

SHADOW - Main Result

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]

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
 The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

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: CONTOURLINE_ONLINEDATA_0.wpo
 Obstacles used in calculation
 Eye height: 1,5 m
 Grid resolution: 10,0 m
 Topographic shadow included in calculation

All coordinates are in
 Geo [deg,min,sec]-WGS84

WTGs

No	Longitude	Latitude	Z	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	20°27'56,75" E	51°03'55,77" N	254,9	EW3	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	138,4	1 599	18,0
2	20°27'38,83" E	51°03'44,12" N	254,0	EW2	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	138,4	1 599	18,0



▲ New WTG

● Shadow receptor

Shadow receptor-Input

No.	Name	Longitude	Latitude	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
A	SH1	20°26'49,17" E	51°03'49,38" N	254,7	1,0	1,0	1,0	0,0	90,0	"Green house mode"
B	SH2	20°27'31,17" E	51°03'24,60" N	250,0	1,0	1,0	1,0	0,0	90,0	"Green house mode"
C	SH3	20°27'43,20" E	51°03'24,65" N	254,4	1,0	1,0	1,0	0,0	90,0	"Green house mode"
D	SH4	20°27'52,03" E	51°03'25,19" N	255,6	1,0	1,0	1,0	0,0	90,0	"Green house mode"
E	SH5	20°26'38,30" E	51°03'42,95" N	252,5	1,0	1,0	1,0	0,0	90,0	"Green house mode"
F	SH5	20°27'30,63" E	51°04'18,35" N	279,0	1,0	1,0	1,0	0,0	90,0	"Green house mode"

Calculation Results

Shadow receptor

Shadow, worst case

No.	Name	Shadow hours per year	Shadow days per year	Max shadow hours per day
		[h/year]	[days/year]	[h/day]
A	SH1	10:02	44	0:20
B	SH2	0:00	0	0:00
C	SH3	0:00	0	0:00
D	SH4	0:00	0	0:00
E	SH5	7:25	39	0:16
F	SH5	16:52	50	0:24

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

No.	Name	Worst case	Expected
		[h/year]	[h/year]
1	EW3	23:38	
2	EW2	10:41	

SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]**Shadow receptor:** A - SH1

Assumptions for shadow calculations

- Reference year for calendar 2013
- The calculated times are "worst case" given by the following assumptions:
 - The sun is shining all the day, from sunrise to sunset
 - The rotor plane is always perpendicular to the line from the WTG to the sun
 - The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:41	07:16	06:24	06:15	05:12	04:29	04:26	05:01	05:48	06:23 (1)	06:35	06:27	07:17
	15:40	16:26	17:16	19:08	19:57	20:41	20:55	20:25	19:25	06:30 (1)	18:17	16:13	15:34
2	07:41	07:14	06:22	06:13	05:11	04:28	04:26	05:02	05:50		06:37	06:29	07:18
	15:41	16:28	17:18	19:10	19:59	20:42	20:55	20:24	19:23		18:15	16:11	15:34
3	07:40	07:13	06:20	06:11	05:09	04:27	04:27	05:04	05:51		06:39	06:31	07:19
	15:42	16:30	17:19	19:11	20:00	20:43	20:55	20:22	19:21		18:13	16:10	15:33
4	07:40	07:11	06:18	06:09	05:07	04:26	04:28	05:05	05:53		06:40	06:33	07:21
	15:43	16:31	17:21	19:13	20:02	20:44	20:54	20:20	19:19		18:11	16:08	15:32
5	07:40	07:09	06:16	06:06	05:05	04:26	04:28	05:07	05:55		06:42	06:34	07:22
	15:44	16:33	17:23	19:15	20:03	20:45	20:54	20:19	19:16		18:09	16:06	15:32
6	07:40	07:08	06:13	06:04	05:03	04:25	04:29	05:08	05:56		06:44	06:36	07:23
	15:45	16:35	17:25	19:16	20:05	20:46	20:53	20:17	19:14		18:06	16:04	15:31
7	07:39	07:06	06:11	06:02	05:02	04:24	04:30	05:10	05:58		06:45	06:38	07:25
	15:47	16:37	17:26	19:18	20:07	20:47	20:53	20:15	19:12		18:04	16:03	15:31
8	07:39	07:04	06:09	06:00	05:00	04:24	04:31	05:11	05:59		06:47	06:39	07:26
	15:48	16:38	17:28	19:19	20:08	20:48	20:52	20:13	19:10		18:02	16:01	15:31
9	07:39	07:03	06:07	05:58	04:58	04:23	04:32	05:13	06:01		06:48	06:41	07:27
	15:49	16:40	17:30	19:21	20:10	20:49	20:52	20:12	19:07		18:00	16:00	15:31
10	07:38	07:01	06:05	05:55	04:57	04:23	04:33	05:14	06:02		06:50	06:43	07:28
	15:50	16:42	17:31	19:23	20:11	20:50	20:51	20:10	19:05		17:58	15:58	15:30
11	07:38	06:59	06:02	05:53	06:25 (1)	04:55	04:23	04:34	06:04		06:52	06:45	07:29
	15:52	16:44	17:33	19:24	06:29 (1)	20:13	20:50	20:50	19:03		17:55	15:57	15:30
12	07:37	06:57	06:00	05:51	06:22 (1)	04:53	04:22	04:35	06:06		06:53	06:46	07:30
	15:53	16:46	17:35	19:26	06:32 (1)	20:14	20:51	20:49	19:01		17:53	15:55	15:30
13	07:36	06:56	05:58	05:49	06:21 (1)	04:52	04:22	04:36	06:07		06:55	06:48	07:31
	15:55	16:48	17:36	19:28	06:33 (1)	20:16	20:52	20:49	18:58		17:51	15:54	15:30
14	07:36	06:54	05:56	05:47	06:20 (1)	04:50	04:22	04:37	06:09		06:57	06:50	07:32
	15:56	16:49	17:38	19:29	06:33 (1)	20:17	20:52	20:48	18:56		17:49	15:52	15:30
15	07:35	06:52	05:54	05:45	06:19 (1)	04:49	04:22	04:38	06:10		06:58	06:51	07:33
	15:58	16:51	17:40	19:31	06:34 (1)	20:19	20:53	20:47	18:54		17:47	15:51	15:30
16	07:34	06:50	05:51	06:31 (2)	05:43	06:19 (1)	04:47	04:22	06:12		07:00	06:53	07:34
	15:59	16:53	17:41	06:41 (2)	19:33	06:33 (1)	20:20	20:53	18:52		17:45	15:49	15:30
17	07:33	06:48	05:49	06:29 (2)	05:40	06:19 (1)	04:46	04:22	06:13		07:02	06:55	07:35
	16:01	16:55	17:43	06:43 (2)	19:34	06:33 (1)	20:22	20:54	18:49	9	07:26 (2)	17:43	15:48
18	07:32	06:46	05:47	06:28 (2)	05:38	06:19 (1)	04:44	04:22	06:15		07:14 (2)	07:03	06:56
	16:02	16:56	17:45	06:44 (2)	19:36	06:32 (1)	20:23	20:54	18:47	14	07:28 (2)	17:40	15:47
19	07:31	06:44	05:45	06:27 (2)	05:36	06:20 (1)	04:43	04:22	06:17		07:13 (2)	07:05	06:58
	16:04	16:58	17:46	06:45 (2)	19:38	06:31 (1)	20:25	20:55	18:45	16	07:29 (2)	17:38	15:46
20	07:31	06:42	05:42	06:26 (2)	05:34	06:21 (1)	04:42	04:22	06:18		07:11 (2)	07:07	07:00
	16:05	17:00	17:48	06:45 (2)	19:39	06:29 (1)	20:26	20:55	18:42	18	07:29 (2)	17:36	15:44
21	07:29	06:40	05:40	06:25 (2)	05:32	04:40	04:22	04:45	06:20		07:11 (2)	07:08	07:01
	16:07	17:02	17:50	06:45 (2)	19:41	20:28	20:55	20:40	18:40	19	07:30 (2)	17:34	15:43
22	07:28	06:38	05:38	06:25 (2)	05:30	04:39	04:22	04:47	06:21		07:11 (2)	07:10	07:03
	16:09	17:04	17:51	06:45 (2)	19:42	20:29	20:55	20:39	18:38	19	07:30 (2)	17:32	15:42
23	07:27	06:36	05:36	06:25 (2)	05:28	04:38	04:22	04:48	06:23		07:10 (2)	07:12	07:05
	16:10	17:05	17:53	06:43 (2)	19:44	20:30	20:56	20:38	18:36	7	06:32 (1)	18:36	15:41
24	07:26	06:34	05:33	06:25 (2)	05:26	04:37	04:22	04:49	06:24		07:29 (2)	07:14	07:06
	16:12	17:07	17:55	06:42 (2)	19:46	20:32	20:56	20:37	18:33	10	06:34 (1)	18:33	15:40
25	07:25	06:32	05:31	06:26 (2)	05:24	04:35	04:23	04:51	06:26		07:10 (2)	07:15	07:08
	16:14	17:09	17:56	06:41 (2)	19:47	20:33	20:56	20:35	18:20	12	06:34 (1)	18:31	15:39
26	07:24	06:30	05:29	06:28 (2)	05:22	04:34	04:23	04:52	06:28		07:11 (2)	07:17	07:09
	16:15	17:11	17:58	06:40 (2)	19:49	20:34	20:56	20:34	18:13	13	06:35 (1)	18:29	15:38
27	07:22	06:28	05:27	06:30 (2)	05:20	04:33	04:24	04:53	06:21		07:13 (2)	06:29	07:11
	16:17	17:12	18:00	06:36 (2)	19:51	20:35	20:56	20:33	18:14	14	06:35 (1)	18:27	15:37
28	07:21	06:26	05:24	05:18	04:32	04:24	04:55	05:42	06:21		07:12 (2)	06:20	07:12
	16:19	17:14	18:01	05:16	04:31	04:24	04:56	05:44	18:00	14	06:35 (1)	18:24	15:36
29	07:20		05:22	05:16	04:31	04:24	04:56	05:44	06:20		07:22 (2)	06:22	07:14
	16:21		18:03	05:14	04:30	04:25	04:58	05:45	18:00	14	06:34 (1)	18:22	15:36
30	07:18		05:20	05:14	04:30	04:25	04:58	05:45	06:21		07:13 (2)	06:34	07:15
	16:22		18:05	19:55	04:29	20:55	20:28	19:29	18:00	13	06:34 (1)	18:20	15:38
31	07:17		06:18		04:29	20:55	04:59	05:47	06:21		07:13 (2)	06:26	07:41
	16:24		19:06		20:40		20:27	19:27	11	06:32 (1)	16:15	15:39	248
Potential sun hours	262	279	367	414	481	494	498	452	381	195	333	270	
Total, worst case			185	114					108				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]**Shadow receptor:** B - SH2

