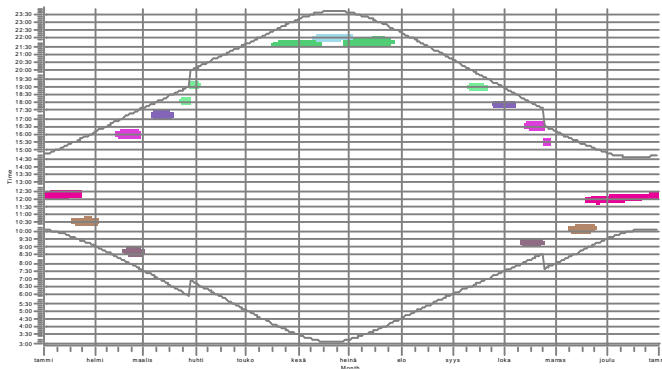
I: Asuinrakennus (Uusi-Tuikka)



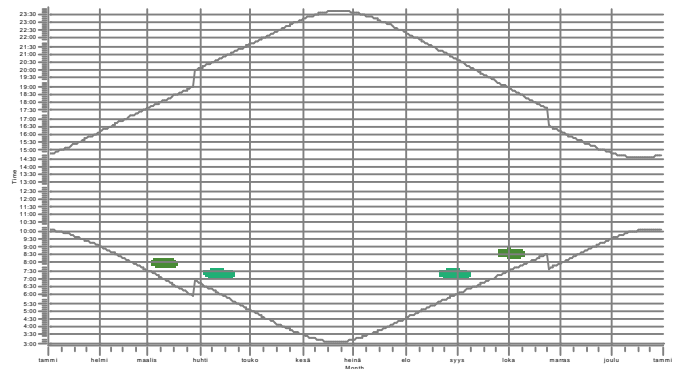
J: Asuinrakennus (Honkala)



K: Asuinrakennus (Hautamäki)



L: Asuinrakennus (Heinola)



WTG:

- 18 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (875)
- 26 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (883)
- 31 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (890)
- 35 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (895)
- 70 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (930)
- 18 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (876)
- 28 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (886)
- 33 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (894)
- 40 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (904)
- 91 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (951)
- 23 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (880)
- 30 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (887)
- 34 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (894)
- 58 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (926)
- 92 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (952)



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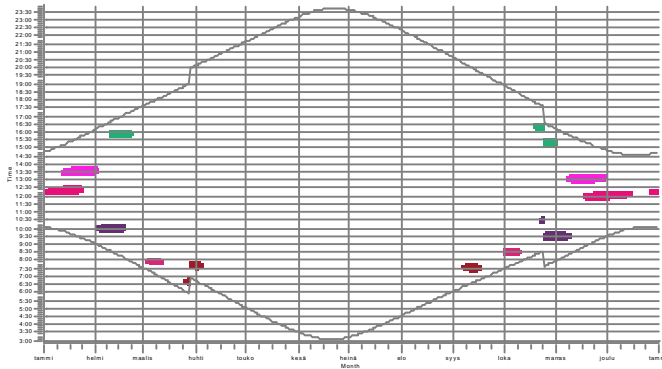
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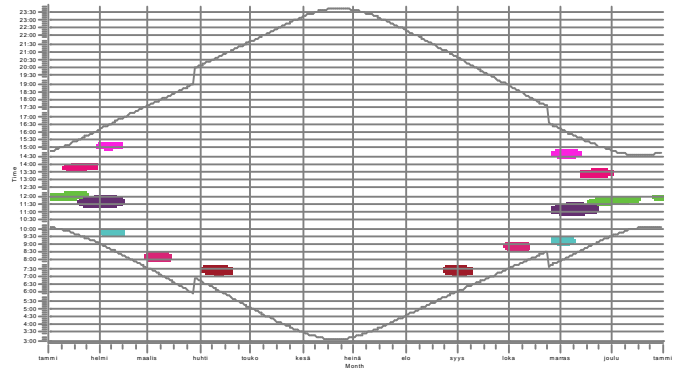
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH137 (real case)

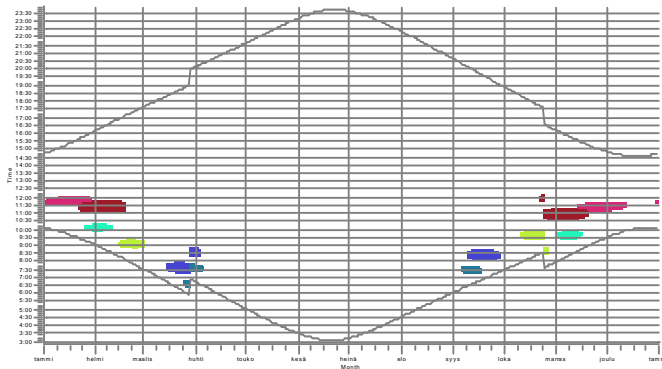
M: Lomarakennus (Mustalahti)



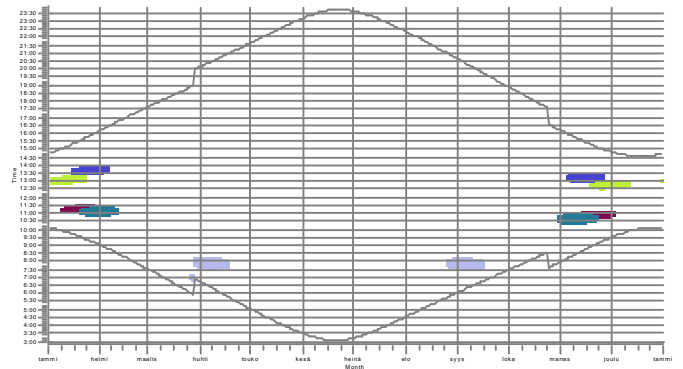
N: Asuinrakennus (Koivukangas)



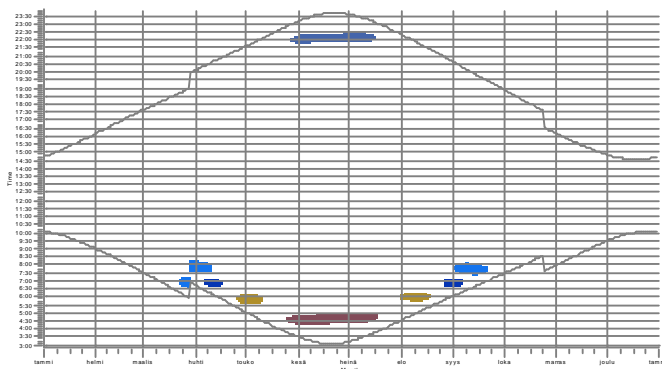
O: Asuinrakennus (Laaksola)



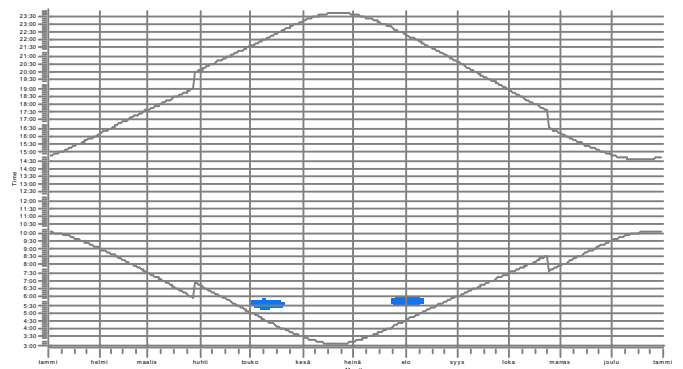
P: Asuinrakennus (Törtti)



Q: Asuinrakennus (Hietala)



R: Leirintäalue (Valkeinen itäranta)



WTG:

- 77 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (937)
- 78 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (938)
- 79 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (939)
- 83 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (943)
- 89 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (949)
- 92 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (952)
- 93 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (953)
- 94 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (954)
- 95 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (955)
- 101 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (961)
- 102 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (962)
- 103 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (963)
- 104 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (964)
- 105 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (965)
- 106 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (966)
- 107 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (967)
- 109 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (969)
- 113 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (973)
- 115 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 137.0 m (TOT: 200.0 m) (975)

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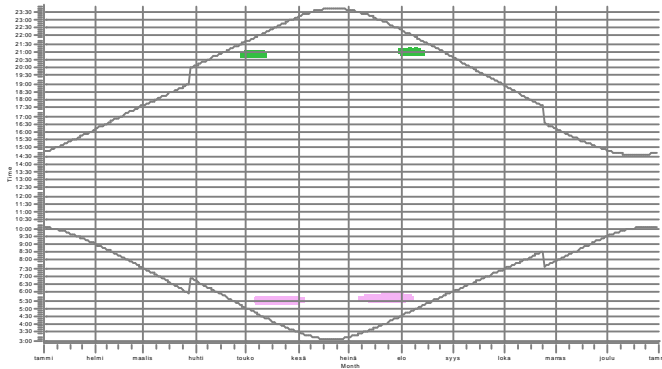
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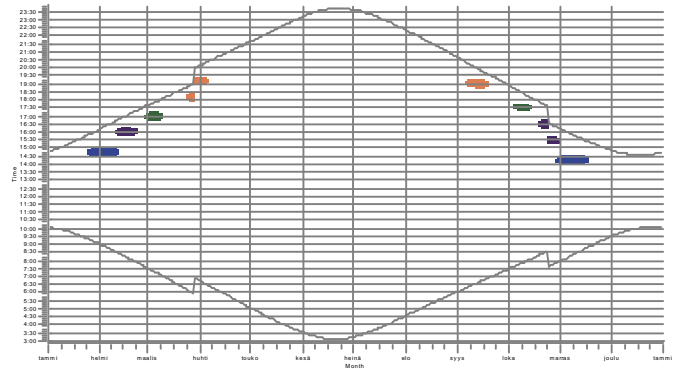
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH137 (real case)

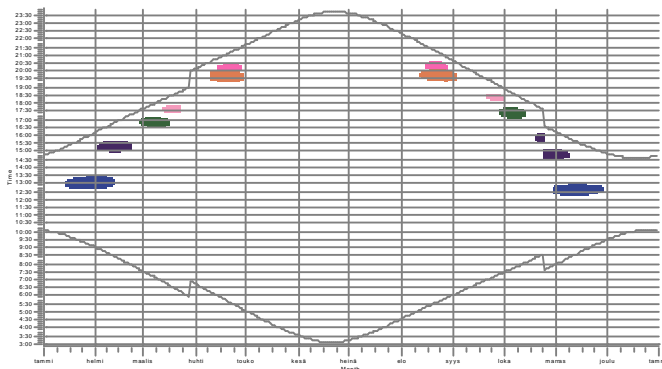
S: Lomarakennus (Valkeinen pohjoisranta)



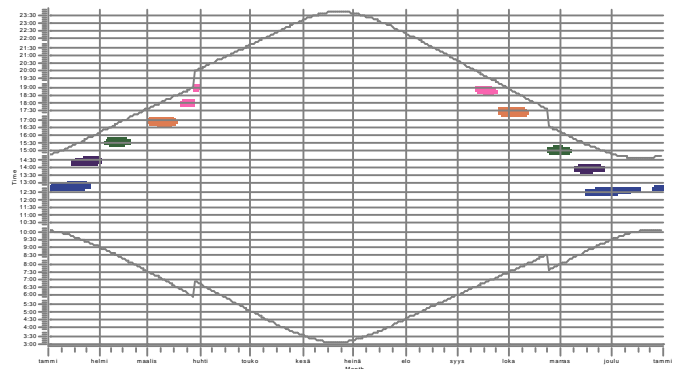
T: Asuinrakennus (Ojala)



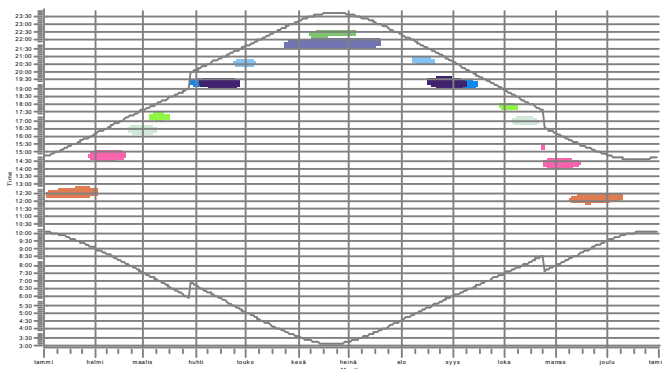
U: Asuinrakennus (Kivimäki)



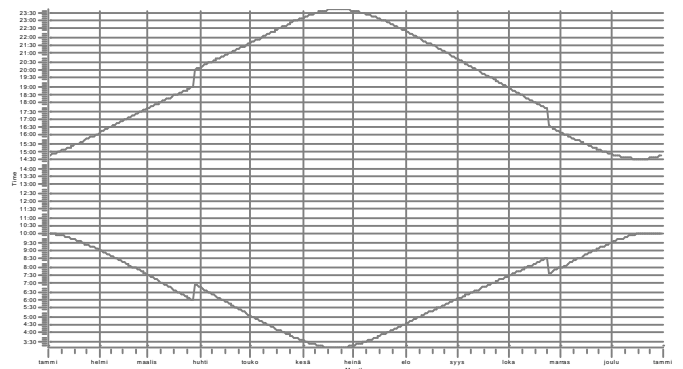
V: Asuinrakennus (Kotiranta)



W: Asuinrakennus (Koivula)



X: Lomarakennus (Vallansaari-Similänlahti)



WTG:

- 59 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (919)
- 60 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (920)
- 61 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (921)
- 62 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (922)
- 68 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (928)
- 69 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (929)
- 72 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (932)
- 73 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (933)
- 74 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (934)
- 75 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (935)
- 80 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (940)
- 112 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (972)
- 114 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (974)
- 117 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (977)
- 118 m.a.a.s. 126 3500 126.0 101 hab: 137.0 m (TOT: 200.0 m) (978)

Project:

Lestijärvi

VE1

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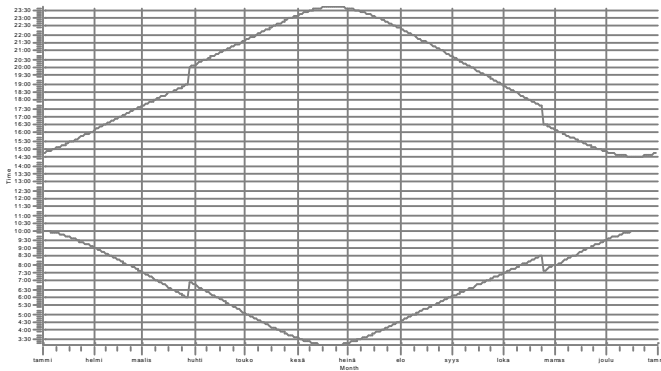
Calculated:

