

SHADOW - Main Result

Calculation: Scénario 1 : Worst + 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) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,58	3,05	3,17	4,85	6,15	5,19	6,45	6,12	4,77	3,14	2,23	1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
315	397	595	550	415	406	433	424	559	874	1.217	937

W	WNW	NW	NNW	Sum
559	442	322	315	8.760

Monthly aggregation of real case reduction

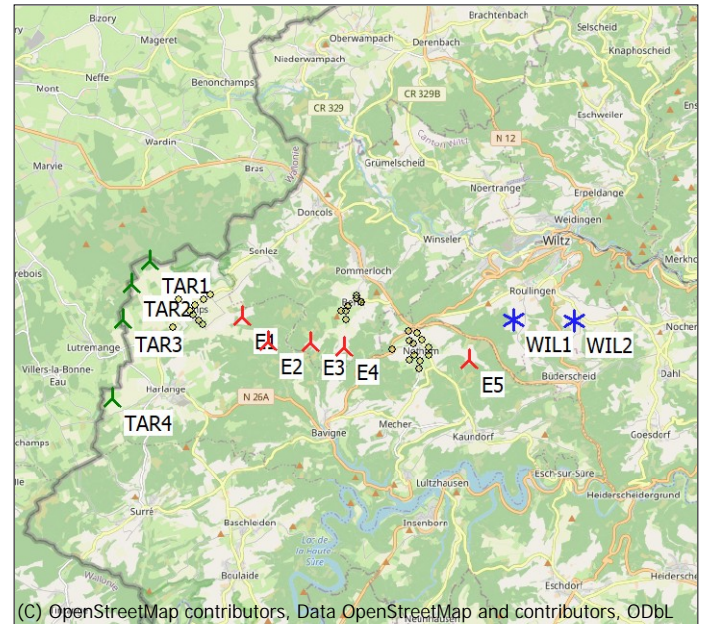
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

DHM: Maille-alti Assistant création projet (Luxembourgish Elevation Model - 5m)

Receptor grid resolution: 1,0 m

All coordinates are in

Luxemburgian TM-LUREF (LU)



Scale 1:200.000

▲ New WTG
● Shadow receptor

★ Existing WTG

WTGs

	X	Y	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
			[m]									[RPM]
E1	54.720	112.751	460,1	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0... Yes		NORDEX	N175/6.X-6.800	6.800	175,0	179,0	1.893	10,8
E2	55.403	112.090	436,0	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0... Yes		NORDEX	N175/6.X-6.800	6.800	175,0	179,0	1.893	10,8
E3	56.535	112.063	434,5	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0... Yes		NORDEX	N175/6.X-6.800	6.800	175,0	179,0	1.893	10,8
E4	57.437	111.911	467,5	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0... Yes		NORDEX	N175/6.X-6.800	6.800	175,0	179,0	1.893	10,8
E5	60.749	111.569	467,3	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0... Yes		NORDEX	N175/6.X-6.800	6.800	175,0	179,0	1.893	10,8
TAR1	52.294	114.234	526,2	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 1... No		ENERCON	E-92 2,3 MW-2.350	2.350	92,0	138,4	1.513	17,0
TAR2	51.790	113.630	528,2	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 1... No		ENERCON	E-92 2,3 MW-2.350	2.350	92,0	138,4	1.513	17,0
TAR3	51.570	112.690	498,3	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 1... No		ENERCON	E-92 2,3 MW-2.350	2.350	92,0	138,4	1.513	17,0
TAR4	51.285	110.605	453,8	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 1... No		ENERCON	E-92 2,3 MW-2.350	2.350	92,0	138,4	1.513	17,0
WIL1	61.912	112.655	497,4	ENERCON E-115 EP3 4000 115.7 !O! moyeu: 13... No		ENERCON	E-115 EP3-4.000	4.000	115,7	135,0	2.067	13,2
WIL2	63.517	112.598	468,3	ENERCON E-115 EP3 4000 115.7 !O! moyeu: 13... No		ENERCON	E-115 EP3-4.000	4.000	115,7	135,0	2.067	13,2

Shadow receptor-Input

No.	X	Y	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R0	53.043	113.207	490,1	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R01	52.886	112.477	466,5	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R02	53.683	112.531	499,4	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R03	53.578	112.668	489,3	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R04	53.436	112.801	465,3	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R05	53.327	112.917	472,2	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R06	53.497	113.049	474,5	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R07	53.698	113.194	477,9	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R08	53.888	113.334	482,2	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R09	57.344	112.905	496,3	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R10	57.535	113.025	491,1	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R11	57.488	112.892	491,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R12	57.466	112.667	483,6	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R13	57.768	113.207	492,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R14	57.898	113.115	485,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2

To be continued on next page...

SHADOW - Main Result

Calculation: Scénario 1 : Worst + real case

...continued from previous page

No.	X	Y	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R15	59.117	112.339	475,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R16	59.150	112.110	476,9	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R17	59.268	112.014	466,7	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R18	58.716	111.857	439,1	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R19	59.298	111.710	477,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R20	59.142	111.580	485,1	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R21	59.385	112.304	484,3	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R22	59.485	112.117	488,8	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R23	59.661	111.921	480,2	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R24	59.675	111.713	485,4	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R25	59.447	111.554	495,0	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R26	59.428	111.359	492,6	5,0	2,0	0,2	90,0	"Green house mode"	2,2
R27	57.759	113.293	493,0	5,0	2,0	0,2	90,0	"Green house mode"	2,2

Calculation Results

Shadow receptor

Shadow, worst case Shadow, expected values

No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
R0	15:31	62	0:24	3:01
R01	14:01	36	0:38	3:24
R02	37:03	88	0:40	9:11
R03	23:12	50	0:37	5:38
R04	17:05	41	0:32	3:42
R05	14:13	38	0:30	2:47
R06	17:28	42	0:32	3:02
R07	23:24	49	0:37	3:49
R08	33:58	64	0:42	4:54
R09	40:40	72	0:39	5:05
R10	31:26	72	0:32	3:59
R11	33:38	88	0:35	4:44
R12	51:34	103	0:42	7:39
R13	20:38	64	0:26	2:35
R14	12:31	50	0:25	1:56
R15	18:26	63	0:24	3:17
R16	19:02	62	0:24	3:31
R17	20:01	62	0:27	3:37
R18	18:08	44	0:32	4:16
R19	21:03	66	0:29	4:26
R20	20:38	67	0:26	4:36
R21	13:27	39	0:27	2:09
R22	15:51	41	0:31	2:37
R23	21:26	46	0:36	3:34
R24	23:29	48	0:38	4:41
R25	16:55	42	0:32	3:49
R26	17:47	45	0:31	4:29
R27	18:05	52	0:25	2:02