Assumptions for shadow calculations

Reference year for calendar

2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:41 15:40	07:15 16:26	06:24 17:16	06:15 19:08	05:12 19:57	04:29 20:41	04:26 20:55	05:01 20:25	05:48 19:25	06:35 18:17	06:27 16:13	07:17 15:34
2	07:40 15:41	07:14 16:28	06:22 17:18	06:13 19:10	05:10 19:59	04:28 20:42	04:26 20:55	05:02 20:23	05:50 19:23	06:37 18:15	06:29 16:11	07:18 15:33
3	07:40 15:42	07:12 16:29	06:20 17:19	06:11 19:11	05:09 20:00	04:27 20:43	04:27 20:55	05:03 20:22	05:51 19:21	06:39 18:13	06:31 16:10	07:19 15:33
4	07:40 15:43	07:11 16:31	06:18 17:21	06:09 19:13	05:07 20:02	04:26 20:44	04:28 20:54	05:05 20:20	05:53 19:18	06:40 18:11	06:32 16:08	07:21 15:32
5	07:40 15:44	07:09 16:33	06:15 17:23	06:06 19:14	05:05 20:03	04:26 20:45	04:28 20:54	05:06 20:18	05:55 19:16	06:42 18:09	06:34 16:06	07:22 15:32
6	07:40 15:45	07:08 16:35	06:13 17:24	06:04 19:16	05:03 20:05	04:25 20:46	04:29 20:53	05:08 20:17	05:56 19:14	06:43 18:06	06:36 16:04	07:23 15:31
7	07:39 15:47	07:06 16:37	06:11 17:26	06:02 19:18	05:02 20:07	04:24 20:47	04:30 20:53	05:10 20:15	05:58 19:12	06:45 18:04	06:38 16:03	07:24 15:31
8	07:39 15:48	07:04 16:38	06:09 17:28	06:00 19:19	05:00 20:08	04:24 20:48	04:31 20:52	05:11 20:13	05:59 19:10	06:47 18:02	06:39 16:01	07:26 15:31
9	07:39 15:49	07:03 16:40	06:07 17:30	05:58 19:21	04:58 20:10	04:23 20:49	04:32 20:51	05:13 20:12	06:01 19:07	06:48 18:00	06:41 16:00	07:27 15:30
10	07:38 15:50	07:01 16:42	06:05 17:31	05:55 19:23	04:56 20:11	04:23 20:50	04:33 20:51	05:14 20:10	06:02 19:05	06:50 17:57	06:43 15:58	07:28 15:30
11	07:38 15:52	06:59 16:44	06:02 17:33	05:53 19:24	04:55 20:13	04:23 20:50	04:34 20:50	05:16 20:08	06:04 19:03	06:52 17:55	06:45 15:56	07:29 15:30
12	07:37 15:53	06:57 16:46	06:00 17:35	05:51 19:26	04:53 20:14	04:22 20:51	04:35 20:49	05:17 20:06	06:06 19:01	06:53 17:53	06:46 15:55	07:30 15:30
13	07:36 15:55	06:56 16:47	05:58 17:36	05:49 19:28	04:52 20:16	04:22 20:52	04:36 20:48	05:19 20:04	06:07 18:58	06:55 17:51	06:48 15:54	07:31 15:30
14	07:36 15:56	06:54 16:49	05:56 17:38	05:47 19:29	04:50 20:17	04:22 20:52	04:37 20:48	05:20 20:02	06:09 18:56	06:57 17:49	06:50 15:52	07:32 15:30
15	07:35 15:58	06:52 16:51	05:54 17:40	05:45 19:31	04:49 20:19	04:22 20:53	04:38 20:47	05:22 20:00	06:10 18:54	06:58 17:47	06:51 15:51	07:33 15:30
16	07:34 15:59	06:50 16:53	05:51 17:41	05:42 19:33	04:47 20:20	04:22 20:53	04:39 20:46	05:23 19:58	06:12 18:51	07:00 17:45	06:53 15:49	07:34 15:30
17	07:33 16:01	06:48 16:55	05:49 17:43	05:40 19:34	04:46 20:22	04:22 20:54	04:40 20:45	05:25 19:56	06:13 18:49	07:02 17:43	06:55 15:48	07:35 15:30
18	07:32 16:02	06:46 16:56	05:47 17:45	05:38 19:36	04:44 20:23	04:21 20:54	04:42 20:44	05:26 19:54	06:15 18:47	07:03 17:40	06:56 15:47	07:35 15:31
19	07:31 16:04	06:44 16:58	05:45 17:46	05:36 19:37	04:43 20:25	04:22 20:55	04:43 20:43	05:28 19:52	06:16 18:45	07:05 17:38	06:58 15:46	07:36 15:31
20	07:30 16:05	06:42 17:00	05:42 17:48	05:34 19:39	04:42 20:26	04:22 20:55	04:44 20:41	05:30 19:50	06:18 18:42	07:07 17:36	07:00 15:44	07:37 15:31
21	07:29 16:07	06:40 17:02	05:40 17:50	05:32 19:41	04:40 20:27	04:22 20:55	04:45 20:40	05:31 19:48	06:20 18:40	07:08 17:34	07:01 15:43	07:37 15:32
22	07:28 16:09	06:38 17:04	05:38 17:51	05:30 19:42	04:39 20:29	04:22 20:55	04:47 20:39	05:33 19:46	06:21 18:38	07:10 17:32	07:03 15:42	07:38 15:32
23	07:27 16:10	06:36 17:05	05:36 17:53	05:28 19:44	04:38 20:30	04:22 20:56	04:48 20:38	05:34 19:44	06:23 18:36	07:12 17:30	07:05 15:41	07:38 15:33
24	07:26 16:12	06:34 17:07	05:33 17:55	05:26 19:46	04:37 20:31	04:22 20:56	04:49 20:37	05:36 19:42	06:24 18:33	07:13 17:28	07:06 15:40	07:39 15:33
25	07:25 16:14	06:32 17:09	05:31 17:56	05:24 19:47	04:35 20:33	04:23 20:56	04:51 20:35	05:37 19:40	06:26 18:31	07:15 17:26	07:08 15:39	07:39 15:34
26	07:24 16:15	06:30 17:11	05:29 17:58	05:22 19:49	04:34 20:34	04:23 20:56	04:52 20:34	05:39 19:38	06:27 18:29	07:17 17:24	07:09 15:38	07:40 15:34
27	07:22 16:17	06:28 17:12	05:27 18:00	05:20 19:50	04:33 20:35	04:24 20:56	04:53 20:33	05:41 19:36	06:29 18:26	06:19 16:22	07:11 15:37	07:40 15:35
28	07:21 16:19	06:26 17:14	05:24 18:01	05:18 19:52	04:32 20:37	04:24 20:56	04:55 20:31	05:42 19:34	06:31 18:24	06:20 16:21	07:12 15:36	07:40 15:36
29	07:20 16:21		05:22 18:03	05:16 19:54	04:31 20:38	04:24 20:56	04:56 20:30	05:44 19:32	06:32 18:22	06:22 16:19	07:14 15:36	07:40 15:37
30	07:18 16:22		05:20 18:05	05:14 19:55	04:30 20:39	04:25 20:55	04:58 20:28	05:45 19:29	06:34 18:20	06:24 16:17	07:15 15:35	07:40 15:38
31	07:17 16:24		06:18 19:06		04:29 20:40		04:59 20:27	05:47 19:27		06:26 16:15		07:40 15:39
Potential sun hours	262	279	367	414	481	494	498	452	381	333	270	248
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]**Shadow receptor:** C - SH3