22.5.2014 21:09/2.9.269

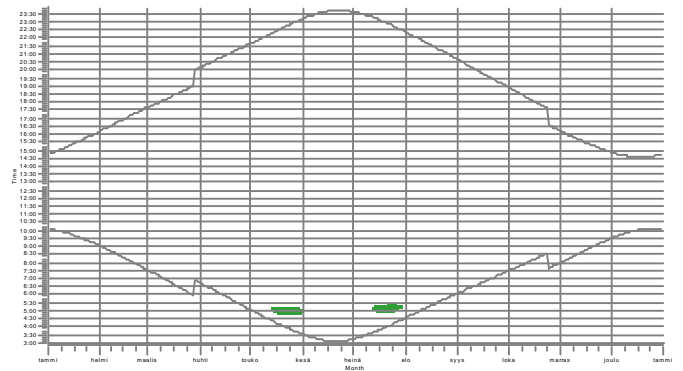
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 118 x HH137 (real case)

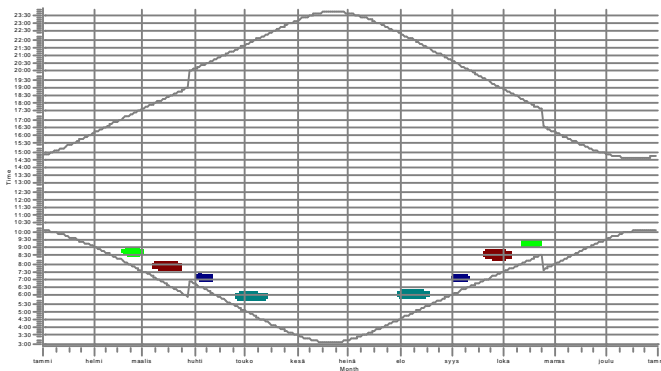
Y: Lomarakennus (Konttikoski)



Z: Lomarakennus (Haukilampi)



AA: Lomarakennus (Pirun-Korpi / Iso-Lemmistö)



WTG:

6 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 137.0 m (TOT: 200.0 m) (863)

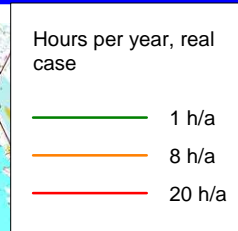
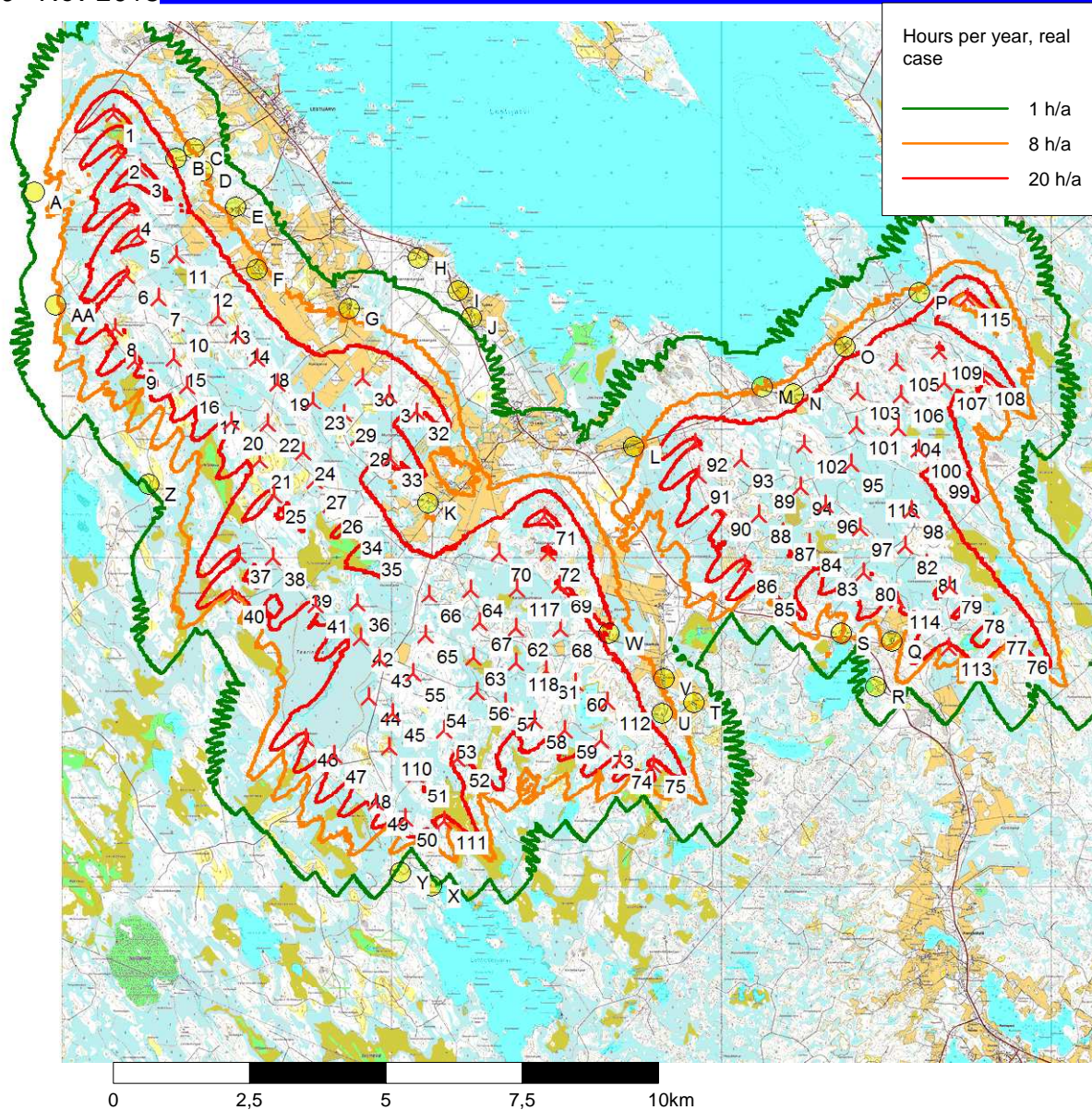
7 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 137.0 m (TOT: 200.0 m) (864)

8 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 137.0 m (TOT: 200.0 m) (865)

9 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 137.0 m (TOT: 200.0 m) (866)

20 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 137.0 m (TOT: 200.0 m) (877)

VE1



Project: **Lestijärvi**

**SHADOW - Map**  
 Calculation: eno 126 x 118 x HH137 (real case)

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 Paulina Kaivo-oja / paulina.kaivo-oja@fcg.fi  
 Calculated: 22.5.2014 21:09/2.9.269

Map: Lestijärvi suppea , Print scale 1:128 000, Map center Finish TM ETRS-TM35FIN-ETRS89 East: 386 000 North: 7 038 200  
 New WTG ▲ Shadow receptor ●  
 Flicker map level: Height Contours: Lestijärvi height contour lines.wpo (1)

Project:

Lestijärvi

VE2

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**SHADOW - Main Result**

Calculation: eno 126 x 118 x HH170 (real case)

**Assumptions for shadow calculations**

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence 3 °

Day step for calculation 1 days

Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) [UMEA]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
1,02 2,84 3,78 6,14 8,62 9,94 7,42 5,13 4,32 3,43 1,58 0,96

Operational hours are calculated from WTGs in calculation and wind distribution:

Lestijärvi Sodar

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
514 516 376 419 657 657 811 918 1059 772 826 595 8120  
Idle start wind speed: Cut in wind speed from power curve

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: Lestijärvi height contour lines.wpo (1)

Obstacles not used in calculation

Eye height: 1,5 m

Grid resolution: 50,0 m

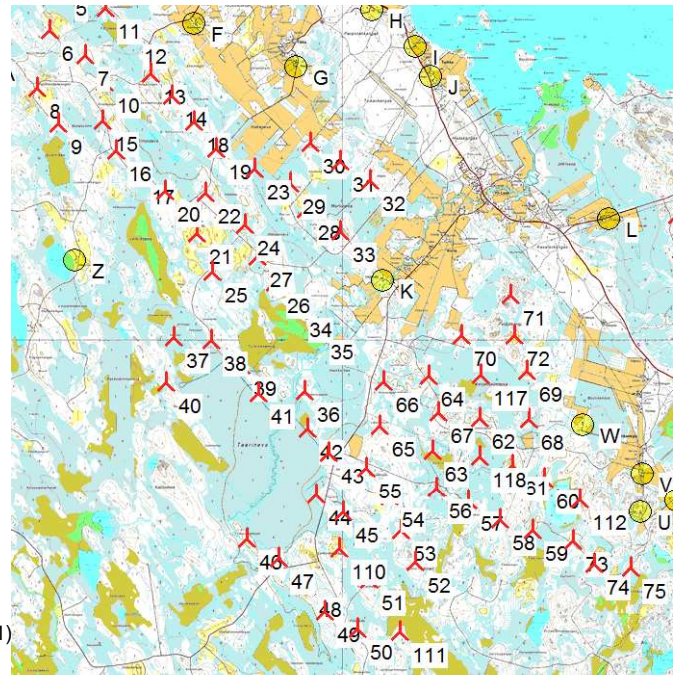
**WTGs**

**Finish TM ETRS-TM35FIN-ETRS89**

East North Z Row data/Description

[m]

WTG	East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow Calculation distance [m]	RPM [RPM]
1	380 941	7 046 061	152,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
2	381 023	7 045 401	154,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
3	381 418	7 045 063	149,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
4	381 221	7 044 351	158,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
5	381 390	7 043 863	156,4	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
6	381 174	7 043 115	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
7	381 752	7 042 705	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
8	380 967	7 042 155	172,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
9	381 318	7 041 573	172,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
10	382 080	7 042 248	160,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
11	382 085	7 043 484	152,6	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
12	382 516	7 043 058	155,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
13	382 835	7 042 394	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
14	383 187	7 042 030	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
15	382 040	7 041 612	168,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
16	382 269	7 041 122	166,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
17	382 640	7 040 744	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
18	383 550	7 041 610	155,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
19	383 914	7 041 160	155,3	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
20	383 078	7 040 455	163,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
21	383 595	7 039 761	172,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
22	383 748	7 040 425	166,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
23	384 559	7 040 821	151,4	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
24	384 394	7 039 905	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
25	383 853	7 039 134	166,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
26	384 886	7 038 956	167,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
27	384 599	7 039 384	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
28	385 392	7 040 156	155,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
29	385 131	7 040 594	152,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2



Scale 1:125 000  
New WTG Shadow receptor

To be continued on next page...

Project:

**Lestijärvi**

**VE2**

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Calculated:

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**SHADOW - Main Result**

**Calculation:** eno 126 x 118 x HH170 (real case)

...continued from previous page

Finish TM ETRS-TM35FIN-ETRS89					WTG type			Shadow data				
East	North	Z	Row data/Description		Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
30	385 471	7 041 253	153,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
31	385 957	7 040 959	152,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
32	386 457	7 040 632	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
33	385 962	7 039 788	164,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
34	385 246	7 038 560	158,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
35	385 598	7 038 184	157,3	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
36	385 379	7 037 159	167,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
37	383 214	7 038 051	165,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
38	383 832	7 037 999	165,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
39	384 327	7 037 593	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
40	383 092	7 037 301	167,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
41	384 613	7 037 125	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
42	385 429	7 036 540	158,6	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
43	385 771	7 036 142	162,4	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
44	385 574	7 035 448	161,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
45	386 019	7 035 156	165,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
46	384 428	7 034 714	162,3	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
47	384 951	7 034 400	162,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
48	385 404	7 033 931	168,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
49	385 705	7 033 531	163,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
50	386 249	7 033 243	168,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
51	386 432	7 034 054	170,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
52	387 194	7 034 338	175,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
53	386 957	7 034 855	173,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
54	386 779	7 035 413	172,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
55	386 388	7 035 889	172,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
56	387 543	7 035 554	167,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
57	388 068	7 035 350	167,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
58	388 601	7 035 036	168,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
59	389 142	7 034 863	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
60	389 335	7 035 711	157,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
61	388 812	7 035 931	166,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
62	388 258	7 036 710	166,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
63	387 483	7 036 176	165,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
64	387 428	7 037 413	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
65	386 613	7 036 589	165,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
66	386 682	7 037 317	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
67	387 589	7 036 813	159,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
68	389 069	7 036 700	155,6	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
69	389 049	7 037 497	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
70	387 958	7 038 081	151,6	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
71	388 777	7 038 743	155,8	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
72	388 842	7 038 086	161,7	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
73	389 803	7 034 677	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
74	390 150	7 034 309	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
75	390 759	7 034 232	167,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
76	397 333	7 036 381	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
77	396 965	7 036 743	164,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
78	396 564	7 037 130	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
79	396 143	7 037 483	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
80	394 574	7 037 720	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
81	395 726	7 037 887	161,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
82	395 335	7 038 211	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
83	393 892	7 037 826	162,5	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
84	393 597	7 038 264	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
85	392 748	7 037 433	162,1	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
86	392 412	7 037 870	154,9	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
87	393 108	7 038 455	162,2	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
88	392 676	7 038 780	160,0	e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2

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VE2

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH170 (real case)

...continued from previous page

Finish TM ETRS-TM35FIN-ETRS89				WTG type				Shadow data			
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
			[m]				[kW]	[m]	[m]	[m]	[RPM]
89	392 735	7 039 407	163,8 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
90	391 958	7 038 901	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
91	391 585	7 039 490	150,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
92	391 512	7 040 060	155,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
93	392 349	7 039 778	162,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
94	393 444	7 039 269	161,3 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
95	394 355	7 039 691	152,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
96	393 884	7 038 958	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
97	394 525	7 038 527	159,1 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
98	395 460	7 038 857	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
99	395 917	7 039 574	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
100	395 581	7 039 961	166,2 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
101	394 452	7 040 379	152,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
102	393 496	7 040 038	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
103	394 466	7 040 995	165,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
104	395 208	7 040 341	167,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
105	395 185	7 041 540	170,6 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
106	395 254	7 040 956	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
107	396 048	7 041 185	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
108	396 751	7 041 276	157,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
109	395 960	7 041 746	160,9 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
110	385 952	7 034 552	171,7 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
111	386 946	7 033 191	170,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
112	389 912	7 035 368	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
113	396 127	7 036 357	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
114	395 196	7 037 214	160,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
115	396 469	7 042 715	152,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
116	394 795	7 039 241	154,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
117	388 278	7 037 433	155,0 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2
118	388 263	7 036 086	162,5 e.n.o. e.n.o. 126 3500 126.0 !...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,2