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

No.	Name	Worst case [h/year]	Expected [h/year]
E1	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (6)	153:48	30:17
E2	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (7)	5:53	0:56
E3	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (8)	86:47	13:12
E4	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (9)	81:36	14:55
E5	NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (10)	107:24	21:18
TAR1	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 138,4 m (TOT: 184,4 m) (16)	0:00	0:00
TAR2	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 138,4 m (TOT: 184,4 m) (17)	7:11	1:40
TAR3	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 138,4 m (TOT: 184,4 m) (18)	5:18	1:13
TAR4	ENERCON E-92 2,3 MW 2350 92.0 !-! moyeu: 138,4 m (TOT: 184,4 m) (20)	0:00	0:00
WIL1	ENERCON E-115 EP3 4000 115.7 !O! moyeu: 135,0 m (TOT: 192,9 m) (2)	0:00	0:00
WIL2	ENERCON E-115 EP3 4000 115.7 !O! moyeu: 135,0 m (TOT: 192,9 m) (3)	0:00	0:00

Project:
Eeschpelt - Bârel

Licensed user:
Embridge
Route de Hannut, 55
BE-5000 Namur



Nicolas Jorion / nicolasj@embridge.be
Calculated:
05-06-25 16:09/4.1.254

SHADOW - Main Result

Calculation: Scénario 1 : Worst + real case

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R0 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (53)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June
1	08:36 16:46	08:12 17:30	07:23 18:18	07:45 (E1) 07:57 (E1)	07:16 20:08	06:16 21:37
2	08:36 16:47	08:11 17:32	07:21 18:20	07:43 (E1) 07:58 (E1)	07:14 20:09	06:14 21:38
3	08:36 16:48	08:09 17:34	07:18 18:21	07:41 (E1) 07:59 (E1)	07:12 20:11	06:12 21:39
4	08:36 16:49	08:08 17:35	07:16 18:23	07:39 (E1) 07:59 (E1)	07:10 20:13	06:10 21:40
5	08:35 16:50	08:06 17:37	07:14 18:25	07:37 (E1) 07:59 (E1)	07:08 20:14	06:09 21:41
6	08:35 16:51	08:05 17:39	07:12 18:26	07:34 (E1) 07:58 (E1)	07:05 20:16	06:07 21:42
7	08:35 16:52	08:03 17:41	07:10 18:28	07:34 (E1) 07:58 (E1)	07:03 20:17	06:05 21:43
8	08:34 16:54	08:01 17:42	07:08 18:30	07:35 (E1) 07:57 (E1)	07:01 20:19	06:04 21:44
9	08:34 16:55	08:00 17:44	07:06 18:31	07:35 (E1) 07:57 (E1)	06:59 20:20	06:02 21:45
10	08:34 16:56	07:58 17:46	07:04 18:33	07:36 (E1) 07:56 (E1)	06:57 20:22	06:00 21:46
11	08:33 16:57	07:56 17:48	07:02 18:35	07:37 (E1) 07:54 (E1)	06:55 20:23	05:59 21:47
12	08:33 16:59	07:55 17:49	07:00 18:36	07:38 (E1) 07:51 (E1)	06:53 20:25	05:57 21:48
13	08:32 17:00	07:53 17:51	06:57 18:38	07:41 (E1) 07:48 (E1)	06:51 20:27	05:56 21:49
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	05:54 21:14	05:54 21:47
15	08:31 17:03	07:50 17:54	06:53 18:41	06:47 20:30	05:53 21:15	05:53 21:48
16	08:30 17:05	07:48 17:56	06:51 18:43	06:44 20:31	05:52 21:17	05:52 21:48
17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:33	05:50 21:18	05:50 21:49
18	08:28 17:08	07:44 18:00	06:47 18:46	06:40 20:34	05:49 21:20	05:49 21:49
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	05:48 21:21	05:48 21:49
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:38	05:46 21:22	05:46 21:50
21	08:25 17:12	07:38 18:05	06:40 18:51	06:34 20:39	05:45 21:24	05:45 21:50
22	08:24 17:14	07:36 18:06	06:38 18:52	06:32 20:41	05:44 21:25	05:44 21:50
23	08:23 17:15	07:35 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:43 21:50
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	05:42 21:27	05:42 21:50
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	05:40 21:29	05:40 21:50
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	05:39 21:30	05:39 21:50
27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	05:38 21:31	05:38 21:50
28	08:17 17:24	07:25 18:16	06:25 19:02	06:21 20:50	05:37 21:32	05:37 21:50
29	08:16 17:25		07:23 20:03	06:19 20:51	05:37 21:33	05:37 21:50
30	08:15 17:27		07:21 20:05	06:17 20:53	05:36 21:34	05:36 21:50
31	08:13 17:29		07:18 20:06		05:35 21:36	
Potential sun hours	267	282	368	412	477	488
Total, worst case		14	236		214	
Sun reduction		0,30	0,27		0,40	
Oper. time red.		1,00	1,00		1,00	
Wind dir. red.		0,58	0,58		0,57	
Total reduction		0,17	0,15		0,23	
Total, real		2	36		49	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R0 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (53)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	July	August	September	October	November	December
1	05:32 21:50	06:05 21:21	20:12 (TAR2) 20:23	06:51 19:18	08:19 (E1) 17:16	08:13 16:39
2	05:33 21:50	06:07 21:20	20:12 (TAR2) 20:21	06:52 19:16	08:16 (E1) 17:14	08:14 16:39
3	05:33 21:49	06:08 21:18	20:11 (TAR2) 20:19	06:54 19:13	08:14 (E1) 17:13	08:15 16:38
4	05:34 21:49	06:10 21:16	20:12 (TAR2) 20:17	06:55 19:11	08:12 (E1) 17:11	08:17 16:38
5	05:35 21:48	06:11 21:15	20:12 (TAR2) 20:15	06:57 19:09	08:12 (E1) 17:09	08:18 16:37
6	05:35 21:48	06:13 21:13	20:11 (TAR2) 20:13	06:58 19:07	08:11 (E1) 17:08	08:19 16:37
7	05:36 21:47	06:14 21:11	20:13 (TAR2) 20:10	07:00 19:05	08:10 (E1) 17:06	08:20 16:36
8	05:37 21:47	06:15 21:10	20:13 (TAR2) 20:08	07:01 19:03	08:11 (E1) 17:04	08:21 16:36
9	05:38 21:46	06:17 21:08	20:14 (TAR2) 20:06	07:03 19:01	08:12 (E1) 17:03	08:23 16:36