Assumptions for shadow calculations

Reference year for calendar

2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:41	07:15	06:24	06:15	05:12	04:29	04:26	05:01	05:48	06:35	06:27	07:17
	15:40	16:26	17:16	19:08	19:57	20:41	20:55	20:25	19:25	18:17	16:13	15:34
2	07:40	07:14	06:22	06:13	05:10	04:28	04:26	05:02	05:50	06:37	06:29	07:18
	15:41	16:28	17:18	19:10	19:59	20:42	20:55	20:23	19:23	18:15	16:11	15:33
3	07:40	07:12	06:20	06:11	05:09	04:27	04:27	05:03	05:51	06:39	06:31	07:19
	15:42	16:29	17:19	19:11	20:00	20:43	20:55	20:22	19:21	18:13	16:10	15:33
4	07:40	07:11	06:18	06:09	05:07	04:26	04:28	05:05	05:53	06:40	06:32	07:21
	15:43	16:31	17:21	19:13	20:02	20:44	20:54	20:20	19:18	18:11	16:08	15:32
5	07:40	07:09	06:15	06:06	05:05	04:26	04:28	05:06	05:55	06:42	06:34	07:22
	15:44	16:33	17:23	19:14	20:03	20:45	20:54	20:18	19:16	18:08	16:06	15:32
6	07:40	07:08	06:13	06:04	05:03	04:25	04:29	05:08	05:56	06:43	06:36	07:23
	15:45	16:35	17:24	19:16	20:05	20:46	20:53	20:17	19:14	18:06	16:04	15:31
7	07:39	07:06	06:11	06:02	05:02	04:24	04:30	05:09	05:58	06:45	06:38	07:24
	15:47	16:37	17:26	19:18	20:07	20:47	20:53	20:15	19:12	18:04	16:03	15:31
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	15:48	16:38	17:28	19:19	20:08	20:48	20:52	20:13	19:10	18:02	16:01	15:31
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	15:49	16:40	17:30	19:21	20:10	20:49	20:51	20:11	19:07	18:00	16:00	15:30
10	07:38	07:01	06:05	05:55	04:56	04:23	04:33	05:14	06:02	06:50	06:43	07:28
	15:50	16:42	17:31	19:23	20:11	20:50	20:51	20:10	19:05	17:57	15:58	15:30
11	07:38	06:59	06:02	05:53	04:55	04:23	04:34	05:16	06:04	06:52	06:45	07:29
	15:52	16:44	17:33	19:24	20:13	20:50	20:50	20:08	19:03	17:55	15:56	15:30
12	07:37	06:57	06:00	05:51	04:53	04:22	04:35	05:17	06:06	06:53	06:46	07:30
	15:53	16:46	17:35	19:26	20:14	20:51	20:49	20:06	19:01	17:53	15:55	15:30
13	07:36	06:56	05:58	05:49	04:52	04:22	04:36	05:19	06:07	06:55	06:48	07:31
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14	07:36	06:54	05:56	05:47	04:50	04:22	04:37	05:20	06:09	06:57	06:50	07:32
	15:56	16:49	17:38	19:29	20:17	20:52	20:48	20:02	18:56	17:49	15:52	15:30
15	07:35	06:52	05:54	05:45	04:49	04:22	04:38	05:22	06:10	06:58	06:51	07:33
	15:58	16:51	17:40	19:31	20:19	20:53	20:47	20:00	18:54	17:47	15:51	15:30
16	07:34	06:50	05:51	05:42	04:47	04:22	04:39	05:23	06:12	07:00	06:53	07:34
	15:59	16:53	17:41	19:33	20:20	20:53	20:46	19:58	18:51	17:45	15:49	15:30
17	07:33	06:48	05:49	05:40	04:46	04:22	04:40	05:25	06:13	07:02	06:55	07:35
	16:01	16:55	17:43	19:34	20:22	20:54	20:45	19:56	18:49	17:43	15:48	15:30
18	07:32	06:46	05:47	05:38	04:44	04:21	04:42	05:26	06:15	07:03	06:56	07:35
	16:02	16:56	17:45	19:36	20:23	20:54	20:44	19:54	18:47	17:40	15:47	15:31
19	07:31	06:44	05:45	05:36	04:43	04:22	04:43	05:28	06:16	07:05	06:58	07:36
	16:04	16:58	17:46	19:37	20:25	20:55	20:43	19:52	18:45	17:38	15:46	15:31
20	07:30	06:42	05:42	05:34	04:42	04:22	04:44	05:30	06:18	07:07	07:00	07:37
	16:05	17:00	17:48	19:39	20:26	20:55	20:41	19:50	18:42	17:36	15:44	15:31
21	07:29	06:40	05:40	05:32	04:40	04:22	04:45	05:31	06:20	07:08	07:01	07:37
	16:07	17:02	17:50	19:41	20:27	20:55	20:40	19:48	18:40	17:34	15:43	15:32
22	07:28	06:38	05:38	05:30	04:39	04:22	04:47	05:33	06:21	07:10	07:03	07:38
	16:09	17:04	17:51	19:42	20:29	20:55	20:39	19:46	18:38	17:32	15:42	15:32
23	07:27	06:36	05:36	05:28	04:38	04:22	04:48	05:34	06:23	07:12	07:05	07:38
	16:10	17:05	17:53	19:44	20:30	20:56	20:38	19:44	18:36	17:30	15:41	15:33
24	07:26	06:34	05:33	05:26	04:37	04:22	04:49	05:36	06:24	07:13	07:06	07:39
	16:12	17:07	17:55	19:46	20:31	20:56	20:37	19:42	18:33	17:28	15:40	15:33
25	07:25	06:32	05:31	05:24	04:35	04:23	04:51	05:37	06:26	07:15	07:08	07:39
	16:14	17:09	17:56	19:47	20:33	20:56	20:35	19:40	18:31	17:26	15:39	15:34
26	07:24	06:30	05:29	05:22	04:34	04:23	04:52	05:39	06:27	07:17	07:09	07:40
	16:15	17:11	17:58	19:49	20:34	20:56	20:34	19:38	18:29	17:24	15:38	15:34
27	07:22	06:28	05:27	05:20	04:33	04:23	04:53	05:40	06:29	07:19	07:11	07:40
	16:17	17:12	18:00	19:50	20:35	20:56	20:32	19:36	18:26	17:22	15:37	15:35
28	07:21	06:26	05:24	05:18	04:32	04:24	04:55	05:42	06:31	07:20	07:12	07:40
	16:19	17:14	18:01	19:52	20:37	20:56	20:31	19:34	18:24	17:20	15:36	15:36
29	07:20		05:22	05:16	04:31	04:24	04:56	05:44	06:32	07:22	07:14	07:40
	16:21		18:03	19:54	20:38	20:56	20:30	19:32	18:22	17:19	15:36	15:37
30	07:18		05:20	05:14	04:30	04:25	04:58	05:45	06:34	07:24	07:15	07:40
	16:22		18:05	19:55	20:39	20:55	20:28	19:29	18:20	17:17	15:35	15:38
31	07:17		06:18		04:29		04:59	05:47		06:25		07:40
	16:24		19:06		20:40		20:27	19:27		16:15		15:38
Potential sun hours	262	279	367	414	481	494	498	452	381	333	270	248
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]**Shadow receptor:** D - SH4

Assumptions for shadow calculations

Reference year for calendar

2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:40 15:40	07:15 16:26	06:24 17:16	06:15 19:08	05:12 19:57	04:29 20:41	04:26 20:55	05:01 20:25	05:48 19:25	06:35 18:17	06:27 16:13	07:17 15:34
2	07:40 15:41	07:14 16:28	06:22 17:18	06:13 19:10	05:10 19:59	04:28 20:42	04:26 20:55	05:02 20:23	05:50 19:23	06:37 18:15	06:29 16:11	07:18 15:33
3	07:40 15:42	07:12 16:29	06:20 17:19	06:11 19:11	05:09 20:00	04:27 20:43	04:27 20:54	05:03 20:22	05:51 19:21	06:39 18:13	06:31 16:10	07:19 15:33
4	07:40 15:43	07:11 16:31	06:18 17:21	06:09 19:13	05:07 20:02	04:26 20:44	04:28 20:54	05:05 20:20	05:53 19:18	06:40 18:11	06:32 16:08	07:21 15:32
5	07:40 15:44	07:09 16:33	06:15 17:23	06:06 19:14	05:05 20:03	04:26 20:45	04:28 20:54	05:06 20:18	05:55 19:16	06:42 18:08	06:34 16:06	07:22 15:32
6	07:40 15:45	07:08 16:35	06:13 17:24	06:04 19:16	05:03 20:05	04:25 20:46	04:29 20:53	05:08 20:17	05:56 19:14	06:43 18:06	06:36 16:04	07:23 15:31
7	07:39 15:47	07:06 16:37	06:11 17:26	06:02 19:18	05:02 20:06	04:24 20:47	04:30 20:53	05:09 20:15	05:58 19:12	06:45 18:04	06:38 16:03	07:24 15:31
8	07:39 15:48	07:04 16:38	06:09 17:28	06:00 19:19	05:00 20:08	04:24 20:48	04:31 20:52	05:11 20:13	05:59 19:10	06:47 18:02	06:39 16:01	07:26 15:31
9	07:39 15:49	07:03 16:40	06:07 17:30	05:58 19:21	04:58 20:10	04:23 20:49	04:32 20:51	05:13 20:11	06:01 19:07	06:48 18:00	06:41 16:00	07:27 15:30
10	07:38 15:50	07:01 16:42	06:05 17:31	05:55 19:23	04:56 20:11	04:23 20:50	04:33 20:51	05:14 20:10	06:02 19:05	06:50 17:57	06:43 15:58	07:28 15:30
11	07:38 15:52	06:59 16:44	06:02 17:33	05:53 19:24	04:55 20:13	04:23 20:50	04:34 20:50	05:16 20:08	06:04 19:03	06:52 17:55	06:45 15:56	07:29 15:30
12	07:37 15:53	06:57 16:46	06:00 17:35	05:51 19:26	04:53 20:14	04:22 20:51	04:35 20:49	05:17 20:06	06:05 19:01	06:53 17:53	06:46 15:55	07:30 15:30
13	07:36 15:55	06:56 16:47	05:58 17:36	05:49 19:28	04:52 20:16	04:22 20:52	04:36 20:48	05:19 20:04	06:07 18:58	06:55 17:51	06:48 15:54	07:31 15:30
14	07:36 15:56	06:54 16:49	05:56 17:38	05:47 19:29	04:50 20:17	04:22 20:52	04:37 20:48	05:20 20:02	06:09 18:56	06:57 17:49	06:50 15:52	07:32 15:30
15	07:35 15:58	06:52 16:51	05:54 17:40	05:45 19:31	04:49 20:19	04:22 20:53	04:38 20:47	05:22 20:00	06:10 18:54	06:58 17:47	06:51 15:51	07:33 15:30
16	07:34 15:59	06:50 16:53	05:51 17:41	05:42 19:33	04:47 20:20	04:22 20:53	04:39 20:46	05:23 19:58	06:12 18:51	07:00 17:45	06:53 15:49	07:34 15:30
17	07:33 16:01	06:48 16:55	05:49 17:43	05:40 19:34	04:46 20:22	04:21 20:54	04:40 20:45	05:25 19:56	06:13 18:49	07:02 17:43	06:55 15:48	07:35 15:30
18	07:32 16:02	06:46 16:56	05:47 17:45	05:38 19:36	04:44 20:23	04:21 20:54	04:42 20:44	05:26 19:54	06:15 18:47	07:03 17:40	06:56 15:47	07:35 15:31
19	07:31 16:04	06:44 16:58	05:45 17:46	05:36 19:37	04:43 20:25	04:21 20:55	04:43 20:43	05:28 19:52	06:16 18:45	07:05 17:38	06:58 15:46	07:36 15:31
20	07:30 16:05	06:42 17:00	05:42 17:48	05:34 19:39	04:42 20:26	04:22 20:55	04:44 20:41	05:30 19:50	06:18 18:42	07:07 17:36	07:00 15:44	07:37 15:31
21	07:29 16:07	06:40 17:02	05:40 17:50	05:32 19:41	04:40 20:27	04:22 20:55	04:45 20:40	05:31 19:48	06:20 18:40	07:08 17:34	07:01 15:43	07:37 15:32
22	07:28 16:09	06:38 17:04	05:38 17:51	05:30 19:42	04:39 20:29	04:22 20:55	04:47 20:39	05:33 19:46	06:21 18:38	07:10 17:32	07:03 15:42	07:38 15:32
23	07:27 16:10	06:36 17:05	05:36 17:53	05:28 19:44	04:38 20:30	04:22 20:56	04:48 20:38	05:34 19:44	06:23 18:36	07:12 17:30	07:05 15:41	07:38 15:33
24	07:26 16:12	06:34 17:07	05:33 17:55	05:26 19:46	04:37 20:31	04:22 20:56	04:49 20:37	05:36 19:42	06:24 18:33	07:13 17:28	07:06 15:40	07:39 15:33
25	07:25 16:14	06:32 17:09	05:31 17:56	05:24 19:47	04:35 20:33	04:23 20:56	04:51 20:35	05:37 19:40	06:26 18:31	07:15 17:26	07:08 15:39	07:39 15:34
26	07:24 16:15	06:30 17:11	05:29 17:58	05:22 19:49	04:34 20:34	04:23 20:56	04:52 20:34	05:39 19:38	06:27 18:29	07:17 17:24	07:09 15:38	07:40 15:34
27	07:22 16:17	06:28 17:12	05:27 18:00	05:20 19:50	04:33 20:35	04:23 20:56	04:53 20:32	05:40 19:36	06:29 18:26	06:19 16:22	07:11 15:37	07:40 15:35
28	07:21 16:19	06:26 17:14	05:24 18:01	05:18 19:52	04:32 20:37	04:24 20:56	04:55 20:31	05:42 19:34	06:31 18:24	06:20 16:20	07:12 15:36	07:40 15:36
29	07:20 16:21		05:22 18:03	05:16 19:54	04:31 20:38	04:24 20:56	04:56 20:30	05:44 19:32	06:32 18:22	06:22 16:19	07:14 15:36	07:40 15:37
30	07:18 16:22		05:20 18:05	05:14 19:55	04:30 20:39	04:25 20:55	04:58 20:28	05:45 19:29	06:34 18:20	06:24 16:17	07:15 15:35	07:40 15:38
31	07:17 16:24		06:18 19:06		04:29 20:40		04:59 20:27	05:47 19:27		06:25 16:15		07:40 15:38
Potential sun hours	262	279	367	414	481	494	498	452	381	333	270	248
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-] **Shadow receptor:** E - SH5