**Shadow receptor-Input**

No.	Name	Finish TM ETRS-TM35FIN-ETRS89				Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
		East	North	Z	Height						
		[m]	[m]	[m]	[m]	[m]	[m]	[°]	[°]		
A	Asuinrakennus (Kuusisto)	379 507	7 044 648	160,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
B	Asuinrakennus (Hauta-aho)	382 077	7 045 258	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
C	Asuinrakennus (Rämesaho)	382 407	7 045 431	154,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
D	Asuinrakennus (Ruisaho)	382 571	7 045 035	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
E	Asuinrakennus (Kotimäki)	383 166	7 044 365	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
F	Asuinrakennus (Korkiasari)	383 547	7 043 221	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
G	Asuinrakennus (Päiväniemi)	385 230	7 042 515	146,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
H	Asuinrakennus (Paranta)	386 491	7 043 438	148,4	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
I	Asuinrakennus (Uusi-Tuikka)	387 206	7 042 846	145,1	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
J	Asuinrakennus (Honkala)	387 456	7 042 356	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
K	Asuinrakennus (Hautamäki)	386 663	7 038 986	152,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
L	Asuinrakennus (Heinola)	390 396	7 040 006	144,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
M	Lomarakennus (Mustalahti)	392 740	7 041 095	142,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
N	Asuinrakennus (Koivukangas)	393 311	7 040 963	147,6	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
O	Asuinrakennus (Laaksola)	394 248	7 041 824	149,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
P	Asuinrakennus (Törtti)	395 603	7 042 806	142,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Q	Asuinrakennus (Hietala)	395 090	7 036 470	165,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
R	Leirintäalue (Valkeinen itäraanta)	394 809	7 035 643	167,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
S	Lomarakennus (Valkeinen pohjoisraanta)	394 177	7 036 621	167,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
T	Asuinrakennus (Ojala)	391 501	7 035 356	157,2	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
U	Asuinrakennus (Kivimäki)	390 914	7 035 162	157,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
V	Asuinrakennus (Kotiranta)	390 948	7 035 798	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	

To be continued on next page...

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VE2

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH170 (real case)

...continued from previous page

No.	Name	Finish TM ETRS-TM35FIN-ETRS89							Degrees from south cw [°]	Slope of window [°]	Direction mode
		East	North	Z	Width	Height	Height a.g.l.				
				[m]	[m]	[m]	[m]				
W	Asuinrakennus (Koivula)	389 958	7 036 607	152,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
X	Lomarakennus (Vallansaari-Similänlahti)	386 719	7 032 023	170,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Y	Lomarakennus (Konttikoski)	386 164	7 032 263	166,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Z	Lomarakennus (Haukilampi)	381 581	7 039 318	175,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
AA	Lomarakennus (Pirun-Korpi / Iso-Lemmistö)	379 893	7 042 576	160,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	

**Calculation Results**

Shadow receptor

No.	Name	Shadow, expected values	
		Shadow hours per year [h/year]	
A	Asuinrakennus (Kuusisto)	2:50	
B	Asuinrakennus (Hauta-aho)	18:12	
C	Asuinrakennus (Rämesaho)	7:59	
D	Asuinrakennus (Ruisaho)	7:33	
E	Asuinrakennus (Kotimäki)	5:00	
F	Asuinrakennus (Korkiasari)	12:04	
G	Asuinrakennus (Päiväniemi)	4:46	
H	Asuinrakennus (Paranta)	0:00	
I	Asuinrakennus (Uusi-Tuikka)	0:00	
J	Asuinrakennus (Honkala)	0:00	
K	Asuinrakennus (Hautamäki)	12:02	
L	Asuinrakennus (Heinola)	4:28	
M	Lomarakennus (Mustalahti)	7:55	
N	Asuinrakennus (Koivukangas)	12:51	
O	Asuinrakennus (Laaksola)	12:31	
P	Asuinrakennus (Törtti)	10:27	
Q	Asuinrakennus (Hietala)	11:24	
R	Leirintäalue (Valkeinen itäranta)	2:51	
S	Lomarakennus (Valkeinen pohjoisranta)	9:47	
T	Asuinrakennus (Ojala)	5:03	
U	Asuinrakennus (Kivimäki)	13:38	
V	Asuinrakennus (Kotiranta)	7:05	
W	Asuinrakennus (Koivula)	17:22	
X	Lomarakennus (Vallansaari-Similänlahti)	0:00	
Y	Lomarakennus (Konttikoski)	0:00	
Z	Lomarakennus (Haukilampi)	2:38	
AA	Lomarakennus (Pirun-Korpi / Iso-Lemmistö)	6:43	

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (737)	24:55	6:03
2	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (738)	36:47	8:00
3	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (739)	54:58	11:15
4	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (740)	28:10	5:32
5	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (741)	26:13	4:10
6	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (742)	11:22	2:43
7	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (743)	8:32	1:45
8	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (744)	10:41	2:01
9	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (745)	5:07	1:00
10	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (746)	5:06	1:01
11	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (747)	37:23	5:49
12	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (748)	23:08	4:06
13	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (749)	13:33	2:42
14	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (750)	13:54	1:56

To be continued on next page...

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VE2

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH170 (real case)

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
15	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (751)	0:00	0:00
16	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (752)	0:00	0:00
17	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (753)	0:00	0:00
18	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (754)	11:22	1:22
19	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (755)	5:08	0:55
20	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (756)	10:14	2:38
21	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (757)	0:00	0:00
22	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (758)	0:00	0:00
23	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (759)	7:59	0:58
24	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (760)	0:00	0:00
25	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (761)	0:00	0:00
26	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (762)	4:37	0:56
27	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (763)	0:00	0:00
28	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (764)	17:07	4:25
29	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (765)	0:00	0:00
30	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (766)	13:48	1:51
31	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (769)	7:27	1:00
32	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (771)	0:00	0:00
33	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (772)	0:00	0:00
34	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (773)	6:35	1:15
35	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (774)	8:48	1:46
36	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (775)	0:00	0:00
37	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (776)	0:00	0:00
38	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (777)	0:00	0:00
39	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (778)	0:00	0:00
40	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (779)	0:00	0:00
41	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (780)	0:00	0:00
42	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (781)	0:00	0:00
43	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (782)	0:00	0:00
44	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (783)	0:00	0:00
45	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (784)	0:00	0:00
46	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (785)	0:00	0:00
47	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (786)	0:00	0:00
48	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (787)	0:00	0:00
49	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (788)	0:00	0:00
50	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (789)	0:00	0:00
51	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (790)	0:00	0:00
52	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (791)	0:00	0:00
53	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (792)	0:00	0:00
54	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (793)	0:00	0:00
55	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (794)	0:00	0:00
56	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (795)	0:00	0:00
57	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (796)	0:00	0:00
58	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (797)	0:00	0:00
59	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (798)	4:28	0:51
60	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (799)	26:34	5:14
61	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (800)	8:24	1:41
62	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (801)	5:10	1:07
63	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (802)	0:00	0:00
64	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (803)	7:14	1:00
65	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (804)	0:00	0:00
66	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (805)	11:13	1:21
67	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (806)	0:00	0:00
68	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (807)	20:49	4:27
69	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (808)	11:53	3:09
70	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (809)	6:13	1:14
71	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (810)	0:00	0:00
72	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (811)	0:00	0:00
73	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (812)	19:26	3:48
74	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (813)	26:08	4:41
75	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (814)	41:30	6:27

To be continued on next page...

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VE2

**SHADOW - Main Result****Calculation:** eno 126 x 118 x HH170 (real case)

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
76	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (815)	0:00	0:00
77	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (816)	4:31	0:58
78	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (817)	8:14	1:56
79	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (818)	9:59	2:43
80	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (819)	0:00	0:00
81	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (820)	0:00	0:00
82	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (821)	0:00	0:00
83	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (822)	10:25	2:48
84	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (823)	0:00	0:00
85	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (824)	8:17	1:58
86	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (825)	0:00	0:00
87	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (826)	0:00	0:00
88	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (827)	0:00	0:00
89	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (828)	18:54	2:19
90	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (829)	0:00	0:00
91	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (830)	8:36	1:39
92	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (831)	19:25	4:05
93	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (832)	19:44	3:01
94	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (833)	10:15	1:14
95	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (834)	6:41	1:14
96	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (835)	0:00	0:00
97	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (836)	0:00	0:00
98	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (837)	0:00	0:00
99	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (838)	0:00	0:00
100	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (839)	0:00	0:00
101	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (840)	25:22	4:03
102	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (841)	30:09	5:27
103	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (842)	39:56	7:53
104	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (843)	6:18	1:02
105	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (844)	26:34	4:35
106	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (845)	17:04	2:42
107	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (846)	8:49	1:04
108	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (847)	0:00	0:00
109	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (848)	20:07	3:33
110	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (849)	0:00	0:00
111	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (850)	0:00	0:00
112	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (851)	49:23	9:03
113	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (852)	25:15	5:48
114	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (853)	29:26	7:48
115	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (854)	20:08	4:20
116	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (855)	0:00	0:00
117	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (856)	5:39	1:16
118	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (857)	4:38	0:53

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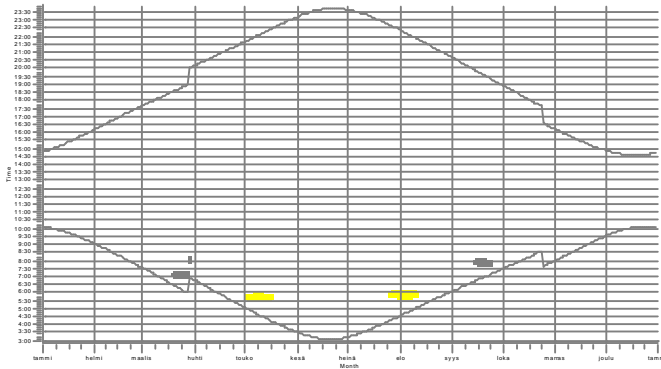
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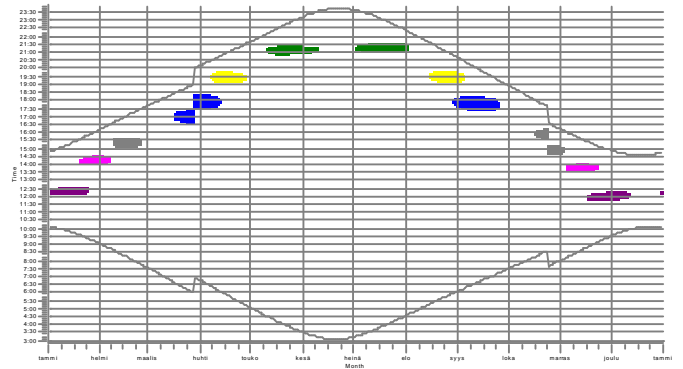
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH170 (real case)

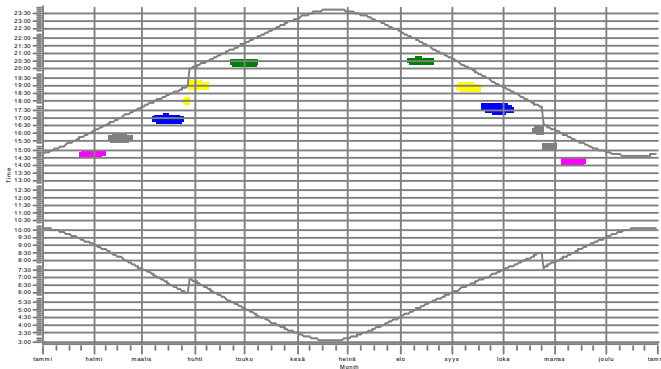
A: Asuinrakennus (Kuusisto)



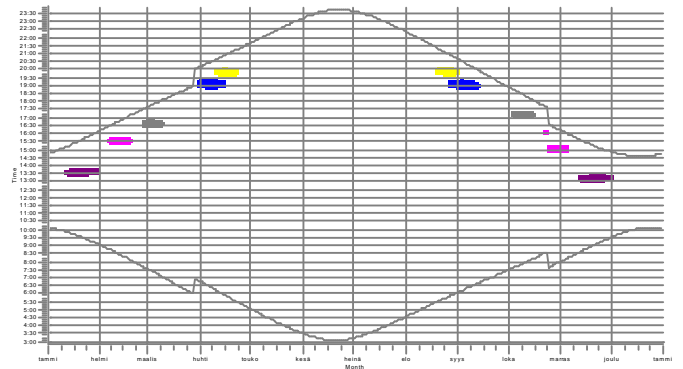
B: Asuinrakennus (Hauta-aho)



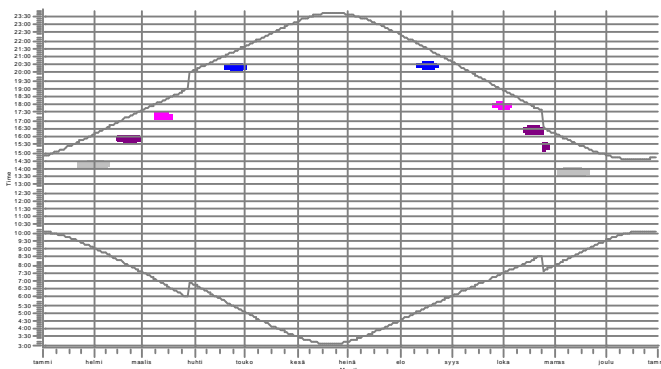
C: Asuinrakennus (Rämesaho)