10	05:39 21:46	06:18 21:06	20:17 (TAR2) 20:04	07:04 18:59	08:14 (E1) 17:02	08:24 16:36
11	05:40 21:45	06:20 21:05	20:22 (TAR2) 20:02	07:04 18:56	08:16 (E1) 17:00	08:25 16:36
12	05:41 21:44	06:21 21:03	20:02 20:00	07:07 18:54	08:17 (E1) 16:59	08:26 16:36
13	05:42 21:43	06:23 21:01	07:09 19:57	07:54 18:52	08:19 (E1) 16:57	08:27 16:36
14	05:43 21:43	06:24 20:59	07:10 19:55	07:56 18:50	08:21 (E1) 16:56	08:28 16:36
15	05:44 21:42	06:26 20:57	07:12 19:53	07:58 18:48	08:22 (E1) 16:55	08:28 16:36
16	05:45 21:41	06:27 20:55	07:13 19:51	07:59 18:46	07:50 16:53	08:29 16:36
17	05:46 21:40	06:29 20:53	07:15 19:49	08:01 18:44	07:52 16:52	08:30 16:36
18	05:47 21:39	06:30 20:52	07:16 19:46	08:02 18:42	07:53 16:51	08:31 16:36
19	05:49 21:38	06:32 20:50	07:18 19:44	08:04 18:40	07:55 16:50	08:31 16:37
20	05:50 21:37	06:33 20:48	07:19 19:42	08:06 18:38	07:57 16:49	08:32 16:37
21	05:51 21:36	06:35 20:46	07:21 19:40	08:07 18:36	07:58 16:48	08:33 16:37
22	05:52 21:35	06:36 20:44	07:22 19:38	08:09 18:34	08:00 16:46	08:33 16:38
23	05:53 21:33	06:38 20:42	07:24 19:35	08:11 18:32	08:01 16:45	08:34 16:38
24	05:55 21:32	06:39 20:40	07:25 19:33	08:12 18:30	08:03 16:45	08:34 16:39
25	05:56 21:31	06:41 20:38	07:27 19:31	07:14 17:29	08:04 16:44	08:34 16:40
26	05:57 21:30	20:17 (TAR2) 20:24 (TAR2)	06:42 20:36	07:28 17:27	08:06 16:43	08:35 16:40
27	05:59 21:28	20:15 (TAR2) 20:25 (TAR2)	06:44 20:34	07:30 17:25	08:07 16:42	08:35 16:41
28	06:00 21:27	20:14 (TAR2) 20:26 (TAR2)	06:45 20:32	07:31 17:23	08:09 16:41	08:35 16:42
29	06:01 21:25	20:14 (TAR2) 20:28 (TAR2)	06:46 20:30	07:33 17:21	08:10 16:40	08:36 16:43
30	06:03 21:24	20:13 (TAR2) 20:28 (TAR2)	06:48 20:27	07:34 17:19	08:11 16:40	08:36 16:44
31	06:04 21:23	20:12 (TAR2) 20:28 (TAR2)	06:49 20:25	07:24 17:18	08:12 16:44	08:36 16:44
Potential sun hours	492	448	380	334	273	253
Total, worst case	74	143		250		
Sun reduction	0,41	0,42		0,29		
Oper. time red.	1,00	1,00		1,00		
Wind dir. red.	0,57	0,57		0,58		
Total reduction	0,23	0,24		0,17		
Total, real	17	35		42		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R01 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (27)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:05 21:21	06:51 20:23	07:16 (E1) 17	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:21 18:20	07:14 20:09	06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:19	06:52 20:21	07:17 (E1) 15	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:18 18:21	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:19 (E1) 11	07:39 19:13	07:29 17:13	08:15 16:38
4	08:36 16:49	08:08 17:35	07:16 18:23	07:10 20:13	06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:55 20:17	07:20 (E1) 7	07:40 19:11	07:30 17:11	08:17 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	06:09 21:01	05:31 21:40	05:35 21:48	06:11 21:15	06:57 20:15	07:27 (E1)	07:42 19:09	07:32 17:09	08:18 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	07:05 20:16	06:07 21:02	05:31 21:41	05:36 21:48	06:13 21:13	06:58 20:13		07:44 19:07	07:34 17:08	08:19 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17	06:05 21:04	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10		07:45 19:05	07:35 17:06	08:20 16:37
8	08:34 16:54	08:01 17:42	07:08 18:30	07:01 20:19	06:04 21:05	05:30 21:43	05:37 21:47	06:15 21:10	07:01 20:08		07:47 19:03	07:37 17:05	08:21 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20	06:02 21:07	05:29 21:44	05:38 21:46	06:17 21:08	07:03 20:06		07:48 19:01	07:39 17:03	08:23 16:36
10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22	06:00 21:08	05:29 21:45	05:39 21:46	06:18 21:06	07:04 20:04		07:50 18:59	07:40 17:02	08:24 16:36
11	08:33 16:57	07:56 17:48	07:02 18:35	06:55 20:23	06:00 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02		07:51 18:56	07:42 17:00	08:25 16:36
12	08:33 16:59	07:55 17:49	07:00 18:36	06:53 20:25	06:00 21:11	05:28 21:46	05:41 21:44	06:21 21:03	07:07 20:00		07:53 18:54	07:44 16:59	08:26 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	06:00 21:12	05:28 21:47	05:42 21:43	06:23 21:01	07:09 19:57		07:54 18:52	07:45 16:57	08:27 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	06:00 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55		07:56 18:50	07:47 16:56	08:27 16:36
15	08:31 17:03	07:50 17:54	06:53 18:41	06:47 20:30	06:00 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53		07:58 18:48	07:49 16:55	08:28 16:36
16	08:30 17:05	07:48 17:56	06:51 18:43	06:45 20:31	06:00 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51		07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:33	06:00 21:18	05:28 21:49	05:46 21:40	06:29 20:53	07:15 19:49		08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:08	07:44 18:00	06:47 18:46	06:40 20:34	06:00 21:20	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:53	19:46 (TAR3)	08:02 18:42	07:53 16:51	08:31 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	06:00 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:54	19:43 (TAR3) 11	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:38	06:00 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:56	19:42 (TAR3) 14	08:06 18:38	07:56 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:51	06:34 20:39	06:00 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:56	07:21 (E1) 25	08:07 18:36	07:58 16:48	08:33 16:38