Assumptions for shadow calculations

Reference year for calendar

2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December				
1	07:41	07:16	06:24	06:15	06:50 (2)	05:12	04:29	04:26	05:01	05:48	06:35	06:27	07:17			
	15:40	16:26	17:16	19:08	6	06:56 (2)	19:57	20:41	20:55	20:25	19:25	18:18	16:13	15:34		
2	07:41	07:14	06:22	06:13	06:48 (2)	05:11	04:28	04:26	05:02	05:50	06:45 (2)	06:37	06:29	07:18		
	15:41	16:28	17:18	19:10	11	06:59 (2)	19:59	20:42	20:55	20:24	19:23	18:15	16:11	15:34		
3	07:40	07:13	06:20	06:11	06:46 (2)	05:09	04:27	04:27	05:04	05:52	06:43 (2)	06:39	06:31	07:19		
	15:42	16:30	17:19	19:11	14	07:00 (2)	20:00	20:43	20:55	20:22	19:21	18:13	16:10	15:33		
4	07:40	07:11	06:18	06:09	06:46 (2)	05:07	04:26	04:28	05:05	05:53	06:41 (2)	06:40	06:33	07:21		
	15:43	16:31	17:21	19:13	15	07:01 (2)	20:02	20:44	20:54	20:20	19:19	18:11	16:08	15:32		
5	07:40	07:09	06:16	06:06	06:44 (2)	05:05	04:26	04:28	05:07	05:55	06:41 (2)	06:42	06:34	07:22		
	15:44	16:33	17:23	19:15	16	07:00 (2)	20:03	20:45	20:54	20:19	19:16	18:09	16:06	15:32		
6	07:40	07:08	06:13	06:04	06:44 (2)	05:03	04:25	04:29	05:08	05:56	06:40 (2)	06:44	06:36	07:23		
	15:45	16:35	17:25	19:16	16	07:00 (2)	20:05	20:46	20:53	20:17	19:14	18:06	16:04	15:31		
7	07:39	07:06	06:11	06:02	06:44 (2)	05:02	04:24	04:30	05:10	05:58	06:40 (2)	06:45	06:38	07:25		
	15:47	16:37	17:26	19:18	16	07:00 (2)	20:07	20:47	20:53	20:15	19:12	18:04	16:03	15:31		
8	07:39	07:04	06:09	06:00	06:44 (2)	05:00	04:24	04:31	05:11	05:59	06:39 (2)	06:47	06:39	07:26		
	15:48	16:39	17:28	19:19	15	06:59 (2)	20:08	20:48	20:52	20:13	19:10	18:02	16:01	15:31		
9	07:39	07:03	06:07	05:58	06:45 (2)	04:58	04:24	04:32	05:13	06:01	06:40 (2)	06:48	06:41	07:27		
	15:49	16:40	17:30	19:21	13	06:58 (2)	20:10	20:49	20:52	20:12	19:07	18:00	16:00	15:31		
10	07:38	07:01	06:05	05:55	06:45 (2)	04:57	04:23	04:33	05:14	06:02	06:40 (2)	06:50	06:43	07:28		
	15:50	16:42	17:31	19:23	10	06:55 (2)	20:11	20:50	20:51	20:10	19:05	18:02	16:00	15:30		
11	07:38	06:59	06:02	05:53	06:48 (2)	04:55	04:23	04:34	05:16	06:04	06:42 (2)	06:52	06:45	07:29		
	15:52	16:44	17:33	19:24	4	06:52 (2)	20:13	20:50	20:50	20:08	19:03	18:02	16:00	15:30		
12	07:37	06:58	06:00	05:51		04:53	04:22	04:35	05:17	06:06	06:53	06:46	07:30			
	15:53	16:46	17:35	19:26		20:14	20:51	20:49	20:06	19:01	18:00	16:55	15:55	15:30		
13	07:36	06:56	05:58	05:49		04:52	04:22	04:36	05:19	06:07	06:55	06:48	07:31			
	15:55	16:48	17:36	19:28		20:16	20:52	20:49	20:04	18:58	17:51	15:54	15:30			
14	07:36	06:54	05:56	05:47		04:50	04:22	04:37	05:20	06:08 (1)	06:09	06:57	06:50	07:32		
	15:56	16:49	17:38	19:29		20:17	20:52	20:48	20:02	4	06:12 (1)	18:56	17:49	15:52	15:30	
15	07:35	06:52	05:54	05:45		04:49	04:22	04:38	05:22	06:05 (1)	06:10	06:58	06:51	07:33		
	15:58	16:51	17:40	19:31		20:19	20:53	20:47	20:00	9	06:14 (1)	18:54	17:47	15:51	15:30	
16	07:34	06:50	05:51	05:43		04:47	04:22	04:39	05:23	06:04 (1)	06:12	07:00	06:53	07:34		
	15:59	16:53	17:41	19:33		20:20	20:53	20:46	19:58	11	06:15 (1)	18:52	17:45	15:49	15:30	
17	07:33	06:48	05:49	05:40		04:46	04:22	04:40	05:25	06:03 (1)	06:13	07:02	06:55	07:35		
	16:01	16:55	17:43	19:34		20:22	20:54	20:45	19:56	12	06:15 (1)	18:49	17:43	15:48	15:30	
18	07:32	06:46	05:47	05:38		04:44	04:22	04:42	05:27	06:03 (1)	06:15	07:03	06:57	07:35		
	16:02	16:56	17:45	19:36		20:23	20:54	20:44	19:55	12	06:15 (1)	18:47	17:40	15:47	15:31	
19	07:32	06:44	05:45	05:36		04:43	04:22	04:43	05:28	06:02 (1)	06:17	07:05	06:58	07:36		
	16:04	16:58	17:47	19:38		20:25	20:55	20:43	19:53	13	06:15 (1)	18:45	17:38	15:46	15:31	
20	07:31	06:42	05:42	05:34		04:42	04:22	04:44	05:30	06:03 (1)	06:18	07:07	07:00	07:37		
	16:05	17:00	17:48	19:39		20:26	20:55	20:42	19:50	12	06:15 (1)	18:42	17:36	15:44	15:31	
21	07:30	06:40	05:40	05:32		06:01 (1)	04:40	04:22	04:45	05:31	06:03 (1)	06:20	07:08	07:01	07:37	
	16:07	17:02	17:50	19:41	6	06:07 (1)	20:28	20:55	20:40	10	06:13 (1)	18:40	17:34	15:43	15:32	
22	07:28	06:38	05:38	05:30		05:59 (1)	04:39	04:22	04:47	05:33	06:05 (1)	06:21	07:10	07:03	07:38	
	16:09	17:04	17:51	19:42	10	06:09 (1)	20:29	20:55	20:39	19:46	7	06:12 (1)	18:38	17:32	15:42	15:32
23	07:27	06:36	05:36	05:28		05:58 (1)	04:38	04:22	04:48	05:34	06:23	07:12	07:05	07:38		
	16:10	17:05	17:53	19:44	11	06:09 (1)	20:30	20:56	20:38	19:44	18:36	17:30	15:41	15:33		
24	07:26	06:34	05:33	05:26		05:57 (1)	04:37	04:22	04:49	05:36	06:24	07:14	07:06	07:39		
	16:12	17:07	17:55	19:46	12	06:09 (1)	20:32	20:56	20:37	19:42	18:33	17:28	15:40	15:33		
25	07:25	06:32	05:31	05:24		05:57 (1)	04:35	04:23	04:51	05:37	06:26	07:15	07:08	07:39		
	16:14	17:09	17:56	19:47	12	06:09 (1)	20:33	20:56	20:35	19:40	18:31	17:26	15:39	15:34		
26	07:24	06:30	05:29	05:22		05:57 (1)	04:34	04:23	04:52	05:39	06:28	07:17	07:09	07:40		
	16:16	17:11	17:58	19:49	12	06:09 (1)	20:34	20:56	20:34	19:38	18:29	17:24	15:38	15:34		
27	07:22	06:28	05:27	05:20		05:57 (1)	04:33	04:24	04:53	05:41	06:29	06:19	07:11	07:40		
	16:17	17:12	18:00	19:51	11	06:08 (1)	20:35	20:56	20:33	19:36	18:27	16:22	15:37	15:35		
28	07:21	06:26	05:24	05:18		05:58 (1)	04:32	04:24	04:55	05:42	06:31	06:20	07:12	07:40		
	16:19	17:14	18:01	19:52	8	06:06 (1)	20:37	20:56	20:31	19:34	18:24	16:21	15:36	15:36		
29	07:20	06:24	05:22	05:16		05:59 (1)	04:31	04:25	04:56	05:44	06:32	06:22	07:14	07:40		
	16:21		18:03	19:54	5	06:04 (1)	20:38	20:56	20:30	19:32	18:22	16:19	15:36	15:37		
30	07:18		05:20	05:14		04:30	04:25	04:58	05:45	06:34	06:24	06:24	07:15	07:40		
	16:22		18:05	19:55		20:39	20:55	20:28	19:29	18:20		16:17	15:35	15:38		
31	07:17		06:18			04:29		04:59	05:47			06:26		07:41		
	16:24		19:06			20:40		20:27	19:27			16:15		15:39		
Potential sun hours	262	279	367	414		481	494	498	452		381	333	270	248		
Total, worst case				223					90	132						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-] **Shadow receptor:** F - SH5