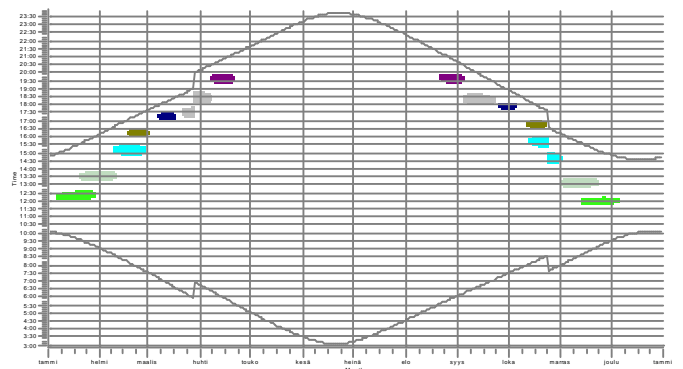
D: Asuinrakennus (Ruisaho)



E: Asuinrakennus (Kotimäki)



F: Asuinrakennus (Korkiasari)



WTG:

- 1 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F37)
- 2 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F38)
- 3 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F39)
- 4 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F40)
- 5 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F41)
- 6 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F42)
- 7 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F43)
- 8 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F44)
- 9 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F45)
- 10 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F46)
- 11 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F47)
- 12 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F48)
- 13 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F49)
- 14 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F50)
- 15 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F51)
- 16 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F52)
- 17 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F53)
- 18 a.s.a. a.s.a. 126 3500 126.0 IO/ hab: 170.0 m (TOT: 233.0 m) (F54)

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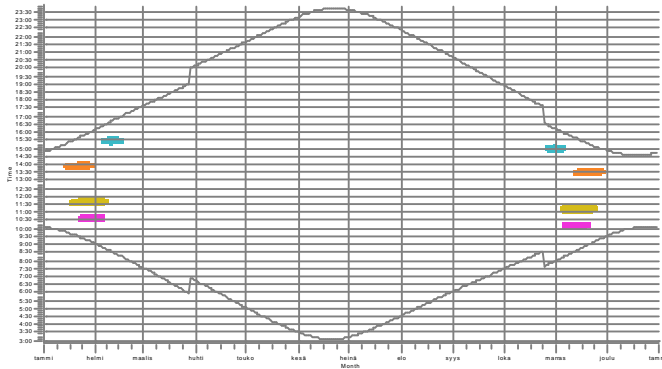
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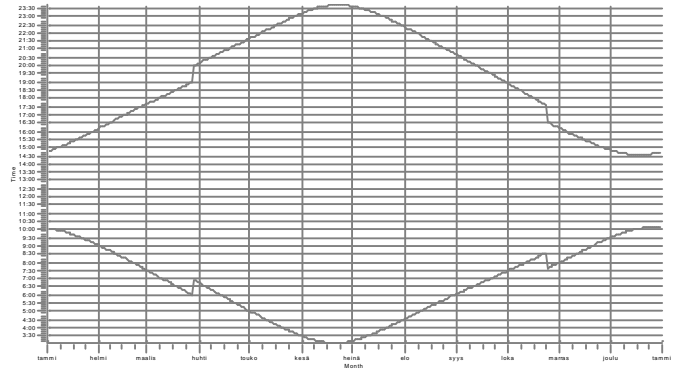
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH170 (real case)

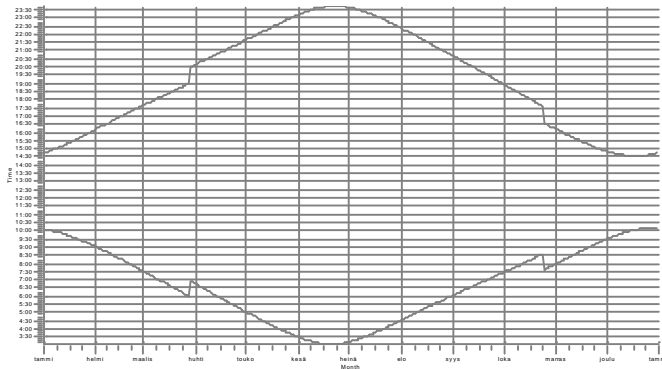
G: Asuinrakennus (Päiväniemi)



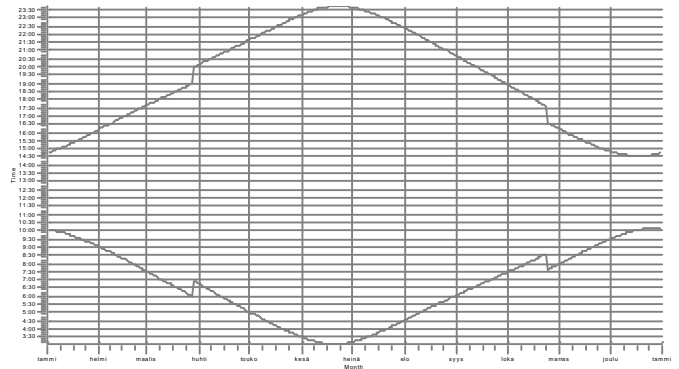
H: Asuinrakennus (Paranta)



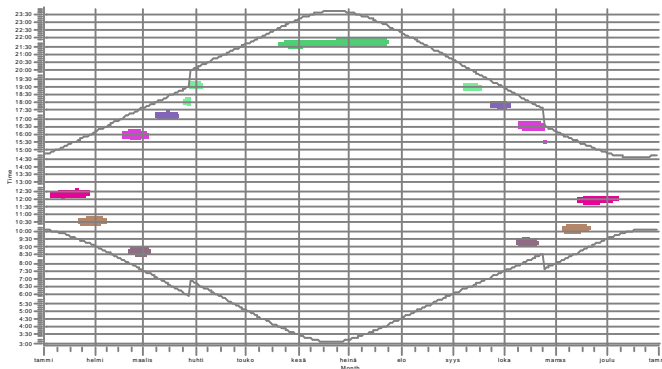
I: Asuinrakennus (Uusi-Tuikka)



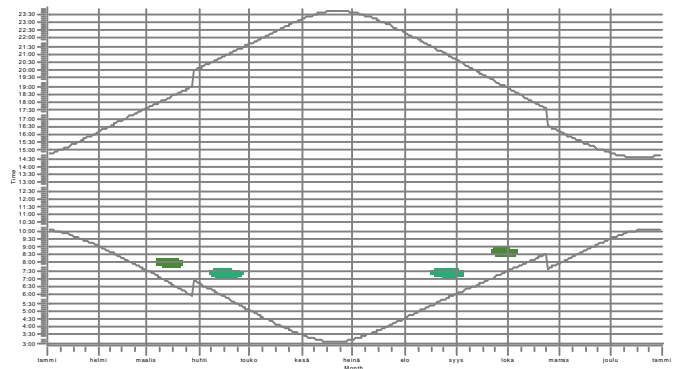
J: Asuinrakennus (Honkala)



K: Asuinrakennus (Hautamäki)



L: Asuinrakennus (Heinola)



19 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (75)	28 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (76)	34 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (77)	66 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (80)	92 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (83)
26 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (78)	30 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (79)	36 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (74)	60 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (82)	
28 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (78)	31 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (79)	64 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (80)	51 a.n.a. a.n.a. 126 3500 126.0 101 hab: 170.0 m (TOT: 233.0 m) (83)	

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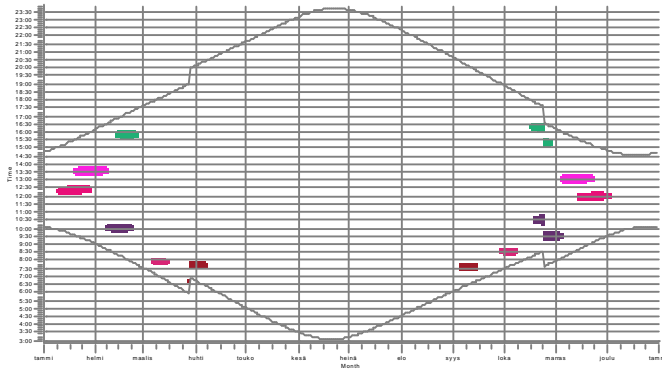
Calculated:

23.5.2014 12:14/2.9.269

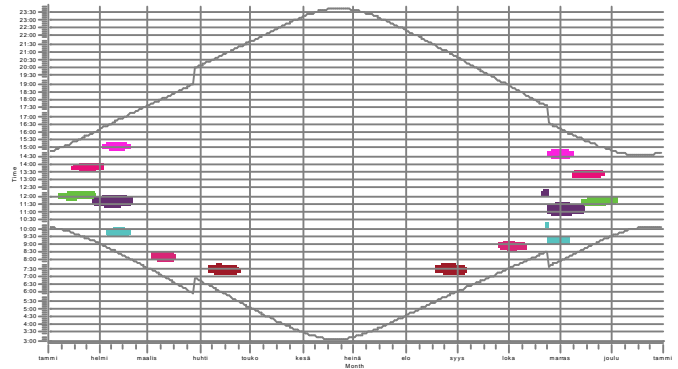
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH170 (real case)

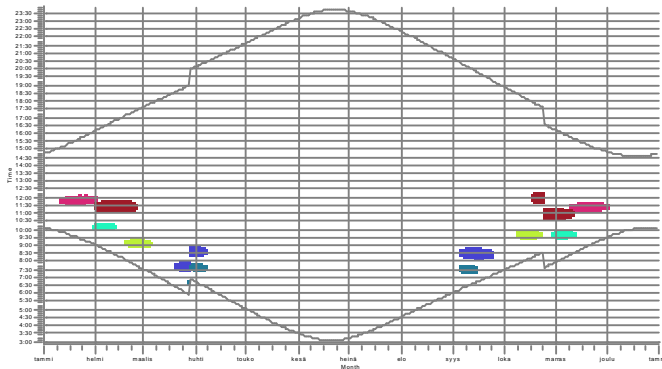
M: Lomarakennus (Mustalahti)



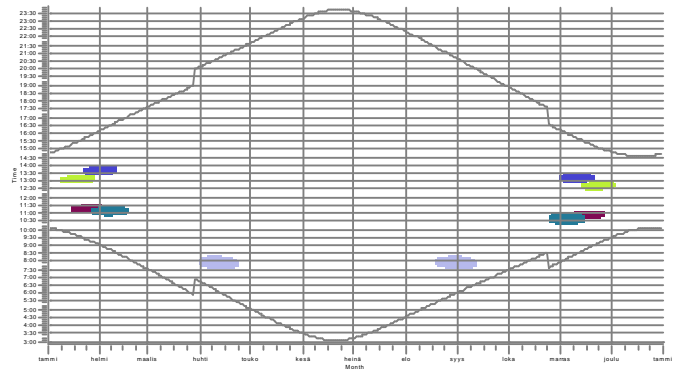
N: Asuinrakennus (Koivukangas)



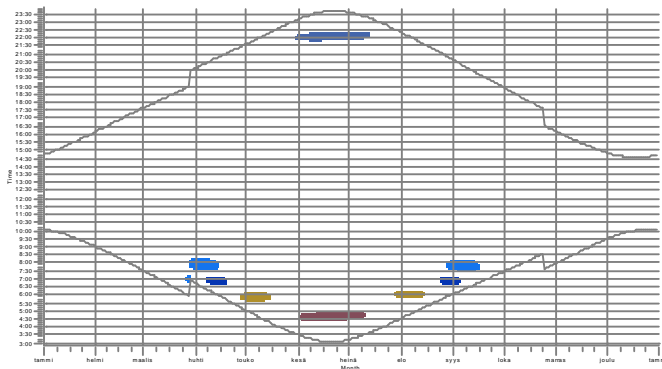
O: Asuinrakennus (Laaksola)



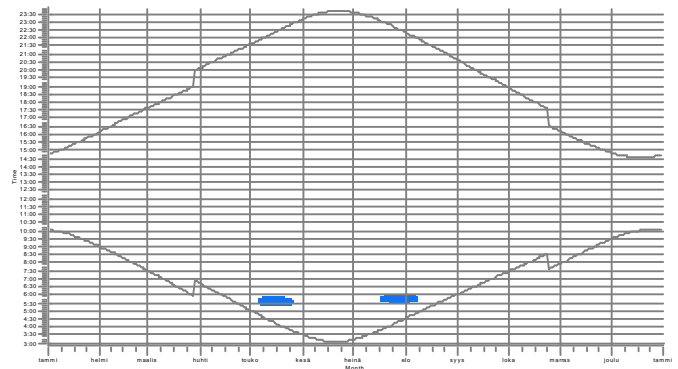
P: Asuinrakennus (Törtti)



Q: Asuinrakennus (Hietala)



R: Leirintäalue (Valkeinen itäranta)



WTG:

77 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (816)  
 78 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (817)  
 79 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (818)  
 83 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (822)

89 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (828)  
 92 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (831)  
 93 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (832)  
 94 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (833)

95 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (834)  
 101 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (840)  
 102 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (841)  
 103 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (842)

104 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (843)  
 105 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (844)  
 106 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (845)  
 107 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (846)

109 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (848)  
 113 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (852)  
 115 a.n.a. a.n.a. 126 3500 126.0 101 hah. 170.0 m (TOT: 233.0 m) (854)

Project:

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VE2

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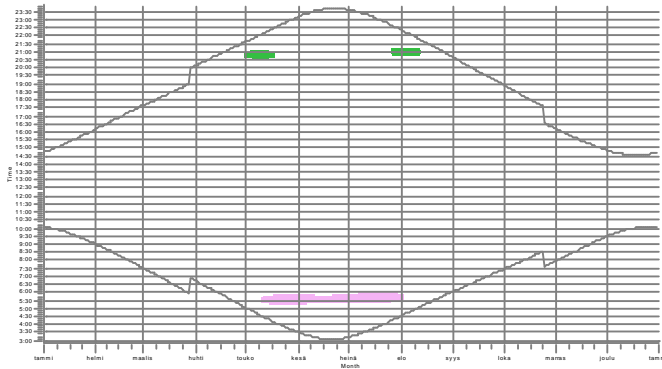
Calculated:

23.5.2014 12:14/2.9.269

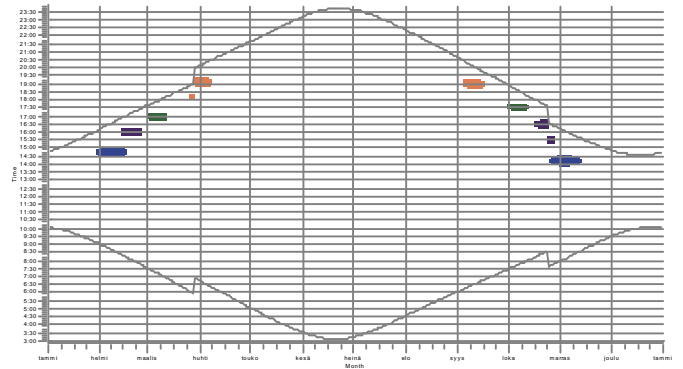
SHADOW - Calendar, graphical

Calculation: eno 126 x 118 x HH170 (real case)