22	08:24 17:14	07:36 18:06	06:38 18:52	06:32 20:41	06:00 21:25	05:28 21:50	05:52 21:35	06:36 20:44	07:22 19:57	07:19 (E1) 31	08:09 18:34	08:00 16:47	08:33 16:38
23	08:23 17:15	07:35 18:08	06:36 18:54	06:31 20:42	06:00 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:56	07:17 (E1) 33	08:11 18:32	08:01 16:46	08:34 16:39
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	06:00 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:56	07:16 (E1) 36	08:12 18:30	08:03 16:45	08:34 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	06:00 21:29	05:29 21:50	05:56 21:31	06:41 20:38	07:27 19:56	07:15 (E1) 38	08:14 18:29	08:04 16:44	08:34 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	06:00 21:30	05:29 21:50	05:57 21:30	06:42 20:36	07:28 19:54	07:14 (E1) 37	08:15 18:27	08:06 16:43	08:35 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	06:00 21:31	05:30 21:50	05:59 21:28	06:44 20:34	07:30 19:54	07:14 (E1) 36	08:17 18:25	08:07 16:42	08:35 16:41
28	08:17 17:24	07:25 18:16	06:25 19:02	06:21 20:50	06:00 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:52	07:13 (E1) 34	08:19 18:24	08:09 16:41	08:35 16:42
29	08:16 17:25		07:23 20:03	06:19 20:51	06:00 21:33	05:31 21:50	06:01 21:25	06:47 20:30	07:33 19:50	07:14 (E1) 29	08:20 18:22	08:10 16:41	08:36 16:43
30	08:15 17:27		07:21 20:05	06:17 20:53	06:00 21:34	05:31 21:50	06:03 21:24	06:48 20:27	07:34 19:20	07:13 (E1) 22	08:22 18:19	08:11 16:40	08:36 16:44
31	08:13 17:29		07:18 20:06		06:00 21:36	05:35 21:36	06:04 21:23	06:49 20:25	07:34 (E1)		08:24 18:18	08:12 16:44	08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380		334	273	254
Total, worst case				418					50				
Sun reduction				0,35					0,38				
Oper. time red.				1,00					1,00				
Wind dir. red.				0,63					0,63				
Total reduction				0,22					0,25				
Total, real				93				99	12				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R02 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (28)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,58	3,05	3,17	4,85	6,15	5,19	6,45	6,12	4,77	3,14	2,23	1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June
1	08:36 16:46	08:12 17:30	07:23 18:18	07:45 (E2) 20:08	06:16 20:55	06:56 (E1) 21:37
2	08:36 16:47	08:11 17:32	07:20 18:20	07:43 (E2) 20:09	06:14 20:56	06:56 (E1) 21:38
3	08:36 16:48	08:09 17:34	07:18 18:21	07:41 (E2) 20:11	06:12 20:58	06:56 (E1) 21:39
4	08:35 16:49	08:08 17:35	07:16 18:23	07:39 (E2) 20:12	06:10 20:59	06:57 (E1) 21:40
5	08:35 16:50	08:06 17:37	07:14 18:25	07:36 (E2) 20:14	06:09 21:01	06:58 (E1) 21:40
6	08:35 16:51	08:05 17:39	07:12 18:26	07:34 (E2) 20:16	06:07 21:02	06:59 (E1) 21:41
7	08:35 16:52	08:03 17:41	07:10 18:28	07:32 (E2) 20:17	06:05 21:04	06:59 (E1) 21:42
8	08:34 16:54	08:01 17:42	07:08 18:30	07:30 (E2) 20:19	06:04 21:05	07:00 (E1) 21:43
9	08:34 16:55	08:00 17:44	07:06 18:31	07:31 (E2) 20:20	06:02 21:07	07:02 (E1) 21:44
10	08:34 16:56	07:58 17:46	07:04 18:33	07:32 (E2) 20:22	06:00 21:08	07:03 (E1) 21:45
11	08:33 16:57	07:56 17:48	07:02 18:34	07:34 (E2) 20:23	05:59 21:10	07:05 (E1) 21:45
12	08:32 16:59	07:55 17:49	07:00 18:36	07:36 (E2) 20:25	05:57 21:11	07:08 (E1) 21:46
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	07:13 (E1) 21:12	05:56 21:46
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	07:11 (E1) 21:14	05:54 21:47
15	08:31 17:03	07:49 17:54	06:53 18:41	06:47 20:30	07:09 (E1) 21:15	05:53 21:48
16	08:30 17:04	07:48 17:56	06:51 18:43	06:44 20:31	07:07 (E1) 21:17	05:52 21:48
17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:33	07:05 (E1) 21:18	05:50 21:48
18	08:28 17:07	07:44 18:00	06:47 18:46	06:40 20:34	07:03 (E1) 21:19	05:49 21:49
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	07:01 (E1) 21:21	05:48 21:49
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:37	07:00 (E1) 21:22	05:46 21:50
21	08:25 17:12	07:38 18:05	06:40 18:50	06:34 20:39	06:59 (E1) 21:23	05:45 21:50
22	08:24 17:14	07:36 18:06	06:38 18:52	06:32 20:41	07:35 (E1) 21:25	05:44 21:50
23	08:23 17:15	07:34 18:08	06:36 18:54	06:30 20:42	06:57 (E1) 21:26	05:43 21:50
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	06:56 (E1) 21:27	05:42 21:50
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	06:56 (E1) 21:29	05:40 21:50
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	06:55 (E1) 21:30	05:39 21:50
27	08:19 17:22	07:27 18:15	07:49 (E2) 19:00	06:23 20:48	06:56 (E1) 21:31	05:38 21:50
28	08:17 17:24	07:25 18:16	07:47 (E2) 19:02	06:21 20:50	06:56 (E1) 21:32	05:37 21:50
29	08:16 17:25		07:51 (E2) 19:02	06:19 20:51	06:55 (E1) 21:33	05:37 21:50
30	08:15 17:27			06:17 20:53	06:55 (E1) 21:34	05:36 21:50
31	08:13 17:29			07:18 20:53	07:34 (E1) 21:34	05:35 21:50
Potential sun hours	267	282	368	412	477	488
Total, worst case						
Sun reduction		5	171	594	336	
Oper. time red.		0,30	0,27	0,35	0,40	
Wind dir. red.		1,00	1,00	1,00	1,00	
Total reduction		0,58	0,58	0,67	0,67	
Total, real		0,17	0,15	0,24	0,27	