Assumptions for shadow calculations

Reference year for calendar

2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

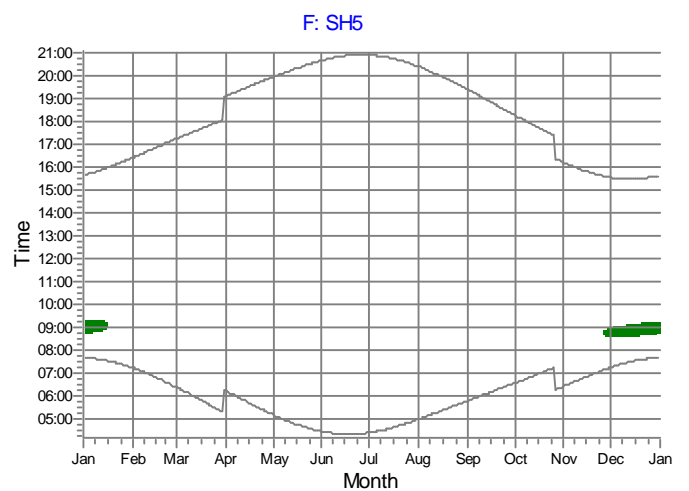
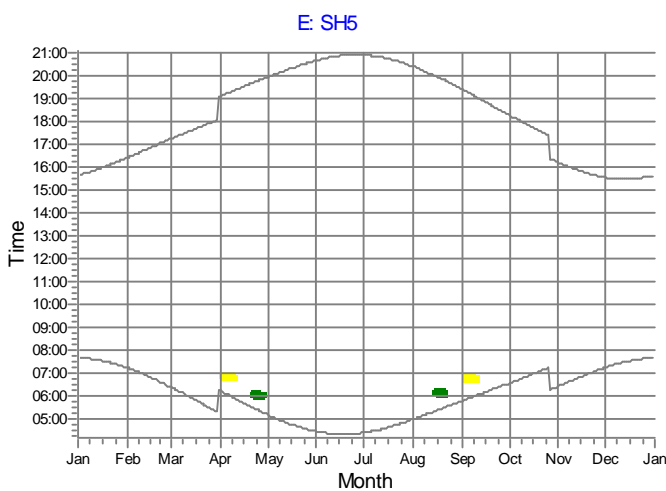
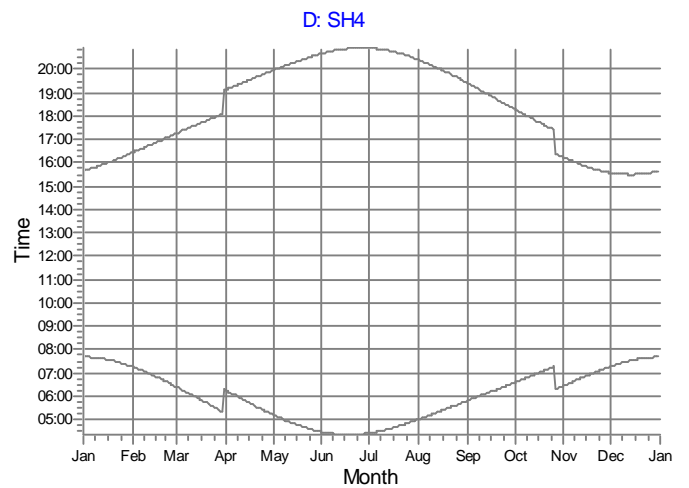
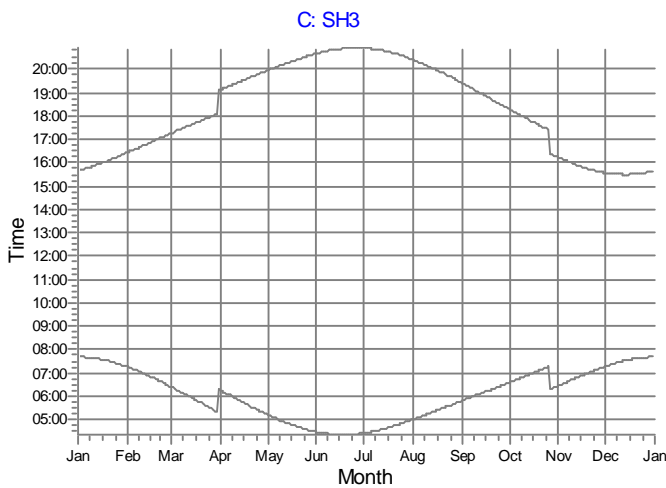
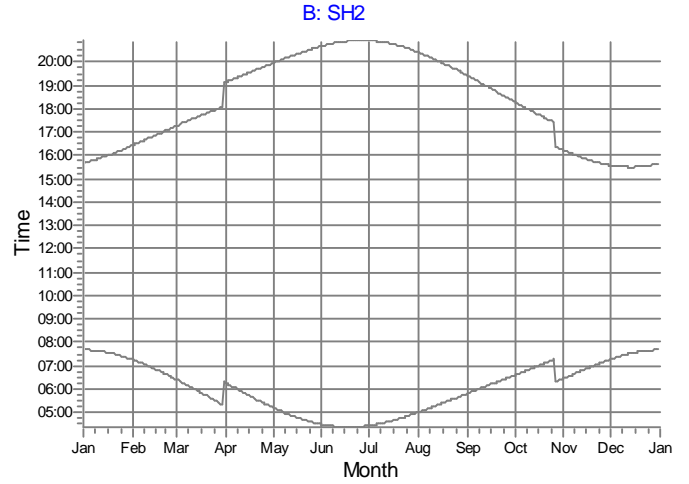
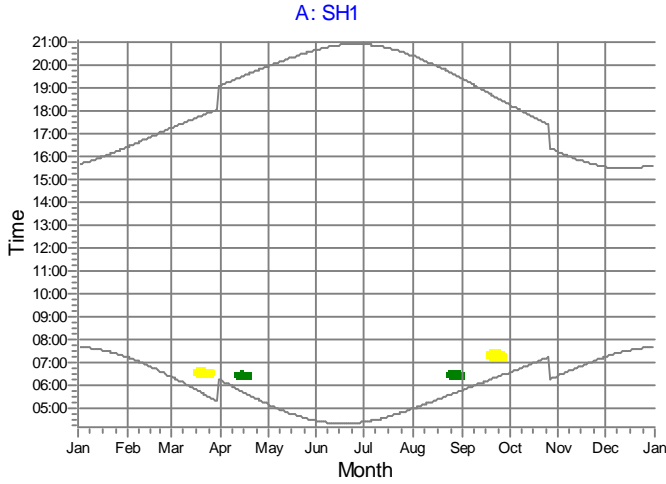
	January	February	March	April	May	June	July	August	September	October	November	December					
1	07:41	08:51 (1)	07:16	06:24	06:15	05:12	04:29	04:26	05:00	05:48	06:35	06:27	07:17	08:40 (1)			
15:40	23	09:14 (1)	16:26	17:16	19:08	19:57	20:41	20:55	20:25	19:25	18:17	16:13	15:34	16	08:56 (1)		
2	07:41	08:51 (1)	07:14	06:22	06:13	05:10	04:28	04:26	05:02	05:50	06:37	06:29	07:18	08:40 (1)			
15:41	23	09:14 (1)	16:28	17:18	19:10	19:59	20:42	20:55	20:23	19:23	18:15	16:11	15:33	17	08:57 (1)		
3	07:40	08:51 (1)	07:13	06:20	06:11	05:09	04:27	04:27	05:03	05:51	06:39	06:31	07:19	08:40 (1)			
15:42	23	09:14 (1)	16:29	17:19	19:11	20:00	20:43	20:55	20:22	19:21	18:13	16:10	15:33	19	08:59 (1)		
4	07:40	08:52 (1)	07:11	06:18	06:09	05:07	04:26	04:28	05:05	05:53	06:40	06:32	07:21	08:40 (1)			
15:43	22	09:14 (1)	16:31	17:21	19:13	20:02	20:44	20:54	20:20	19:18	18:11	16:08	15:32	19	08:59 (1)		
5	07:40	08:53 (1)	07:09	06:15	06:06	05:05	04:26	04:28	05:06	05:55	06:42	06:34	07:22	08:39 (1)			
15:44	22	09:15 (1)	16:33	17:23	19:14	20:03	20:45	20:54	20:19	19:16	18:08	16:06	15:32	20	08:59 (1)		
6	07:40	08:53 (1)	07:08	06:13	06:04	05:03	04:25	04:29	05:08	05:56	06:44	06:36	07:23	08:40 (1)			
15:45	22	09:15 (1)	16:35	17:24	19:16	20:05	20:46	20:53	20:17	19:14	18:06	16:04	15:31	21	09:01 (1)		
7	07:39	08:55 (1)	07:06	06:11	06:02	05:01	04:24	04:30	05:09	05:58	06:45	06:38	07:25	08:40 (1)			
15:46	20	09:15 (1)	16:37	17:26	19:18	20:07	20:47	20:53	20:15	19:12	18:04	16:03	15:31	21	09:01 (1)		
8	07:39	08:55 (1)	07:04	06:09	06:00	05:00	04:24	04:31	05:11	05:59	06:47	06:39	07:26	08:40 (1)			
15:48	20	09:15 (1)	16:38	17:28	19:19	20:08	20:48	20:52	20:13	19:10	18:02	16:01	15:31	22	09:02 (1)		
9	07:39	08:56 (1)	07:03	06:07	05:58	04:58	04:23	04:32	05:12	06:01	06:48	06:41	07:27	08:41 (1)			
15:49	19	09:15 (1)	16:40	17:30	19:21	20:10	20:49	20:52	20:12	19:07	18:00	16:00	15:30	22	09:03 (1)		
10	07:38	08:57 (1)	07:01	06:05	05:55	04:56	04:23	04:33	05:14	06:02	06:50	06:43	07:28	08:41 (1)			
15:50	18	09:15 (1)	16:42	17:31	19:23	20:11	20:50	20:51	20:10	19:05	17:57	15:58	15:30	22	09:03 (1)		
11	07:38	08:57 (1)	06:59	06:02	05:53	04:55	04:23	04:34	05:16	06:04	06:52	06:45	07:29	08:41 (1)			
15:52	17	09:14 (1)	16:44	17:33	19:24	20:13	20:50	20:50	20:08	19:03	17:55	15:56	15:30	23	09:04 (1)		
12	07:37	08:58 (1)	06:57	06:00	05:51	04:53	04:22	04:35	05:17	06:06	06:53	06:46	07:30	08:41 (1)			
15:53	16	09:14 (1)	16:46	17:35	19:26	20:14	20:51	20:49	20:06	19:01	17:53	15:55	15:30	23	09:04 (1)		
13	07:36	09:00 (1)	06:56	05:58	05:49	04:52	04:22	04:36	05:19	06:07	06:55	06:48	07:31	08:42 (1)			
15:55	14	09:14 (1)	16:47	17:36	19:28	20:16	20:52	20:49	20:04	18:58	17:51	15:53	15:30	23	09:05 (1)		
14	07:36	09:02 (1)	06:54	05:56	05:47	04:50	04:22	04:37	05:20	06:09	06:57	06:50	07:32	08:42 (1)			
15:56	11	09:13 (1)	16:49	17:38	19:29	20:17	20:52	20:48	20:02	18:56	17:49	15:52	15:30	24	09:06 (1)		
15	07:35	09:04 (1)	06:52	05:54	05:45	04:49	04:22	04:38	05:22	06:10	06:58	06:51	07:33	08:43 (1)			
15:58	7	09:11 (1)	16:51	17:40	19:31	20:19	20:53	20:47	20:00	18:54	17:47	15:51	15:30	23	09:06 (1)		