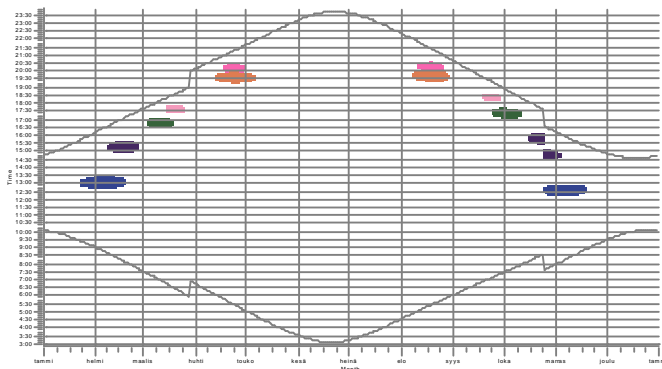
S: Lomarakennus (Valkeinen pohjoisranta)



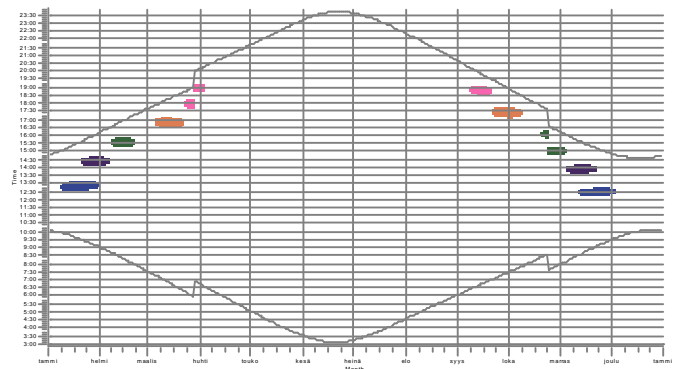
T: Asuinrakennus (Ojala)



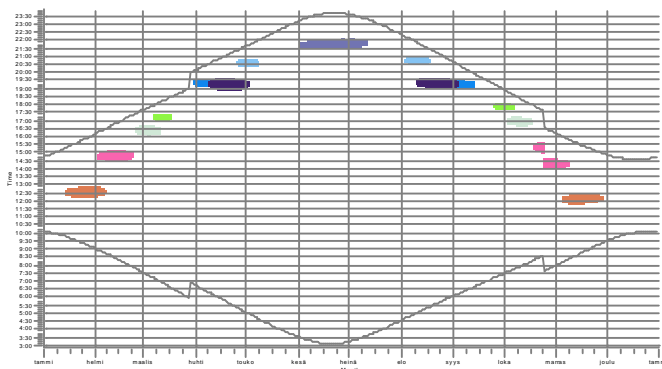
U: Asuinrakennus (Kivimäki)



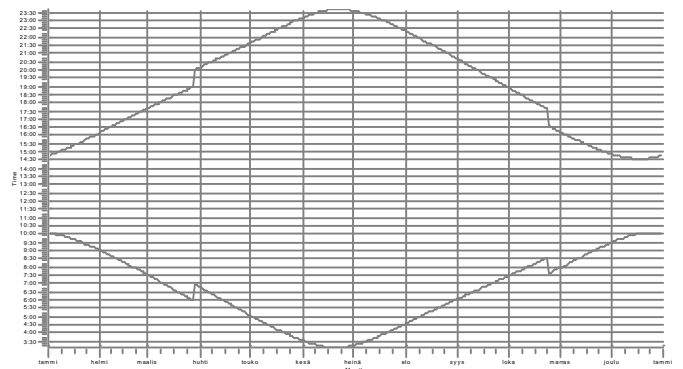
V: Asuinrakennus (Kotiranta)



W: Asuinrakennus (Koivula)



X: Lomarakennus (Vallansaari-Similänlahti)



WTG:

- 59 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (798)
- 62 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (801)
- 73 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (813)
- 85 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (824)
- 86 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (796)
- 88 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (805)
- 74 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (818)
- 112 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (851)
- 81 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (800)
- 89 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (806)
- 75 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (814)
- 114 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (853)
- 117 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (856)
- 118 a.n.a. a.n.a. 126 3500 126.0 101 hdb: 170.0 m (TOT: 233.0 m) (857)

Project:

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VE2

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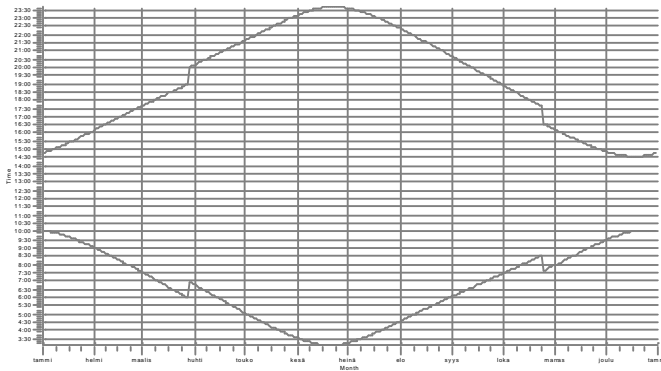
Calculated:

23.5.2014 12:14/2.9.269

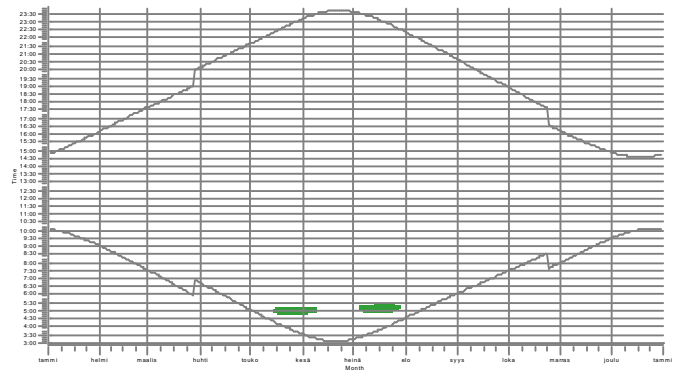
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 118 x HH170 (real case)

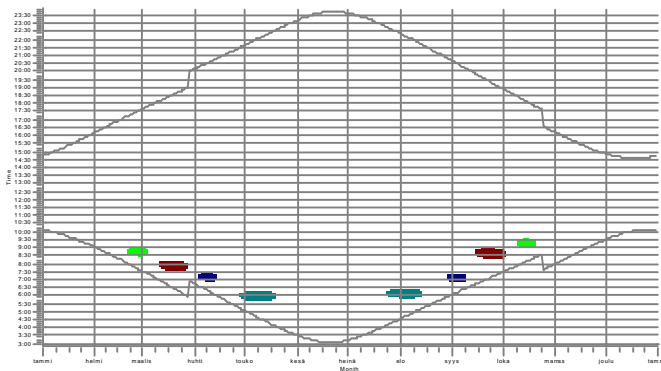
Y: Lomarakennus (Konttikoski)



Z: Lomarakennus (Haukilampi)



AA: Lomarakennus (Pirun-Korpi / Iso-Lemmistö)



WTG:

6 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 170.0 m (TOT: 233.0 m) (742)

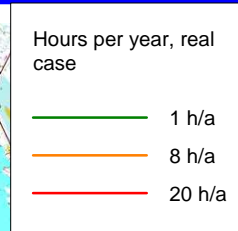
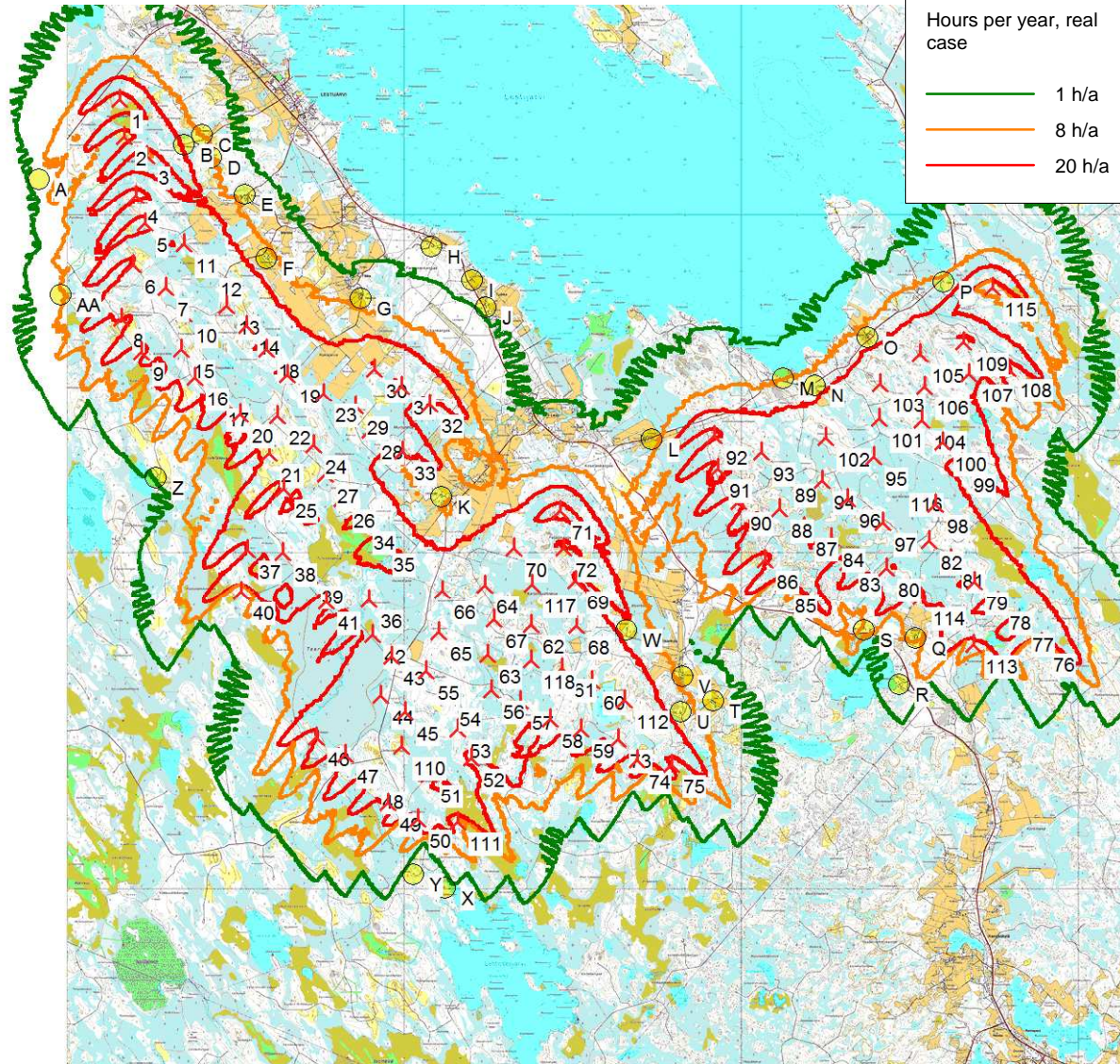
7 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 170.0 m (TOT: 233.0 m) (743)

8 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 170.0 m (TOT: 233.0 m) (744)

9 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 170.0 m (TOT: 233.0 m) (745)

20 s.e.s. s.e.s. 126 3500 126.0 IOI hub: 170.0 m (TOT: 233.0 m) (756)

VE2



Project: **Lestijärvi**

**SHADOW - Map**  
 Calculation: eno 126 x 118 x HH170 (real case)

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 Paulina Kaivo-oja / paulina.kaivo-oja@fcg.fi  
 Calculated: 23.5.2014 12:14/2.9.269

Map: Lestijärvi suppea , Print scale 1:128 000, Map center Finish TM ETRS-TM35FIN-ETRS89 East: 386 000 North: 7 038 200  
 New WTG ▲ Shadow receptor ●  
 Flicker map level: Height Contours: Lestijärvi height contour lines.wpo (1)



Project:

Lestijärvi

VE3

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30.5.2014 12:29/2.9.269

**SHADOW - Main Result**

Calculation: eno 126 x 87 x HH170 (real case)

**Assumptions for shadow calculations**

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade  
Please look in WTG table

Minimum sun height over horizon for influence 3 °

Day step for calculation 1 days

Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) [UMEA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,02	2,84	3,78	6,14	8,62	9,94	7,42	5,13	4,32	3,43	1,58	0,96

Operational hours are calculated from WTGs in calculation and wind distribution:

Lestijärvi Sodar

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
514	516	376	419	657	657	811	918	1059	772	826	595	8120

Idle start wind speed: Cut in wind speed from power curve

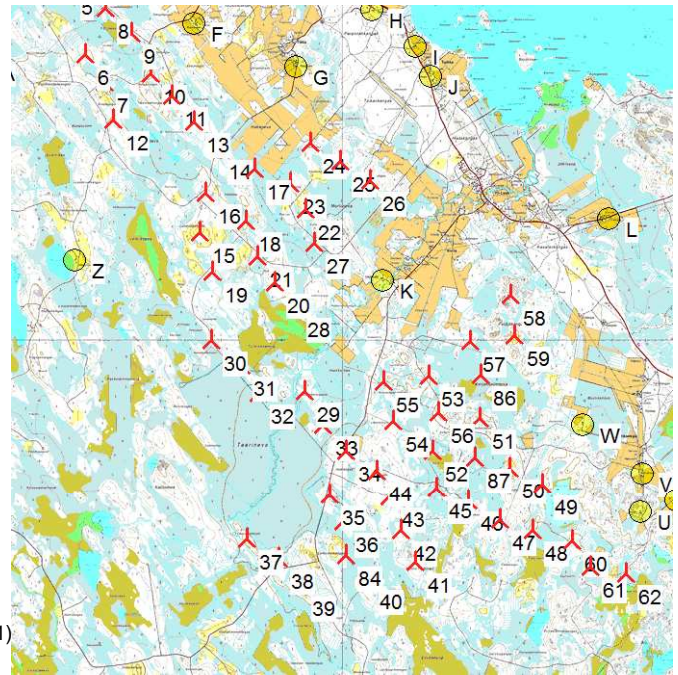
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: Lestijärvi height contour lines.wpo (1)

Obstacles not used in calculation

Eye height: 1,5 m

Grid resolution: 50,0 m



**WTGs**

	Finish TM ETRS-TM35FIN-ETRS89				WTG type				Shadow data			
	East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
	[m]											
1	380 941	7 046 061	152,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
2	381 011	7 045 405	154,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
3	381 418	7 045 063	149,8	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
4	381 221	7 044 351	158,7	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
5	381 494	7 043 875	160,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
6	381 756	7 042 717	160,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
7	382 080	7 042 248	160,8	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
8	382 085	7 043 484	152,6	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
9	382 516	7 043 058	155,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
10	382 835	7 042 394	160,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
11	383 187	7 042 030	160,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
12	382 212	7 041 636	164,1	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
13	383 550	7 041 610	155,9	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
14	383 914	7 041 160	155,3	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
15	383 651	7 039 781	172,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
16	383 748	7 040 425	166,7	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
17	384 559	7 040 821	151,4	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
18	384 410	7 039 965	160,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
19	383 853	7 039 134	166,7	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
20	384 886	7 038 956	167,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
21	384 599	7 039 384	157,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
22	385 392	7 040 156	155,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
23	385 131	7 040 594	152,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
24	385 471	7 041 253	153,1	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
25	385 957	7 040 959	152,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
26	386 457	7 040 632	157,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
27	385 533	7 039 600	155,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
28	385 210	7 038 556	159,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
29	385 379	7 037 159	157,5	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
30	383 832	7 037 999	165,0	e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4

To be continued on next page...