		1	26	140	89	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R02 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (28)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	July	August	September	October	November	December
1	05:32 21:50	06:05 21:21	07:17 (E1) 07:31 (E1)	06:51 20:23	07:36 19:18	07:25 17:16
2	05:33 21:49	06:07 21:19	07:15 (E1) 07:33 (E1)	06:52 20:21	07:37 19:16	08:13 (E2) 17:14
3	05:33 21:49	06:08 21:18	07:12 (E1) 07:34 (E1)	06:54 20:19	07:39 19:13	08:11 (E2) 17:12
4	05:34 21:49	06:10 21:16	07:12 (E1) 07:36 (E1)	06:55 20:17	07:40 19:11	08:08 (E2) 17:11
5	05:35 21:48	06:11 21:15	07:10 (E1) 07:37 (E1)	06:57 20:15	07:42 19:09	08:07 (E2) 17:09
6	05:35 21:48	06:13 21:13	07:09 (E1) 07:38 (E1)	06:58 20:13	07:44 19:07	08:08 (E2) 17:08
7	05:36 21:47	06:14 21:11	07:08 (E1) 07:40 (E1)	07:00 20:10	07:45 19:05	08:09 (E2) 17:06
8	05:37 21:47	06:15 21:10	07:07 (E1) 07:40 (E1)	07:01 20:08	07:47 19:03	08:11 (E2) 17:04
9	05:38 21:46	06:17 21:08	07:06 (E1) 07:40 (E1)	07:03 20:06	07:48 19:01	08:12 (E2) 17:03
10	05:39 21:46	06:18 21:06	07:06 (E1) 07:41 (E1)	07:04 20:04	07:50 18:59	08:14 (E2) 17:01
11	05:40 21:45	06:20 21:04	07:05 (E1) 07:42 (E1)	07:06 20:02	07:51 18:56	08:16 (E2) 17:00
12	05:41 21:44	06:21 21:03	07:05 (E1) 07:42 (E1)	07:07 19:59	07:53 18:54	08:17 (E2) 16:59
13	05:42 21:43	06:23 21:01	07:04 (E1) 07:42 (E1)	07:09 19:57	07:54 18:52	08:19 (E2) 16:57
14	05:43 21:43	06:24 20:59	07:03 (E1) 07:42 (E1)	07:10 19:55	07:56 18:50	08:21 (E2) 16:56
15	05:44 21:42	06:26 20:57	07:03 (E1) 07:43 (E1)	07:12 19:53	07:58 18:48	08:24 (E2) 16:55
16	05:45 21:41	06:27 20:55	07:03 (E1) 07:42 (E1)	07:13 19:51	07:59 18:46	08:26 (E2) 16:53
17	05:46 21:40	06:29 20:53	07:03 (E1) 07:43 (E1)	07:15 19:48	08:01 18:44	08:28 (E2) 16:52
18	05:47 21:39	06:30 20:52	07:03 (E1) 07:42 (E1)	07:16 19:46	08:02 18:42	08:30 (E2) 16:51
19	05:49 21:38	06:32 20:50	07:02 (E1) 07:41 (E1)	07:18 19:44	08:04 18:40	08:32 (E2) 16:50
20	05:50 21:37	06:33 20:48	07:03 (E1) 07:41 (E1)	07:19 19:42	08:06 18:38	08:34 (E2) 16:49
21	05:51 21:36	06:35 20:46	07:03 (E1) 07:40 (E1)	07:21 19:40	08:07 18:36	08:36 (E2) 16:48
22	05:52 21:34	06:36 20:44	07:03 (E1) 07:40 (E1)	07:22 19:37	08:09 18:34	08:38 (E2) 16:46
23	05:53 21:33	06:38 20:42	07:03 (E1) 07:39 (E1)	07:24 19:35	08:11 18:32	08:40 (E2) 16:45
24	05:55 21:32	06:39 20:40	07:04 (E1) 07:37 (E1)	07:25 19:33	08:12 18:30	08:42 (E2) 16:44
25	05:56 21:31	06:40 20:38	07:06 (E1) 07:37 (E1)	07:27 19:31	08:14 17:28	08:44 (E2) 16:43
26	05:57 21:29	06:42 20:36	07:07 (E1) 07:35 (E1)	07:28 19:29	08:15 17:27	08:46 (E2) 16:42
27	05:59 21:28	06:43 20:34	07:09 (E1) 07:34 (E1)	07:30 19:26	08:17 17:25	08:48 (E2) 16:41
28	06:00 21:27	06:45 20:32	07:10 (E1) 07:31 (E1)	07:31 19:24	08:19 17:23	08:50 (E2) 16:40
29	06:01 21:25	06:46 20:29	07:12 (E1) 07:30 (E1)	07:33 19:22	08:20 17:21	08:52 (E2) 16:39
30	06:03 21:24	06:48 20:27	07:13 (E1) 07:26 (E1)	07:34 19:20	08:22 17:19	08:54 (E2) 16:38
31	06:04 21:22	06:49 20:25			08:24 17:18	08:56 (E2) 16:37
Potential sun hours	492	448	380	334	273	254
Total, worst case	7	933		177		
Sun reduction	0,41	0,42		0,29		
Oper. time red.	1,00	1,00		1,00		
Wind dir. red.	0,67	0,67		0,58		
Total reduction	0,27	0,28		0,17		
Total, real	2	263		30		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R03 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (29)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	07:39 (E1) 20:55	06:16 21:37	05:32 21:50	06:05 21:21	06:51 20:23	07:24 (E1) 19:18	07:36 17:16	07:25 16:39
2	08:36 16:47	08:11 17:32	07:20 18:20	07:14 20:09	07:36 (E1) 20:56	06:14 21:38	05:33 21:50	06:07 21:19	06:52 20:21	07:24 (E1) 19:16	07:37 17:14	07:27 16:39
3	08:36 16:48	08:09 17:34	07:18 18:21	07:12 20:11	07:34 (E1) 20:58	06:12 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:24 (E1) 19:13	07:39 17:12	07:29 16:38
4	08:35 16:49	08:08 17:35	07:16 18:23	07:10 20:12	07:31 (E1) 20:59	06:10 21:40	05:34 21:49	06:10 21:16	06:55 20:17	07:24 (E1) 19:11	07:40 17:11	07:30 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	07:30 (E1) 21:01	06:09 21:40	05:31 21:48	06:11 21:15	06:57 20:15	07:24 (E1) 19:09	07:42 17:09	07:32 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	07:05 20:16	07:29 (E1) 21:02	06:07 21:41	05:35 21:48	06:13 21:13	06:58 20:13	07:25 (E1) 19:07	07:44 17:08	07:34 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17	07:28 (E1) 21:04	06:05 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:25 (E1) 19:05	07:45 17:06	07:35 16:36
8	08:34 16:54	08:01 17:42	07:08 18:30	07:01 20:19	07:27 (E1) 21:05	06:04 21:43	05:37 21:47	06:15 21:10	07:01 20:08	07:26 (E1) 19:03	07:47 17:04	07:37 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20	07:26 (E1) 21:07	06:02 21:44	05:38 21:46	06:17 21:08	07:03 20:06	07:27 (E1) 19:01	07:48 17:03	07:39 16:36
10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22	07:26 (E1) 21:08	06:00 21:45	05:39 21:46	06:18 21:06	07:04 20:04	07:29 (E1) 18:59	07:50 17:01	07:40 16:36
11	08:33 16:57	07:56 17:48	07:02 18:34	06:55 20:23	07:25 (E1) 21:10	05:59 21:45	05:40 21:45	06:20 21:04	07:06 20:02	07:31 (E1) 18:56	07:51 17:00	07:42 16:36