16	07:34	09:05 (1)	06:50	05:51	05:42	04:47	04:22	04:39	05:23	06:12	07:00	06:53	07:34	08:42 (1)			
15:59		16:53	17:41	19:33	20:20	20:53	20:46	20:46	19:58	18:52	17:45	15:49	15:30	24	09:06 (1)		
17	07:33	09:06 (1)	06:48	05:49	05:40	04:46	04:21	04:40	05:25	06:13	07:02	06:55	07:35	08:43 (1)			
16:01		16:55	17:43	19:34	20:22	20:54	20:45	20:45	19:56	18:49	17:43	15:48	15:30	23	09:06 (1)		
18	07:32	09:07 (1)	06:46	05:47	05:38	04:44	04:21	04:42	05:26	06:15	07:03	06:56	07:35	08:44 (1)			
16:02		16:56	17:45	19:36	20:23	20:54	20:44	20:44	19:54	18:47	17:40	15:47	15:31	23	09:07 (1)		
19	07:31	09:08 (1)	06:44	05:45	05:36	04:43	04:21	04:43	05:28	06:16	07:05	06:58	07:36	08:44 (1)			
16:04		16:58	17:46	19:37	20:25	20:55	20:43	20:43	19:52	18:45	17:38	15:45	15:31	24	09:08 (1)		
20	07:31	09:09 (1)	06:42	05:42	05:34	04:42	04:22	04:44	05:30	06:18	07:07	07:00	07:37	08:44 (1)			
16:05		17:00	17:48	19:39	20:26	20:55	20:42	20:42	19:50	18:42	17:36	15:44	15:31	24	09:08 (1)		
21	07:29	09:10 (1)	06:40	05:40	05:32	04:40	04:22	04:45	05:31	06:20	07:08	07:01	07:37	08:45 (1)			
16:07		17:02	17:50	19:41	20:27	20:55	20:40	20:40	19:48	18:40	17:34	15:43	15:32	24	09:09 (1)		
22	07:28	09:11 (1)	06:38	05:38	05:30	04:39	04:22	04:47	05:33	06:21	07:10	07:03	07:38	08:45 (1)			
16:09		17:04	17:51	19:42	20:29	20:55	20:39	20:39	19:46	18:38	17:32	15:42	15:32	24	09:09 (1)		
23	07:27	09:12 (1)	06:36	05:36	05:28	04:38	04:22	04:48	05:34	06:23	07:12	07:05	07:38	08:46 (1)			
16:10		17:05	17:53	19:44	20:30	20:56	20:38	20:38	19:44	18:36	17:30	15:41	15:32	24	09:10 (1)		
24	07:26	09:13 (1)	06:34	05:33	05:26	04:37	04:22	04:49	05:36	06:24	07:13	07:06	07:39	08:46 (1)			
16:12		17:07	17:55	19:46	20:32	20:56	20:37	20:37	19:42	18:33	17:28	15:40	15:33	24	09:10 (1)		
25	07:25	09:14 (1)	06:32	05:31	05:24	04:35	04:23	04:51	05:37	06:26	07:15	07:08	07:39	08:46 (1)			
16:14		17:09	17:56	19:47	20:33	20:56	20:35	20:35	19:40	18:31	17:26	15:39	15:34	24	09:10 (1)		
26	07:24	09:15 (1)	06:30	05:29	05:22	04:34	04:23	04:52	05:39	06:27	07:17	07:09	07:40	08:48 (1)			
16:15		17:11	17:58	19:49	20:34	20:56	20:34	20:34	19:38	18:29	17:24	15:38	15:34	23	09:11 (1)		
27	07:22	09:16 (1)	06:28	05:27	05:20	04:33	04:23	04:53	05:40	06:29	06:19	07:11	08:45 (1)	07:40	08:48 (1)		
16:17		17:12	18:00	19:51	20:35	20:56	20:33	20:33	19:36	18:26	16:22	15:37	4	08:49 (1)	15:35	24	09:12 (1)
28	07:21	09:17 (1)	06:26	05:24	05:18	04:32	04:24	04:55	05:42	06:31	06:20	07:12	08:42 (1)	07:40	08:48 (1)		
16:19		17:14	18:01	19:52	20:37	20:56	20:31	20:31	19:34	18:24	16:20	15:36	10	08:52 (1)	15:36	24	09:12 (1)
29	07:20	09:18 (1)	06:22	05:22	05:16	04:31	04:24	04:56	05:44	06:32	06:22	07:14	08:42 (1)	07:40	08:49 (1)		
16:21		18:03	19:54	20:38	20:56	20:30	20:30	20:30	19:32	18:22	16:19	15:35	12	08:54 (1)	15:37	23	09:12 (1)
30	07:18	09:19 (1)	06:18	05:20	05:14	04:30	04:25	04:58	05:45	06:34	06:24	07:15	08:40 (1)	07:40	08:49 (1)		
16:22		18:05	19:55	20:39	20:55	20:28	20:28	20:28	19:29	18:20	16:17	15:35	15	08:55 (1)	15:38	24	09:13 (1)
31	07:17	09:20 (1)	06:18	05:19	05:13	04:29	04:24	04:59	05:47	06:36	06:26	07:16	07:41	08:50 (1)			
16:24		19:06	20:40	20:40	20:40	20:27	20:27	20:27	19:27	18:18	16:15	15:38	23	09:13 (1)			
Potential sun hours	262		279	367	414	481	494	498	452	381	333	270	41		248	694	
Total, worst case	277																

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar, graphical

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]