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Calculated:

30.5.2014 12:29/2.9.269

VE3

**SHADOW - Main Result****Calculation:** eno 126 x 87 x HH170 (real case)

...continued from previous page

Finish TM ETRS-TM35FIN-ETRS89				WTG type			Shadow data				
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
31	384 327	7 037 593	162,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
32	384 613	7 037 125	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
33	385 673	7 036 604	159,1 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
34	386 063	7 036 178	162,6 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
35	385 790	7 035 448	164,3 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
36	386 019	7 035 004	167,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
37	384 428	7 034 714	162,3 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
38	384 951	7 034 400	162,9 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
39	385 304	7 033 955	167,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
40	386 412	7 034 058	170,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
41	387 194	7 034 338	175,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
42	386 957	7 034 855	173,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
43	386 779	7 035 413	172,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
44	386 564	7 035 845	172,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
45	387 543	7 035 554	167,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
46	388 068	7 035 350	167,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
47	388 601	7 035 036	168,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
48	389 142	7 034 863	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
49	389 299	7 035 619	157,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
50	388 760	7 035 883	167,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
51	388 258	7 036 710	166,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
52	387 483	7 036 176	165,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
53	387 428	7 037 413	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
54	386 845	7 036 661	163,2 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
55	386 682	7 037 317	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
56	387 589	7 036 813	159,7 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
57	388 114	7 037 985	153,7 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
58	388 777	7 038 743	155,8 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
59	388 842	7 038 086	161,7 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
60	389 783	7 034 677	162,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
61	390 086	7 034 261	161,1 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
62	390 679	7 034 136	167,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
63	397 353	7 036 425	162,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
64	396 969	7 036 787	165,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
65	396 576	7 037 174	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
66	396 155	7 037 559	161,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
67	395 758	7 037 923	160,2 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
68	395 371	7 038 279	159,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
69	392 676	7 038 780	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
70	392 342	7 039 161	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
71	391 961	7 039 486	165,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
72	393 440	7 039 229	162,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
73	394 383	7 039 671	152,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
74	393 908	7 038 946	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
75	394 437	7 038 559	159,7 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
76	395 444	7 038 857	160,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
77	395 917	7 039 574	170,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
78	395 581	7 039 961	166,2 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
79	395 112	7 040 197	161,8 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
80	395 278	7 040 872	169,1 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
81	395 956	7 040 801	167,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
82	396 751	7 041 276	157,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
83	395 920	7 041 546	163,8 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
84	386 060	7 034 440	168,9 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
85	394 807	7 039 261	153,9 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
86	388 278	7 037 433	155,0 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4
87	388 191	7 036 070	162,5 e.n.o. e.n.o. 126 3500 126.0 !O!...	Yes	e.n.o.	e.n.o. 126-3 500	3 500	126,0	170,0	1 907	11,4

Project:

Lestijärvi

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30.5.2014 12:29/2.9.269

VE3

**SHADOW - Main Result**

Calculation: eno 126 x 87 x HH170 (real case)

**Shadow receptor-Input**

No.	Name	Finish TM ETRS-TM35FIN-ETRS89						Height a.g.l. [m]	Degrees from south cw [°]	Slope of window [°]	Direction mode
		East	North	Z	Width	Height					
A	Asuinrakennus (Kuusisto)	379 507	7 044 648	160,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
B	Asuinrakennus (Hauta-aho)	382 077	7 045 258	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
C	Asuinrakennus (Rämesaho)	382 407	7 045 431	154,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
D	Asuinrakennus (Ruisaho)	382 571	7 045 035	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
E	Asuinrakennus (Kotimäki)	383 166	7 044 365	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
F	Asuinrakennus (Korkiasari)	383 547	7 043 221	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
G	Asuinrakennus (Päiväniemi)	385 230	7 042 515	146,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
H	Asuinrakennus (Paranta)	386 491	7 043 438	148,4	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
I	Asuinrakennus (Uusi-Tuikka)	387 206	7 042 846	145,1	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
J	Asuinrakennus (Honkala)	387 456	7 042 356	147,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
K	Asuinrakennus (Hautamäki)	386 663	7 038 986	152,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
L	Asuinrakennus (Heinola)	390 396	7 040 006	144,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
M	Lomarakennus (Mustalahti)	392 740	7 041 095	142,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
N	Asuinrakennus (Koivukangas)	393 311	7 040 963	147,6	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
O	Asuinrakennus (Laaksola)	394 248	7 041 824	149,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
P	Asuinrakennus (Törtti)	395 603	7 042 806	142,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Q	Asuinrakennus (Hietala)	395 090	7 036 470	165,3	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
R	Leirintäalue (Valkeinen itäranta)	394 809	7 035 643	167,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
S	Lomarakennus (Valkeinen pohjoisranta)	394 177	7 036 621	167,8	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
T	Asuinrakennus (Ojala)	391 501	7 035 356	157,2	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
U	Asuinrakennus (Kivimäki)	390 914	7 035 162	157,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
V	Asuinrakennus (Kotiranta)	390 948	7 035 798	155,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
W	Asuinrakennus (Koivula)	389 958	7 036 607	152,9	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
X	Lomarakennus (Vallansaari-Similänlahti)	386 719	7 032 023	170,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Y	Lomarakennus (Konttikoski)	386 164	7 032 263	166,5	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
Z	Lomarakennus (Haukilampi)	381 581	7 039 318	175,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	
AA	Lomarakennus (Pirun-Korpi / Iso-Lemmistö)	379 893	7 042 576	160,0	5,0	5,0	1,0	0,0	0,0	"Green house mode"	

**Calculation Results**

Shadow receptor

No.	Name	Shadow, expected values
		Shadow hours per year [h/year]
A	Asuinrakennus (Kuusisto)	2:53
B	Asuinrakennus (Hauta-aho)	18:12
C	Asuinrakennus (Rämesaho)	8:02
D	Asuinrakennus (Ruisaho)	7:39
E	Asuinrakennus (Kotimäki)	5:06
F	Asuinrakennus (Korkiasari)	12:05
G	Asuinrakennus (Päiväniemi)	4:46
H	Asuinrakennus (Paranta)	0:00
I	Asuinrakennus (Uusi-Tuikka)	0:00
J	Asuinrakennus (Honkala)	0:00
K	Asuinrakennus (Hautamäki)	13:38
L	Asuinrakennus (Heinola)	0:59
M	Lomarakennus (Mustalahti)	0:56
N	Asuinrakennus (Koivukangas)	2:23
O	Asuinrakennus (Laaksola)	3:25
P	Asuinrakennus (Törtti)	1:46
Q	Asuinrakennus (Hietala)	4:35
R	Leirintäalue (Valkeinen itäranta)	0:00
S	Lomarakennus (Valkeinen pohjoisranta)	0:00
T	Asuinrakennus (Ojala)	3:24
U	Asuinrakennus (Kivimäki)	8:50
V	Asuinrakennus (Kotiranta)	4:32
W	Asuinrakennus (Koivula)	7:06
X	Lomarakennus (Vallansaari-Similänlahti)	0:00

To be continued on next page...

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Project:

Lestijärvi

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Calculated:

30.5.2014 12:29/2.9.269

VE3

**SHADOW - Main Result****Calculation:** eno 126 x 87 x HH170 (real case)

...continued from previous page

No.	Name	Shadow, expected values	
		Shadow hours	per year
		[h/year]	
	Y Lomarakenus (Konttikoski)	0:00	
	Z Lomarakenus (Haukilampi)	0:00	
	AA Lomarakenus (Pirun-Korpi / Iso-Lemmistö)	0:59	

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case	Expected
1	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (243)	24:55	6:03
2	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (244)	36:20	7:56
3	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (245)	54:58	11:15
4	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (246)	28:10	5:32
5	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (247)	28:56	4:32
6	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (249)	8:44	1:47
7	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (252)	5:06	1:01
8	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (253)	37:23	5:49
9	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (254)	23:08	4:06
10	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (255)	13:33	2:42
11	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (256)	13:54	1:56
12	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (257)	0:00	0:00
13	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (260)	11:22	1:22
14	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (261)	5:08	0:55
15	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (263)	0:00	0:00
16	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (264)	0:00	0:00
17	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (265)	7:59	0:58
18	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (266)	0:00	0:00
19	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (267)	0:00	0:00
20	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (268)	4:37	0:56
21	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (269)	0:00	0:00
22	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (270)	17:07	4:25
23	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (271)	0:00	0:00
24	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (272)	13:48	1:51
25	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (275)	7:27	1:00
26	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (277)	0:00	0:00
27	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (278)	15:00	3:40
28	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (279)	6:14	1:11
29	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (281)	0:00	0:00
30	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (283)	0:00	0:00
31	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (284)	0:00	0:00
32	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (286)	0:00	0:00
33	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (287)	0:00	0:00
34	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (288)	0:00	0:00
35	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (289)	0:00	0:00
36	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (290)	0:00	0:00
37	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (291)	0:00	0:00
38	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (292)	0:00	0:00
39	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (293)	0:00	0:00
40	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (296)	0:00	0:00
41	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (297)	0:00	0:00
42	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (298)	0:00	0:00
43	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (299)	0:00	0:00
44	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (300)	0:00	0:00
45	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (301)	0:00	0:00
46	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (302)	0:00	0:00
47	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (303)	0:00	0:00
48	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (304)	4:28	0:51
49	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (305)	23:54	4:35
50	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (306)	7:40	1:32
51	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (307)	5:10	1:07
52	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (308)	0:00	0:00

To be continued on next page...

WindPRO is developed by EMD International A/S, Niels Jernesvej 10, DK-9220 Aalborg Ø, Tel. +45 96 35 44 44, Fax +45 96 35 44 46, e-mail: windpro@emrd.dk

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**SHADOW - Main Result****Calculation:** eno 126 x 87 x HH170 (real case)

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
53	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (309)	7:14	1:00
54	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (310)	0:00	0:00
55	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (311)	11:13	1:21
56	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (312)	0:00	0:00
57	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (315)	5:02	0:59
58	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (316)	0:00	0:00
59	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (317)	0:00	0:00
60	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (318)	18:52	3:42
61	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (319)	23:33	4:11
62	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (320)	36:53	5:23
63	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (321)	0:00	0:00
64	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (322)	4:33	0:58
65	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (323)	8:08	1:57
66	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (324)	6:00	1:40
67	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (326)	0:00	0:00
68	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (327)	0:00	0:00
69	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (333)	0:00	0:00
70	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (335)	0:00	0:00
71	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (336)	12:23	1:56
72	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (339)	10:00	1:13
73	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (340)	6:21	1:10
74	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (341)	0:00	0:00
75	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (342)	0:00	0:00
76	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (343)	0:00	0:00
77	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (344)	0:00	0:00
78	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (345)	0:00	0:00
79	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (349)	6:21	0:54
80	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (351)	7:56	1:32
81	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (352)	0:00	0:00
82	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (353)	0:00	0:00
83	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (354)	17:37	2:44
84	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (355)	0:00	0:00
85	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (361)	0:00	0:00
86	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (362)	5:39	1:16
87	e.n.o. e.n.o. 126 3500 126.0 !O! hub: 170,0 m (TOT: 233,0 m) (363)	4:16	0:49

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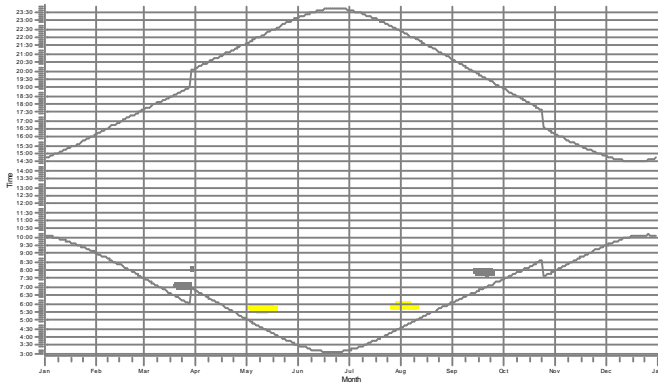
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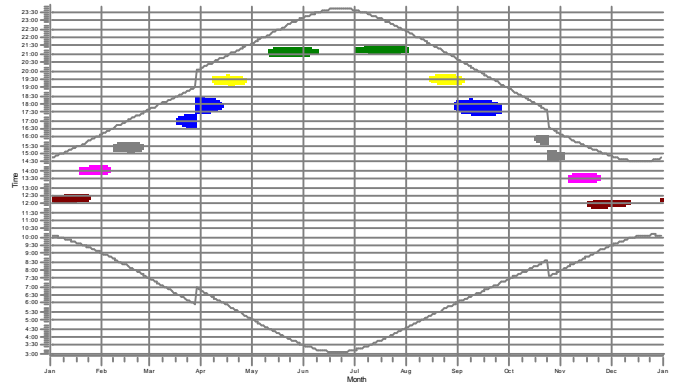
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 87 x HH170 (real case)