12	08:32 16:59	07:55 17:49	07:00 18:36	06:53 20:25	07:25 (E1) 21:11	05:57 21:46	05:41 21:44	06:21 21:03	07:07 19:59	07:35 (E1) 18:54	07:53 17:00	07:44 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	07:25 (E1) 21:12	05:56 21:46	05:42 21:43	06:23 21:01	07:09 19:57	07:44 (E1) 18:52	07:54 17:00	07:45 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	07:25 (E1) 21:14	05:54 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:45 (E1) 18:50	07:56 17:00	07:47 16:36
15	08:31 17:03	07:49 17:54	06:53 18:41	06:47 20:30	07:25 (E1) 21:15	05:53 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:46 (E1) 18:48	07:58 17:00	07:48 16:36
16	08:30 17:04	07:48 17:56	06:51 18:43	06:44 20:31	07:25 (E1) 21:17	05:52 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:47 (E1) 18:46	07:59 17:00	07:50 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:33	07:26 (E1) 21:18	05:50 21:49	05:46 21:40	06:29 20:53	07:15 19:48	07:48 (E1) 18:44	08:01 17:00	07:52 16:36
18	08:28 17:07	07:44 18:00	06:47 18:46	06:40 20:34	07:26 (E1) 21:19	05:49 21:49	05:47 21:39	06:30 20:52	07:16 19:46	07:49 (E1) 18:42	08:02 17:00	07:53 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	07:27 (E1) 21:21	05:48 21:49	05:49 21:38	06:32 20:50	07:18 19:44	07:41 (E1) 18:40	08:04 17:00	07:55 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:37	07:28 (E1) 21:22	05:46 21:50	05:50 21:37	06:33 20:48	07:19 19:42	07:37 (E1) 18:38	08:06 17:00	07:56 16:37
21	08:25 17:12	07:38 18:05	06:40 18:50	06:34 20:39	07:29 (E1) 21:23	05:45 21:50	05:51 21:36	06:35 20:46	07:21 19:40	07:35 (E1) 18:36	08:07 17:00	07:58 16:37
22	08:24 17:14	07:36 18:06	06:38 18:52	06:32 20:41	07:30 (E1) 21:25	05:44 21:50	05:52 21:34	06:36 20:44	07:22 19:37	07:33 (E1) 18:34	08:09 17:00	08:00 16:38
23	08:23 17:15	07:34 18:08	06:36 18:54	06:30 20:42	07:32 (E1) 21:26	05:43 21:50	05:53 21:33	06:38 20:42	07:24 19:35	07:31 (E1) 18:32	08:11 17:00	08:01 16:38
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	07:36 (E1) 21:27	05:42 21:50	05:55 21:32	06:39 20:40	07:25 19:33	07:30 (E1) 18:30	08:12 17:00	08:03 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	07:43 (E1) 21:29	05:40 21:50	05:56 21:31	06:41 20:38	07:27 19:31	07:29 (E1) 18:28	08:14 17:00	08:04 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	07:43 (E1) 21:30	05:39 21:50	05:57 21:29	06:42 20:36	07:28 19:29	07:27 (E1) 18:27	08:15 17:00	08:06 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	07:43 (E1) 21:31	05:38 21:50	05:59 21:28	06:43 20:34	07:30 19:27	07:27 (E1) 18:24	08:17 17:00	08:07 16:41
28	08:17 17:24	07:25 18:16	06:25 19:02	06:21 20:50	07:43 (E1) 21:32	05:37 21:50	06:00 21:27	06:45 20:32	07:31 19:24	07:26 (E1) 18:21	08:19 17:00	08:09 16:42
29	08:16 17:25	07:23 18:17	06:23 19:03	06:19 20:51	07:43 (E1) 21:33	05:37 21:50	06:01 21:25	06:46 20:29	07:33 19:22	07:26 (E1) 18:19	08:20 17:00	08:10 16:43
30	08:15 17:27	07:22 18:18	06:22 19:04	06:18 20:52	07:43 (E1) 21:34	05:36 21:50	06:03 21:24	06:48 20:27	07:34 19:20	07:25 (E1) 18:17	08:21 17:00	08:11 16:44
31	08:13 17:29	07:18 18:06	07:43 (E1) 19:01	07:50 (E1) 20:53	07:43 (E1) 21:35	05:35 21:50	06:04 21:22	06:49 20:25	07:24 (E1) 19:20	07:24 (E1) 18:15	08:22 17:00	08:12 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case			7	686				363	336			
Sun reduction			0,27	0,35				0,42	0,38			
Oper. time red.			1,00	1,00				1,00	1,00			
Wind dir. red.			0,64	0,64				0,64	0,64			
Total reduction			0,17	0,23				0,27	0,24			
Total, real			1	156				99	82			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R04 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (30)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	07:51 (E1) 20:55	06:16 21:37	05:34 21:50	05:32 21:21	06:05 20:23	06:51 20:23	07:57 (E1) 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:20 18:20	07:14 20:09	07:50 (E1) 20:56	06:14 21:38	05:33 21:50	05:33 21:19	06:07 20:21	06:52 20:21	07:53 (E1) 19:16	07:37 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:18 18:21	07:12 20:11	07:50 (E1) 20:58	06:12 21:39	05:33 21:49	05:33 21:18	06:08 20:19	06:54 20:19	07:51 (E1) 19:13	07:39 17:12	08:15 16:38
4	08:36 16:49	08:08 17:35	07:16 18:23	07:10 20:12	07:50 (E1) 20:59	06:10 21:40	05:32 21:49	05:34 21:16	06:10 20:17	06:55 20:17	07:49 (E1) 19:11	07:40 17:11	08:17 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	07:50 (E1) 21:01	06:09 21:40	05:31 21:48	06:11 21:15	06:57 20:15	07:48 (E1) 20:15	07:42 19:09	07:32 17:09	08:18 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	07:05 20:16	07:50 (E1) 21:02	06:07 21:41	05:35 21:48	06:13 21:13	06:58 20:13	07:47 (E1) 20:13	07:44 19:07	07:34 17:08	08:19 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17	07:51 (E1) 21:04	06:05 21:42	05:30 21:47	06:14 21:11	07:00 20:10	07:45 (E1) 20:08	07:45 19:05	07:35 17:06	08:20 16:36
8	08:34 16:54	08:01 17:42	07:08 18:30	07:01 20:19	07:52 (E1) 21:05	06:04 21:43	05:30 21:47	06:15 21:10	07:01 20:08	07:45 (E1) 20:08	07:47 19:03	07:37 17:04	08:21 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20	07:53 (E1) 21:07	06:02 21:44	05:29 21:46	06:17 21:08	07:03 20:06	07:44 (E1) 20:06	07:48 19:01	07:39 17:03	08:23 16:36