WTGs

1: EW3

2: EW2

SHADOW - Calendar per WTG

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]WTG: 1 - EW3

Assumptions for shadow calculations

Reference year for calendar 2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:41 08:51-09:14/23 15:40	07:15 16:26	06:24 17:16	06:15 19:08	05:12 19:57	04:29 20:41
2	07:40 08:51-09:14/23 15:41	07:14 16:28	06:22 17:18	06:13 19:10	05:10 19:59	04:28 20:42
3	07:40 08:51-09:14/23 15:42	07:12 16:29	06:20 17:19	06:11 19:11	05:09 20:00	04:27 20:43
4	07:40 08:52-09:14/22 15:43	07:11 16:31	06:18 17:21	06:09 19:13	05:07 20:02	04:26 20:44
5	07:40 08:53-09:15/22 15:44	07:09 16:33	06:15 17:23	06:06 19:14	05:05 20:03	04:26 20:45
6	07:40 08:53-09:15/22 15:45	07:08 16:35	06:13 17:24	06:04 19:16	05:03 20:05	04:25 20:46
7	07:39 08:55-09:15/20 15:46	07:06 16:37	06:11 17:26	06:02 19:18	05:01 20:07	04:24 20:47
8	07:39 08:55-09:15/20 15:48	07:04 16:38	06:09 17:28	06:00 19:19	05:00 20:08	04:24 20:48
9	07:39 08:56-09:15/19 15:49	07:03 16:40	06:07 17:30	05:58 19:21	04:58 20:10	04:23 20:49
10	07:38 08:57-09:15/18 15:50	07:01 16:42	06:05 17:31	05:55 19:23	04:56 20:11	04:23 20:50
11	07:38 08:57-09:14/17 15:52	06:59 16:44	06:02 17:33	05:53 06:25-06:29/4 19:24	04:55 20:13	04:23 20:50
12	07:37 08:58-09:14/16 15:53	06:57 16:46	06:00 17:35	05:51 06:22-06:32/10 19:26	04:53 20:14	04:22 20:51
13	07:36 09:00-09:14/14 15:55	06:56 16:47	05:58 17:36	05:49 06:21-06:33/12 19:28	04:52 20:16	04:22 20:52
14	07:36 09:02-09:13/11 15:56	06:54 16:49	05:56 17:38	05:47 06:20-06:33/13 19:29	04:50 20:17	04:22 20:52
15	07:35 09:04-09:11/7 15:58	06:52 16:51	05:53 17:40	05:45 06:19-06:34/15 19:31	04:49 20:19	04:22 20:53
16	07:34 15:59	06:50 16:53	05:51 17:41	05:42 06:19-06:33/14 19:33	04:47 20:20	04:22 20:53
17	07:33 16:01	06:48 16:55	05:49 17:43	05:40 06:19-06:33/14 19:34	04:46 20:22	04:21 20:54
18	07:32 16:02	06:46 16:56	05:47 17:45	05:38 06:19-06:32/13 19:36	04:44 20:23	04:21 20:54
19	07:31 16:04	06:44 16:58	05:45 17:46	05:36 06:20-06:31/11 19:37	04:43 20:25	04:21 20:55
20	07:30 16:05	06:42 17:00	05:42 17:48	05:34 06:21-06:29/8 19:39	04:42 20:26	04:22 20:55
21	07:29 16:07	06:40 17:02	05:40 17:50	05:32 06:01-06:07/6 19:41	04:40 20:27	04:22 20:55
22	07:28 16:09	06:38 17:04	05:38 17:51	05:30 05:59-06:09/10 19:42	04:39 20:29	04:22 20:55
23	07:27 16:10	06:36 17:05	05:36 17:53	05:28 05:58-06:09/11 19:44	04:38 20:30	04:22 20:56
24	07:26 16:12	06:34 17:07	05:33 17:55	05:26 05:57-06:09/12 19:46	04:37 20:31	04:22 20:56
25	07:25 16:14	06:32 17:09	05:31 17:56	05:24 05:57-06:09/12 19:47	04:35 20:33	04:23 20:56
26	07:24 16:15	06:30 17:11	05:29 17:58	05:22 05:57-06:09/12 19:49	04:34 20:34	04:23 20:56
27	07:22 16:17	06:28 17:12	05:27 18:00	05:20 05:57-06:08/11 19:50	04:33 20:35	04:23 20:56
28	07:21 16:19	06:26 17:14	05:24 18:01	05:18 05:58-06:06/8 19:52	04:32 20:37	04:24 20:56
29	07:20 16:21		05:22 18:03	05:16 05:59-06:04/5 19:54	04:31 20:38	04:24 20:56
30	07:18 16:22		05:20 18:05	05:14 19:55	04:30 20:39	04:25 20:55
31	07:17 16:24		06:18 19:06		04:29 20:40	
Potential sun hours	262	279	367	414	481	494
Sum of minutes with flicker	277	0	0	201	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]WTG: 1 - EW3

Assumptions for shadow calculations

Reference year for calendar 2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	04:26 20:55	05:00 20:25	05:48 19:25	06:23-06:30/7 18:17	06:27 16:13	07:17 15:34
2	04:26 20:55	05:02 20:23	05:50 19:23	06:37 18:15	06:29 16:11	07:18 15:33
3	04:27 20:55	05:03 20:22	05:51 19:21	06:39 18:13	06:31 16:10	07:19 15:33
4	04:28 20:54	05:05 20:20	05:53 19:18	06:40 18:11	06:32 16:08	07:21 15:32
5	04:28 20:54	05:06 20:18	05:55 19:16	06:42 18:08	06:34 16:06	07:22 15:32
6	04:29 20:53	05:08 20:17	05:56 19:14	06:43 18:06	06:36 16:04	07:23 15:31
7	04:30 20:53	05:09 20:15	05:58 19:12	06:45 18:04	06:38 16:03	07:25 15:31
8	04:31 20:52	05:11 20:13	05:59 19:10	06:47 18:02	06:39 16:01	07:26 15:31
9	04:32 20:51	05:12 20:12	06:01 19:07	06:48 18:00	06:41 16:00	07:27 15:30
10	04:33 20:51	05:14 20:10	06:02 19:05	06:50 17:57	06:43 15:58	07:28 15:30
11	04:34 20:50	05:16 20:08	06:04 19:03	06:52 17:55	06:45 15:56	07:29 15:30
12	04:35 20:49	05:17 20:06	06:05 19:01	06:53 17:53	06:46 15:55	07:30 15:30
13	04:36 20:48	05:19 20:04	06:07 18:58	06:55 17:51	06:48 15:53	07:31 15:30
14	04:37 20:48	05:20 20:02	06:08-06:12/4 18:56	06:57 17:49	06:50 15:52	07:32 15:30
15	04:38 20:47	05:22 20:00	06:05-06:14/9 18:54	06:58 17:47	06:51 15:51	07:33 15:30
16	04:39 20:46	05:23 19:58	06:04-06:15/11 18:51	07:00 17:45	06:53 15:49	07:34 15:30
17	04:40 20:45	05:25 19:56	06:03-06:15/12 18:49	07:02 17:42	06:55 15:48	07:35 15:30
18	04:42 20:44	05:26 19:54	06:03-06:15/12 18:47	07:03 17:40	06:56 15:47	07:35 15:30
19	04:43 20:43	05:28 19:52	06:02-06:15/13 18:45	07:05 17:38	06:58 15:45	07:36 15:31
20	04:44 20:41	05:30 19:50	06:03-06:15/12 18:42	07:07 17:36	07:00 15:44	07:37 15:31
21	04:45 20:40	05:31 19:48	06:03-06:13/10 18:40	07:08 17:34	07:01 15:43	07:37 15:32
22	04:47 20:39	05:33 19:46	06:05-06:12/7 18:38	07:10 17:32	07:03 15:42	07:38 15:32
23	04:48 20:38	05:34 19:44	06:25-06:32/7 18:36	07:12 17:30	07:05 15:41	07:38 15:32
24	04:49 20:37	05:36 19:42	06:24-06:34/10 18:33	07:13 17:28	07:06 15:40	07:39 15:33
25	04:51 20:35	05:37 19:40	06:22-06:34/12 18:31	07:15 17:26	07:08 15:39	07:39 15:34
26	04:52 20:34	05:39 19:38	06:22-06:35/13 18:29	07:17 17:24	07:09 15:38	07:40 15:34
27	04:53 20:33	05:40 19:36	06:21-06:35/14 18:26	07:19 16:22	07:11 15:37	07:40 15:35
28	04:55 20:31	05:42 19:34	06:21-06:35/14 18:24	07:20 16:20	07:12 15:36	07:40 15:36
29	04:56 20:30	05:44 19:32	06:20-06:34/14 18:22	07:22 16:19	07:14 15:35	07:40 15:37
30	04:58 20:28	05:45 19:29	06:21-06:34/13 18:20	07:24 16:17	07:15 15:35	07:40 15:38
31	04:59 20:27	05:47 19:27	06:21-06:32/11 18:18	07:25 16:15	07:15 15:35	07:40 15:38
Potential sun hours	498	452	381	333	270	248
Sum of minutes with flicker	0	198	7	0	41	694