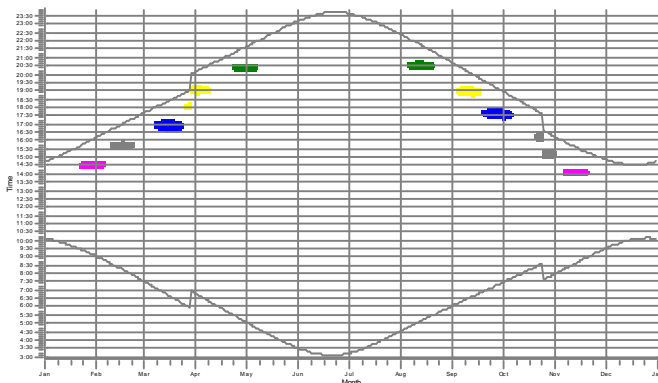
A: Asuinrakennus (Kuusisto)



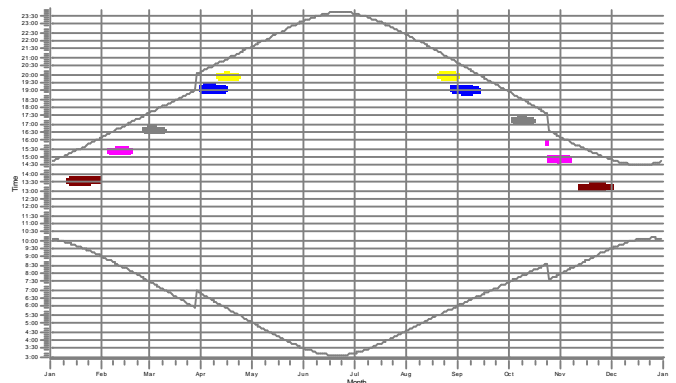
B: Asuinrakennus (Hauta-aho)



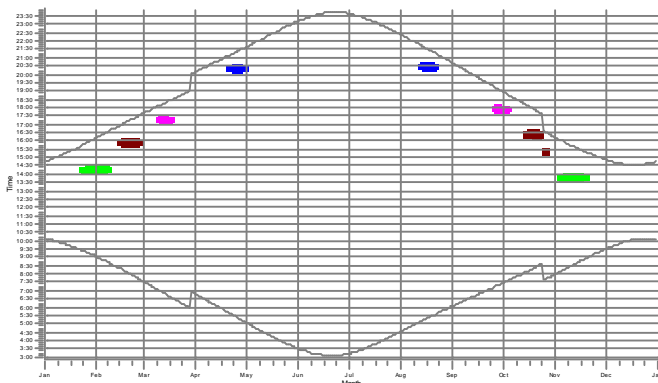
C: Asuinrakennus (Rämesaho)



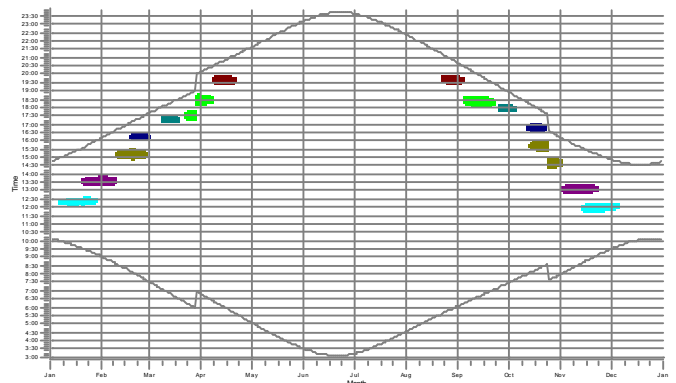
D: Asuinrakennus (Ruisaho)



E: Asuinrakennus (Kotimäki)



F: Asuinrakennus (Korkiasari)



WTG:

- 1. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (243)
- 4. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (246)
- 7. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (252)
- 10. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (259)
- 2. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (244)
- 5. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (247)
- 8. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (253)
- 11. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (256)
- 3. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (245)
- 6. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (248)
- 9. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (254)
- 12. e.n.o. e.n.o. 126 3500 126.0 IO' hub: 170.0 m (TOT: 233.0 m) (260)

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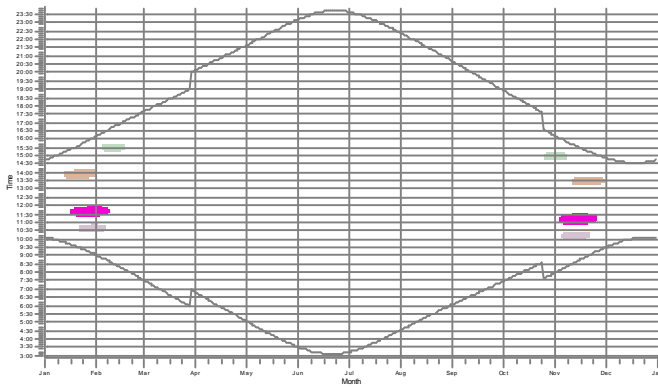
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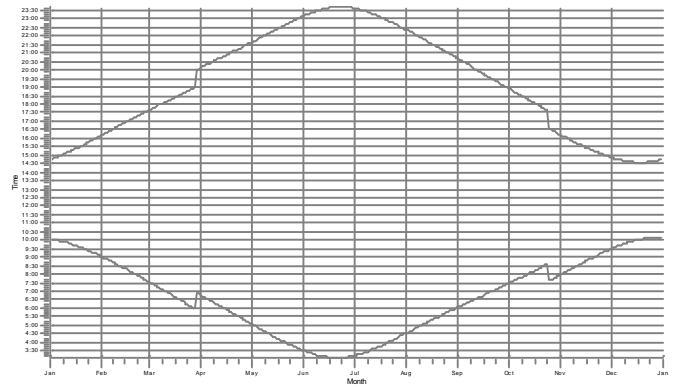
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 87 x HH170 (real case)

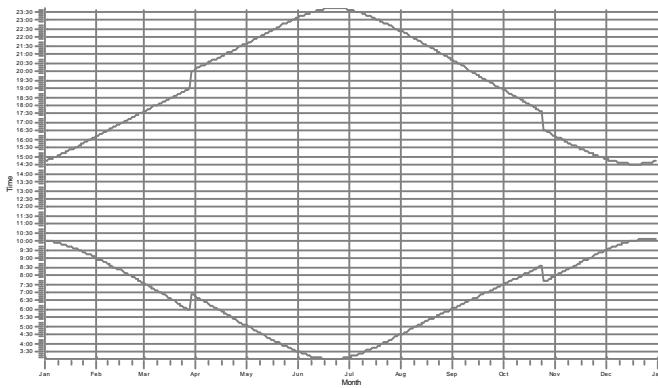
G: Asuinrakennus (Päiväniemi)



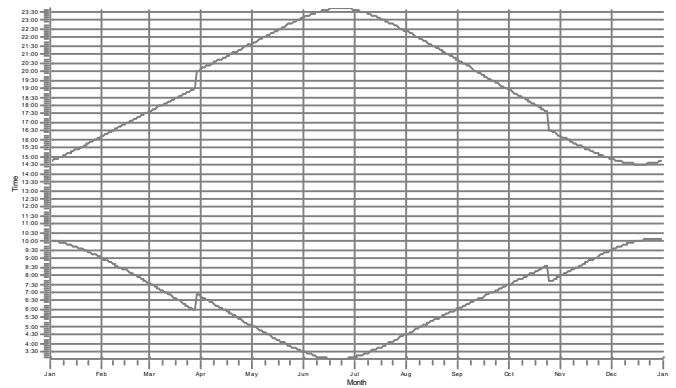
H: Asuinrakennus (Paranta)



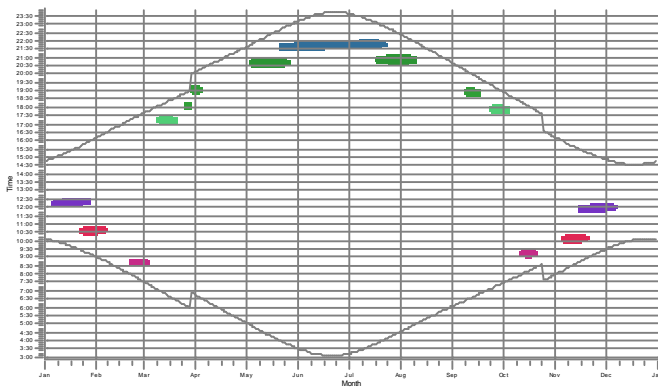
I: Asuinrakennus (Uusi-Tuikka)



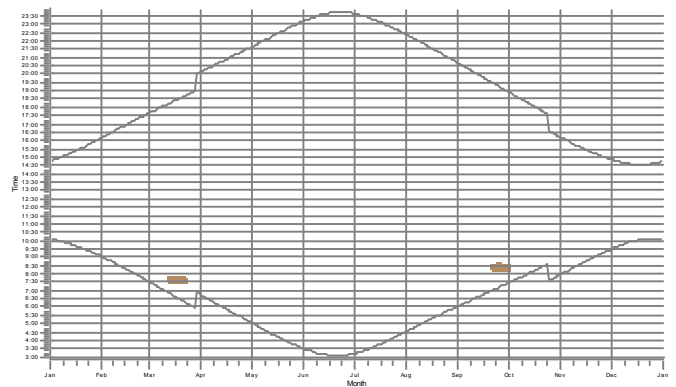
J: Asuinrakennus (Honkala)



K: Asuinrakennus (Hautamäki)



L: Asuinrakennus (Heinola)



WTGs

- 14: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (261)
- 17: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (265)
- 20: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (268)
- 22: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (270)
- 24: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (272)
- 25: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (275)
- 27: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (278)
- 28: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (279)
- 53: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (306)
- 55: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (311)
- 57: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (315)
- 71: e.n.o. e.n.o. 126 3500 126.0 IOI hdb: 170.0 m (TOT: 233.0 m) (338)

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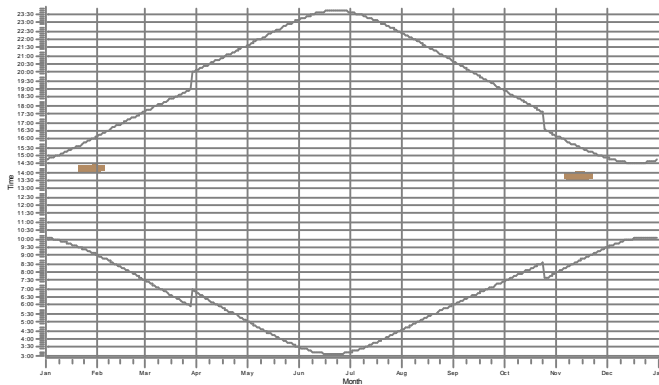
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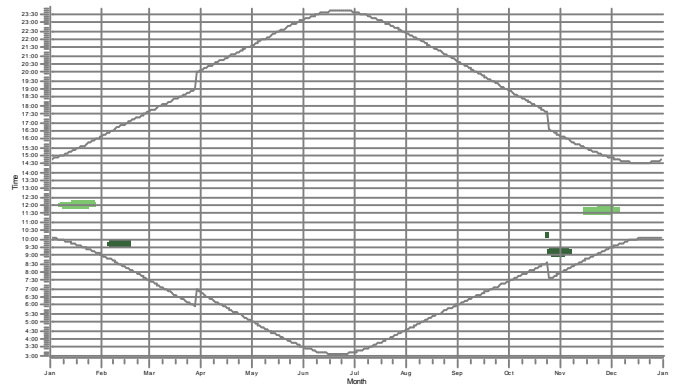
SHADOW - Calendar, graphical

Calculation: eno 126 x 87 x HH170 (real case)

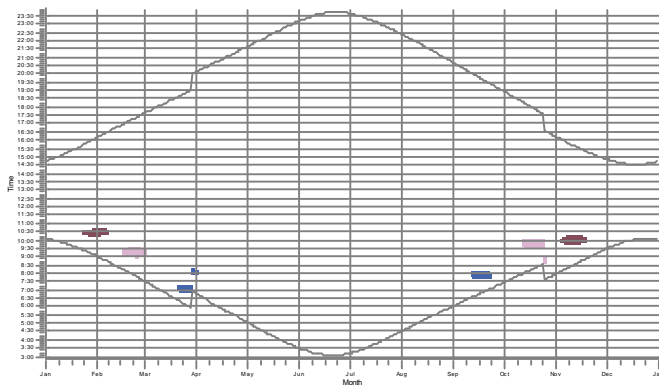
M: Lomarakennus (Mustalahti)



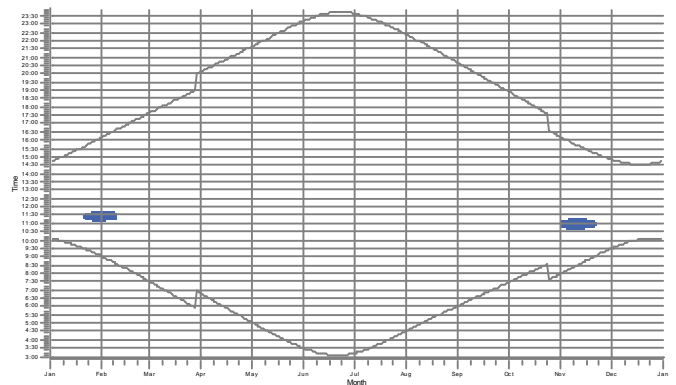
N: Asuinrakennus (Koivukangas)



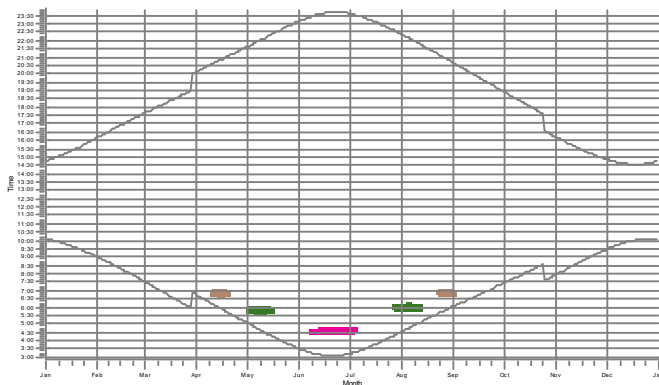
O: Asuinrakennus (Laaksola)