10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22	07:55 (E1) 21:08	06:00 21:45	05:29 21:46	06:18 21:06	07:04 20:04	07:44 (E1) 20:04	07:50 18:59	07:40 17:01	08:24 16:36
11	08:33 16:57	07:56 17:48	07:02 18:34	06:55 20:23	07:58 (E1) 21:10	05:59 21:45	05:29 21:45	06:20 21:05	07:06 20:02	07:43 (E1) 20:02	07:51 18:56	07:42 17:00	08:25 16:36
12	08:32 16:59	07:55 17:49	07:00 18:36	06:53 20:25	08:08 (E1) 21:11	05:57 21:46	05:28 21:44	06:21 21:03	07:07 19:59	07:43 (E1) 20:02	07:53 18:54	07:44 16:59	08:26 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	05:56 21:12	05:28 21:46	05:42 21:43	06:23 21:01	07:09 19:57	07:43 (E1) 20:02	07:54 18:52	07:45 16:57	08:27 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	05:54 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:42 (E1) 20:02	07:56 18:50	07:47 16:56	08:27 16:36
15	08:31 17:03	07:49 17:54	06:53 18:41	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:43 (E1) 20:02	07:58 18:48	07:48 16:55	08:28 16:36
16	08:30 17:04	07:48 17:56	06:51 18:43	06:44 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:43 (E1) 20:02	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:32	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:53	07:15 19:49	07:44 (E1) 20:02	08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:07	07:44 18:00	06:47 18:46	06:40 20:34	05:49 21:19	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:46	07:45 (E1) 20:02	08:02 18:42	07:53 16:51	08:31 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:44	07:47 (E1) 20:02	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	07:48 (E1) 20:02	08:06 18:38	07:56 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:50	06:34 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	07:53 (E1) 20:02	08:07 18:36	07:58 16:48	08:33 16:37
22	08:24 17:14	07:36 18:06	06:38 18:52	06:32 20:41	05:44 21:25	05:28 21:50	05:52 21:34	06:36 20:44	07:22 19:37	07:59 (E1) 20:02	08:09 18:34	08:00 16:46	08:33 16:38
23	08:23 17:15	07:34 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:35	07:43 (E1) 20:02	08:11 18:32	08:01 16:45	08:34 16:38
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	07:43 (E1) 20:02	08:12 18:30	08:03 16:45	08:34 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	05:40 21:29	05:29 21:50	05:56 21:31	06:41 20:38	07:27 19:31	07:43 (E1) 20:02	08:14 18:28	08:04 16:44	08:34 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	05:39 21:30	05:29 21:50	05:57 21:30	06:42 20:36	07:28 19:29	07:43 (E1) 20:02	08:15 18:27	08:06 16:43	08:35 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:59 21:28	06:43 20:34	07:30 19:27	07:43 (E1) 20:02	08:17 18:25	08:07 16:42	08:35 16:41
28	08:17 17:24	07:25 18:16	06:25 19:02	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:24	07:43 (E1) 20:02	08:19 18:23	08:09 16:41	08:35 16:42
29	08:16 17:25	07:23 18:16	06:23 19:03	06:19 20:51	05:37 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:33 19:22	07:43 (E1) 20:02	08:20 18:21	08:10 16:40	08:36 16:43
30	08:15 17:27	07:20 18:15	06:20 19:00	06:17 20:53	05:36 21:34	05:31 21:50	06:03 21:24	06:48 20:27	07:34 19:20	07:43 (E1) 20:02	08:22 18:22	08:11 16:40	08:36 16:44
31	08:13 17:29	07:18 18:06	06:18 18:48	06:13 20:48	05:35 21:36	05:30 21:50	06:04 21:23	06:49 20:25	07:34 19:20	07:43 (E1) 20:02	08:24 18:24	08:13 16:44	08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	253	
Total, worst case			227	280					518				
Sun reduction			0.27	0.35					0.38				
Oper. time red.			1.00	1.00					1.00				
Wind dir. red.			0.63	0.63					0.63				
Total reduction			0.17	0.22					0.24				
Total, real			38	62					122				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R05 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (31)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	08:15 (E1) 6 08:21 (E1)	06:16 20:55	05:34 21:37	05:32 21:50	06:05 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39	
2	08:36 16:47	08:11 17:32	07:20 18:20	07:14 20:09		06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:19	06:52 20:21	07:37 19:16	07:27 17:14	08:14 16:39	
3	08:36 16:48	08:09 17:34	07:18 18:21	07:12 20:11		06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	07:29 17:12	08:15 16:38	
4	08:36 16:49	08:08 17:35	07:16 18:23	07:10 20:13		06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:55 20:17	07:40 19:11	07:30 17:11	08:17 16:38	
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14		06:09 21:01	05:31 21:40	05:35 21:48	06:11 21:15	06:57 20:15	07:42 19:09	07:32 17:09	08:18 16:37	
6	08:35 16:51	08:05 17:39	07:12 18:26	07:05 20:16		06:07 21:02	05:31 21:41	05:35 21:48	06:13 21:13	06:58 20:13	07:44 19:07	07:34 17:08	08:19 16:37	
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17		06:05 21:04	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:45 19:05	07:35 17:06	08:20 16:36	
8	08:34 16:54	08:01 17:42	07:08 18:30	07:01 20:19		06:04 21:05	05:30 21:43	05:37 21:47	06:15 21:10	07:01 20:08	07:47 19:03	07:37 17:04	08:21 16:36	
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20		06:02 21:07	05:29 21:44	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:01	07:39 17:03	08:23 16:36	