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]WTG: 2 - EW2

Assumptions for shadow calculations

Reference year for calendar 2013

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

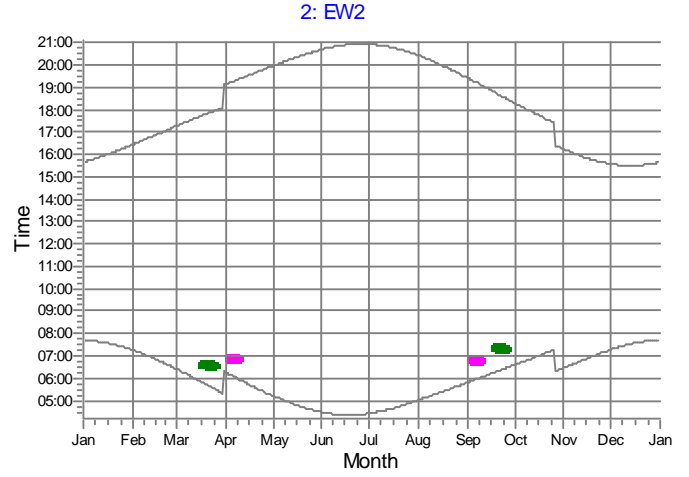
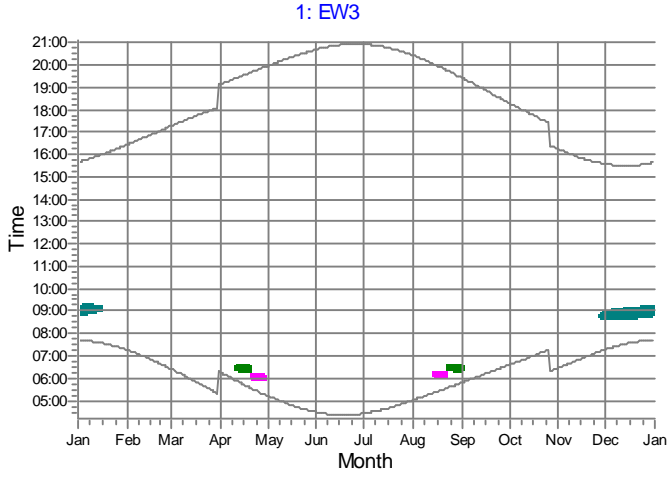
	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:41	07:15	06:24	06:15	06:50-06:56/6	05:12	04:29	04:26	05:01	05:48	06:35	06:27	07:17	
	15:40	16:26	17:16	19:08		19:08	20:41	20:55	20:25	19:25	18:17	16:13	15:34	
2	07:40	07:14	06:22	06:13	06:48-06:59/11	05:10	04:28	04:26	05:02	05:50	06:45-06:53/8	06:37	06:29	07:18
	15:41	16:28	17:18	19:10		19:09	20:42	20:55	20:23	19:23	18:15	16:11	15:33	
3	07:40	07:12	06:20	06:11	06:46-07:00/14	05:09	04:27	04:27	05:03	05:51	06:43-06:55/12	06:39	06:31	07:19
	15:42	16:29	17:19	19:11		20:00	20:43	20:55	20:22	19:21	18:13	16:10	15:33	
4	07:40	07:11	06:18	06:09	06:46-07:01/15	05:07	04:26	04:28	05:05	05:53	06:41-06:55/14	06:40	06:32	07:21
	15:43	16:31	17:21	19:13		20:02	20:44	20:54	20:20	19:18	18:11	16:08	15:32	
5	07:40	07:09	06:15	06:06	06:44-07:00/16	05:05	04:26	04:28	05:06	05:55	06:41-06:56/15	06:42	06:34	07:22
	15:44	16:33	17:23	19:14		20:03	20:45	20:54	20:19	19:16	18:08	16:06	15:32	
6	07:40	07:08	06:13	06:04	06:44-07:00/16	05:03	04:25	04:29	05:08	05:56	06:40-06:56/16	06:43	06:36	07:23
	15:45	16:35	17:24	19:16		20:05	20:46	20:53	20:17	19:14	18:06	16:04	15:31	
7	07:39	07:06	06:11	06:02	06:44-07:00/16	05:02	04:24	04:30	05:09	05:58	06:40-06:56/16	06:45	06:38	07:25
	15:47	16:37	17:26	19:18		20:07	20:47	20:53	20:15	19:12	18:04	16:03	15:31	
8	07:39	07:04	06:09	06:00	06:44-06:59/15	05:00	04:24	04:31	05:11	05:59	06:39-06:55/16	06:47	06:39	07:26
	15:48	16:38	17:28	19:19		20:08	20:48	20:52	20:13	19:10	18:02	16:01	15:31	
9	07:39	07:03	06:07	05:58	06:45-06:58/13	04:58	04:23	04:32	05:13	06:01	06:40-06:54/14	06:48	06:41	07:27
	15:49	16:40	17:30	19:21		20:10	20:49	20:51	20:12	19:07	18:00	16:00	15:30	
10	07:38	07:01	06:05	05:55	06:45-06:55/10	04:56	04:23	04:33	05:14	06:02	06:40-06:52/12	06:50	06:43	07:28
	15:50	16:42	17:31	19:23		20:11	20:50	20:51	20:10	19:05	17:57	15:58	15:30	
11	07:38	06:59	06:02	05:53	06:48-06:52/4	04:55	04:23	04:34	05:16	06:04	06:42-06:51/9	06:52	06:45	07:29
	15:52	16:44	17:33	19:24		20:13	20:50	20:50	20:08	19:03	17:55	15:56	15:30	
12	07:37	06:57	06:00	05:51		04:53	04:22	04:35	05:17	06:06		06:53	06:46	07:30
	15:53	16:46	17:35	19:26		20:14	20:51	20:49	20:06	19:01	17:53	15:55	15:30	
13	07:36	06:56	05:58	05:49		04:52	04:22	04:36	05:19	06:07		06:55	06:48	07:31
	15:55	16:47	17:36	19:28		20:16	20:52	20:48	20:04	18:58	17:51	15:54	15:30	
14	07:36	06:54	05:56	05:47		04:50	04:22	04:37	05:20	06:09		06:57	06:50	07:32
	15:56	16:49	17:38	19:29		20:17	20:52	20:48	20:02	18:56	17:49	15:52	15:30	
15	07:35	06:52	05:54	05:45		04:49	04:22	04:38	05:22	06:10		06:58	06:51	07:33
	15:58	16:51	17:40	19:31		20:19	20:53	20:47	20:00	18:54	17:47	15:51	15:30	
16	07:34	06:50	05:51	05:42	06:31-06:41/10	04:47	04:22	04:39	05:23	06:12		07:00	06:53	07:34
	15:59	16:53	17:41	19:33		20:20	20:53	20:46	19:58	18:51	17:45	15:49	15:30	
17	07:33	06:48	05:49	05:40	06:29-06:43/14	04:46	04:21	04:40	05:25	06:13	07:17-07:26/9	07:02	06:55	07:35
	16:01	16:55	17:43	19:34		20:22	20:54	20:45	19:56	18:49	17:43	15:48	15:30	
18	07:32	06:46	05:47	05:38	06:28-06:44/16	04:44	04:21	04:42	05:26	06:15	07:14-07:28/14	07:03	06:56	07:35
	16:02	16:56	17:45	19:36		20:23	20:54	20:44	19:54	18:47	17:40	15:47	15:31	
19	07:31	06:44	05:45	05:36	06:27-06:45/18	04:43	04:21	04:43	05:28	06:16	07:13-07:29/16	07:05	06:58	07:36
	16:04	16:58	17:46	19:37		20:25	20:55	20:43	19:52	18:45	17:38	15:46	15:31	
20	07:30	06:42	05:42	05:34	06:26-06:45/19	04:42	04:22	04:44	05:30	06:18	07:11-07:29/18	07:07	07:00	07:37
	16:05	17:00	17:48	19:39		20:26	20:55	20:42	19:50	18:42	17:36	15:44	15:31	
21	07:29	06:40	05:40	05:32	06:25-06:45/20	04:40	04:22	04:45	05:31	06:20	07:11-07:30/19	07:08	07:01	07:37
	16:07	17:02	17:50	19:41		20:27	20:55	20:40	19:48	18:40	17:34	15:43	15:32	
22	07:28	06:38	05:38	05:30	06:25-06:45/20	04:39	04:22	04:47	05:33	06:21	07:11-07:30/19	07:10	07:03	07:38
	16:09	17:04	17:51	19:42		20:29	20:55	20:39	19:46	18:38	17:32	15:42	15:32	
23	07:27	06:36	05:36	05:28	06:25-06:43/18	04:38	04:22	04:48	05:34	06:23	07:10-07:29/19	07:12	07:05	07:38
	16:10	17:05	17:53	19:44		20:30	20:56	20:38	19:44	18:36	17:30	15:41	15:33	
24	07:26	06:34	05:33	05:26	06:25-06:42/17	04:37	04:22	04:49	05:36	06:24	07:10-07:29/19	07:13	07:06	07:39
	16:12	17:07	17:55	19:46		20:31	20:56	20:37	19:42	18:33	17:28	15:40	15:33	
25	07:25	06:32	05:31	05:24	06:26-06:41/15	04:35	04:23	04:51	05:37	06:26	07:10-07:27/17	07:15	07:08	07:39
	16:14	17:09	17:56	19:47		20:33	20:56	20:35	19:40	18:31	17:26	15:39	15:34	
26	07:24	06:30	05:29	05:22	06:28-06:40/12	04:34	04:23	04:52	05:39	06:27	07:11-07:27/16	07:17	07:09	07:40
	16:15	17:11	17:58	19:49		20:34	20:56	20:34	19:38	18:29	17:24	15:38	15:34	
27	07:22	06:28	05:27	05:20	06:30-06:36/6	04:33	04:23	04:53	05:40	06:29	07:11-07:24/13	06:19	07:11	07:40
	16:17	17:12	18:00	19:51		20:35	20:56	20:33	19:36	18:26	16:22	15:37	15:35	
28	07:21	06:26	05:24	05:18		04:32	04:24	04:55	05:42	06:31	07:13-07:22/9	06:20	07:12	07:40
	16:19	17:14	18:01	19:52		20:37	20:56	20:31	19:34	18:24	16:20	15:36	15:36	
29	07:20		05:22	05:16		04:31	04:24	04:56	05:44	06:32		06:22	07:14	07:40
	16:21		18:03	19:54		20:38	20:56	20:30	19:32	18:22		16:19	15:36	15:37
30	07:18		05:20	05:14		04:30	04:25	04:58	05:45	06:34		06:24	07:15	07:40
	16:22		18:05	19:55		20:39	20:55	20:28	19:29	18:20		16:17	15:35	15:38
31	07:17		06:18			04:29		04:59	05:47			06:26		07:40
	16:24		19:06			20:40		20:27	19:27			16:15		15:38
Potential sun hours	262	279	367	414	481	494	498	452	381	320	333	270	248	
Sum of minutes with flicker	0	0	185	136	0	0	0	0	0	320	0	0	0	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG, graphical

Calculation: Analiza migotania cienia - wariant proponowany H = 138.4m, z=0,0[-]



Shadow receptors

A: SH1

E: SH5

F: SH5