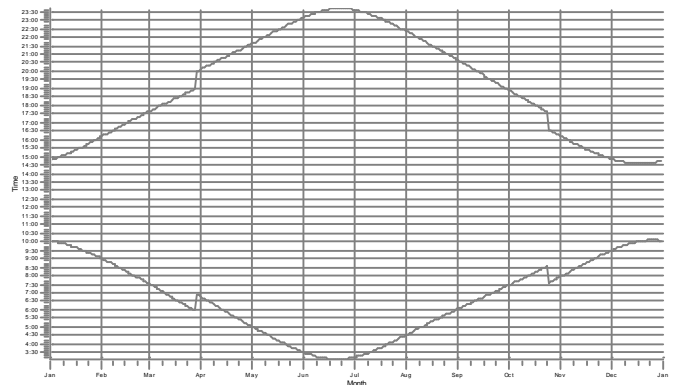
P: Asuinrakennus (Törtti)



Q: Asuinrakennus (Hietala)



R: Leirintäalue (Valkeinen itäranta)



WTGs

- 64: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (322)
- 65: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (323)
- 66: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (324)
- 67: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (325)
- 68: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (326)
- 69: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (327)
- 70: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (328)
- 71: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (329)
- 72: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (330)
- 73: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (340)
- 74: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (341)
- 75: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (342)
- 76: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (343)
- 77: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (344)
- 78: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (345)
- 79: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (346)
- 80: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (351)
- 81: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (352)
- 82: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (353)
- 83: eno. eno. 126 3500 126.0 101 hub. 170.0 m (TOT: 233.0 m) (354)



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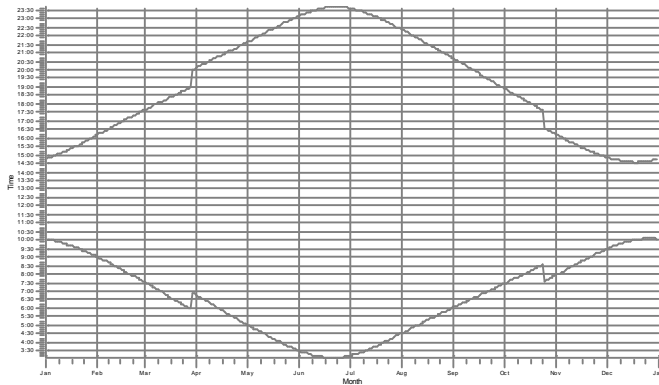
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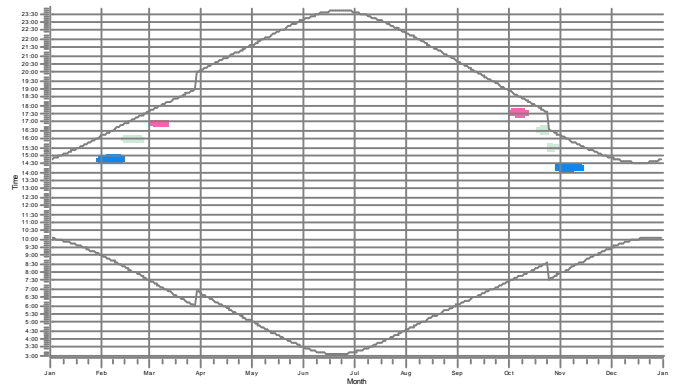
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 87 x HH170 (real case)

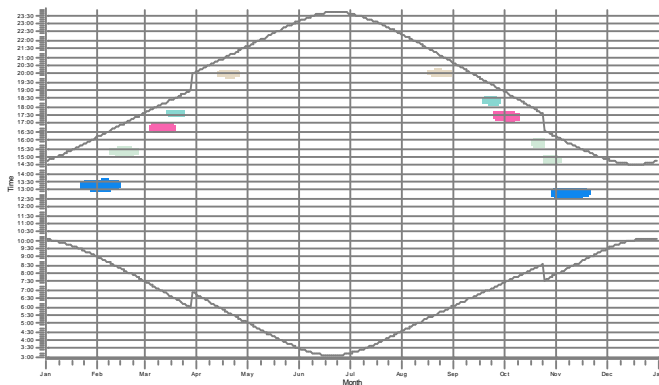
S: Lomarakennus (Valkeinen pohjoisranta)



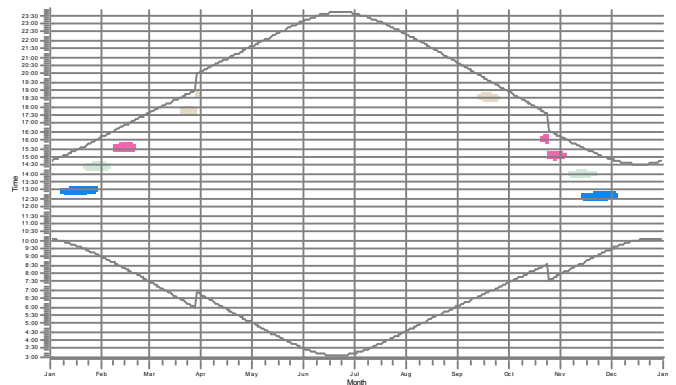
T: Asuinrakennus (Ojala)



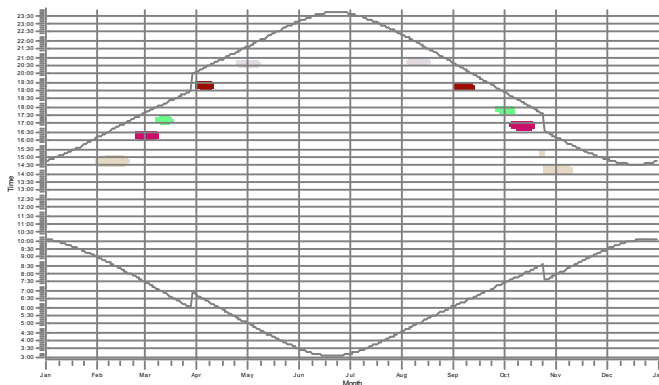
U: Asuinrakennus (Kivimäki)



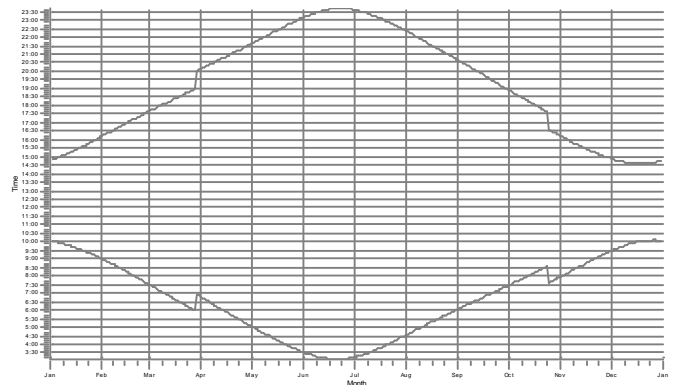
V: Asuinrakennus (Kotiranta)



W: Asuinrakennus (Koivula)



X: Lomarakennus (Vallansaari-Similänlahti)



WTGs

- 46: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (304)
- 49: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (305)
- 50: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (306)
- 51: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (307)
- 60: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (318)
- 61: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (319)
- 62: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (320)
- 86: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (362)
- 87: eno, eno, 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (363)

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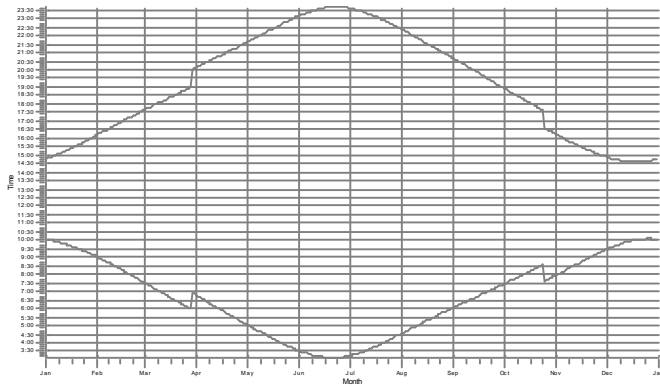
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30.5.2014 12:29/2.9.269

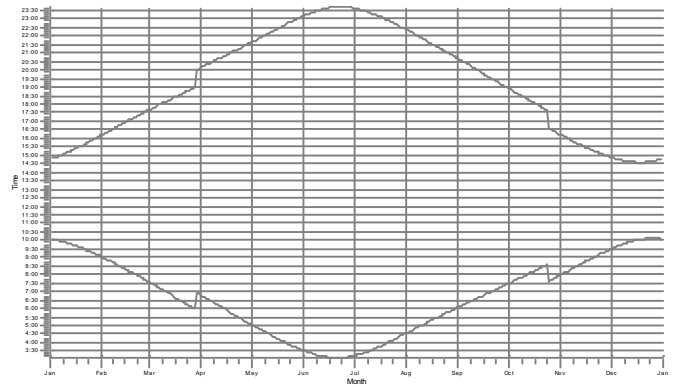
**SHADOW - Calendar, graphical**

Calculation: eno 126 x 87 x HH170 (real case)

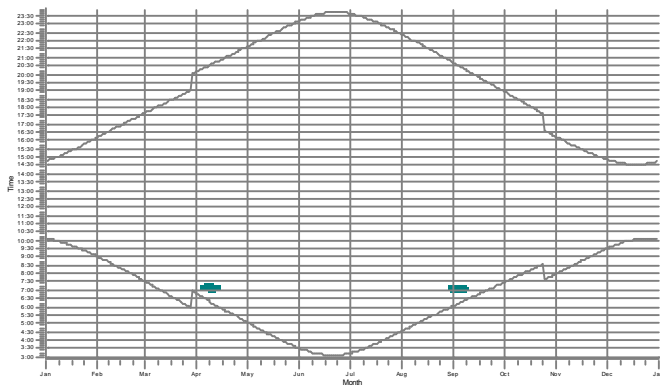
Y: Lomarakennus (Konttikoski)



Z: Lomarakennus (Haukilampi)



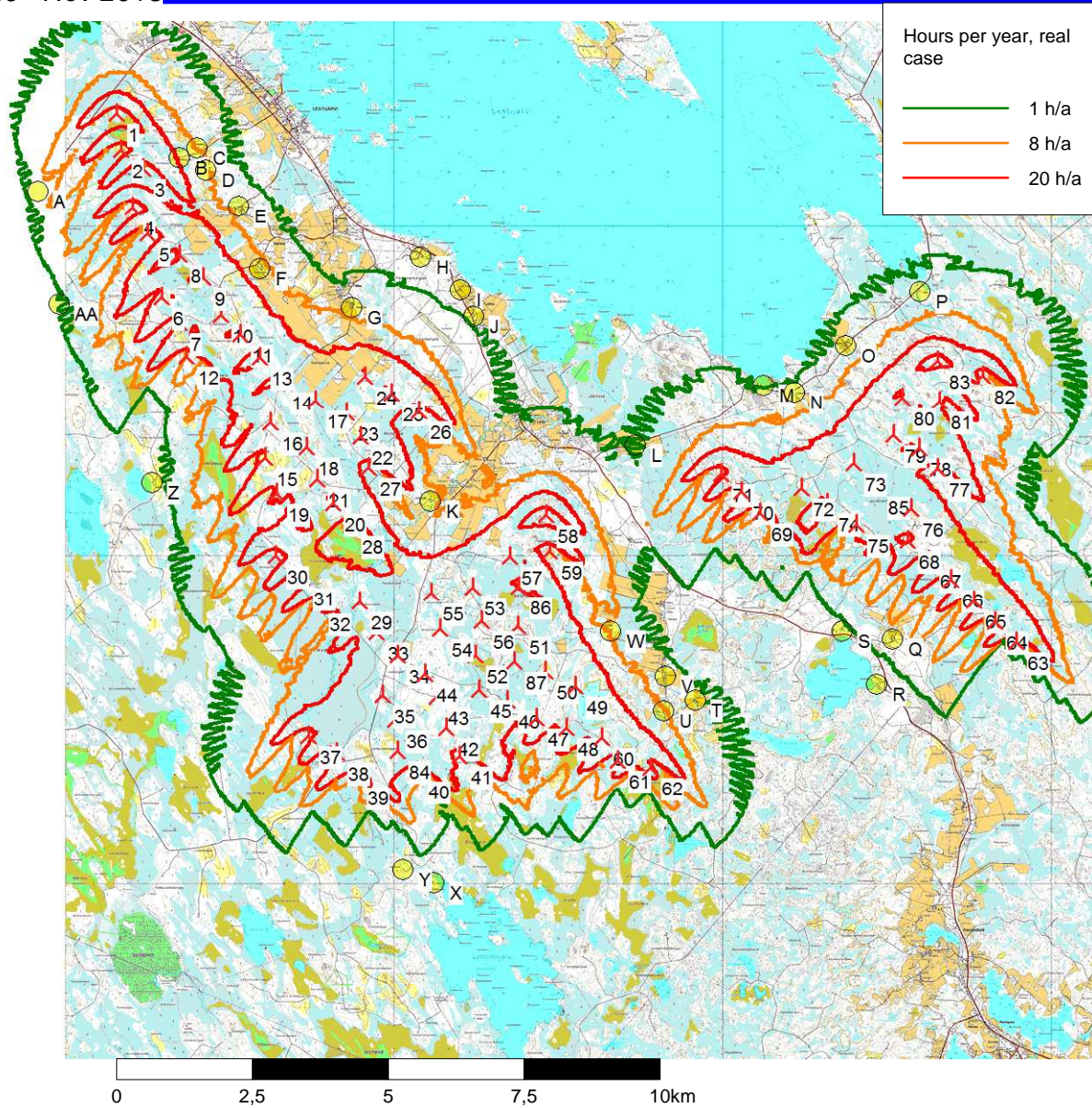
AA: Lomarakennus (Pirun-Korpi / Iso-Lemmistö)



WTG:

© s.a.s. 126 3500 126.0 101 hub: 170.0 m (TOT: 233.0 m) (249)

VE3



Project:  
**Lestijärvi**

**SHADOW - Map**

Calculation:  
eno 126 x 87 x HH170 (real case)

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30.5.2014 12:32 / 11

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Calculated:  
30.5.2014 12:29/2.9.269

Map: Lestijärvi suppea , Print scale 1:128 000, Map center Finish TM ETRS-TM35FIN-ETRS89 East: 386 000 North: 7 038 600  
 New WTG      Shadow receptor  
 Flicker map level: Height Contours: Lestijärvi height contour lines.wpo (1)