10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22		06:00 21:08	05:29 21:45	05:39 21:46	06:18 21:06	07:04 20:04	07:50 18:59	07:40 17:01	08:24 16:36	
11	08:33 16:57	07:56 17:48	07:02 18:35	06:55 20:23		05:59 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02	08:08 (E1) 08:12 (E1)	07:51 18:56	07:42 17:00	08:25 16:36
12	08:33 16:59	07:55 17:49	07:00 18:36	06:53 20:25		05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:03	07:07 19:59	08:03 (E1) 08:17 (E1)	07:53 18:54	07:44 16:59	08:26 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27		05:56 21:12	05:28 21:47	05:42 21:43	06:23 21:01	07:09 19:57	08:00 (E1) 08:18 (E1)	07:54 18:52	07:45 16:57	08:27 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	07:20 (E1) 7 07:27 (E1)	06:49 20:28	05:54 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:58 (E1) 08:19 (E1)	07:56 18:50	07:47 16:56	08:27 16:36
15	08:31 17:03	07:49 17:54	06:53 18:41	07:16 (E1) 15 07:31 (E1)	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:57 (E1) 08:21 (E1)	07:58 18:48	07:49 16:55	08:28 16:36
16	08:30 17:04	07:48 17:56	06:51 18:43	07:14 (E1) 19 07:33 (E1)	06:44 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:55 (E1) 08:21 (E1)	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	07:12 (E1) 22 07:34 (E1)	06:42 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:53	07:15 19:49	07:55 (E1) 08:22 (E1)	08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:07	07:44 18:00	06:47 18:46	07:10 (E1) 24 07:34 (E1)	06:40 20:34	05:49 21:20	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:46	07:53 (E1) 08:22 (E1)	08:02 18:42	07:53 16:51	08:31 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	07:09 (E1) 26 07:35 (E1)	06:38 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:44	07:53 (E1) 08:22 (E1)	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	07:08 (E1) 28 07:36 (E1)	06:36 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	07:52 (E1) 08:21 (E1)	08:06 18:38	07:56 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:50	07:07 (E1) 29 07:36 (E1)	06:34 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	07:52 (E1) 08:22 (E1)	08:07 18:36	07:58 16:48	08:33 16:37
22	08:24 17:14	07:36 18:06	06:38 18:52	07:07 (E1) 29 07:36 (E1)	06:32 20:41	05:44 21:25	05:28 21:50	05:52 21:34	06:36 20:44	07:22 19:37	07:52 (E1) 08:20 (E1)	08:09 18:34	08:00 16:46	08:33 16:38
23	08:23 17:15	07:34 18:08	06:36 18:54	07:06 (E1) 29 07:35 (E1)	06:31 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:35	07:52 (E1) 08:20 (E1)	08:11 18:32	08:01 16:45	08:34 16:38
24	08:22 17:17	07:33 18:10	06:34 18:55	07:06 (E1) 29 07:35 (E1)	06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	07:52 (E1) 08:19 (E1)	08:12 18:30	08:03 16:45	08:34 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	07:06 (E1) 28 07:34 (E1)	06:27 20:45	05:40 21:29	05:29 21:50	05:56 21:31	06:41 20:38	07:27 19:31	07:53 (E1) 08:18 (E1)	07:14 17:28	08:04 16:44	08:34 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	07:06 (E1) 28 07:34 (E1)	06:25 20:47	05:39 21:30	05:29 21:50	05:57 21:30	06:42 20:36	07:28 19:29	07:53 (E1) 08:16 (E1)	07:15 17:27	08:06 16:43	08:35 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	07:07 (E1) 26 07:33 (E1)	06:23 20:48	05:38 21:31	05:29 21:50	05:59 21:28	06:43 20:34	07:30 19:27	07:55 (E1) 08:15 (E1)	07:17 17:25	08:07 16:42	08:35 16:41
28	08:17 17:24	07:25 18:16	06:25 19:02	07:06 (E1) 25 07:31 (E1)	06:21 20:50	05:37 21:32	06:00 21:50	06:45 21:27	07:31 19:24	07:56 (E1) 08:12 (E1)	07:19 17:23	08:09 16:41	08:35 16:42	08:35 16:42
29	08:16 17:25	07:23 18:17	07:23 19:03	08:07 (E1) 22 08:29 (E1)	06:19 20:51	05:37 21:33	06:01 21:25	06:46 20:29	07:33 19:22	07:59 (E1) 08:10 (E1)	07:20 17:21	08:10 16:40	08:36 16:43	08:36 16:43
30	08:15 17:27	07:20 18:15	07:20 19:05	08:09 (E1) 18 08:27 (E1)	06:17 20:53	05:36 21:34	06:03 21:24	06:48 20:27	07:34 19:20		07:22 17:19	08:11 16:40	08:36 16:44	08:36 16:44
31	08:13 17:29	07:18 18:06	07:18 19:06	08:11 (E1) 14 08:25 (E1)		05:35 21:36	06:04 21:23	06:49 20:25			07:24 17:18	08:12 16:44	08:36 16:44	08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	253		
Total, worst case			418	6					429					
Sun reduction			0,27	0,35					0,38					
Oper. time red.			1,00	1,00					1,00					
Wind dir. red.			0,61	0,61					0,61					
Total reduction			0,16	0,22					0,23					
Total, real			68	1					99					

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R06 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (32)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18		07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:05 21:21	06:51 20:23		07:36 19:18
2	08:36 16:47	08:11 17:32	07:20 18:20		07:14 20:09	06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:19	06:52 20:21	32	08:10 (E1) 17:16
3	08:36 16:48	08:09 17:34	07:18 18:21	07:47 (E1) 5 07:52 (E1)	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	32	08:09 (E1) 17:14
4	08:36 16:49	08:08 17:35	07:16 18:23	07:42 (E1) 14 07:56 (E1)	07:10 20:12	06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:55 20:17	31	08:41 (E1) 17:12
5	08:35 16:50	08:06 17:37	07:14 18:25	07:40 (E1) 19 07:59 (E1)	07:08 20:14	06:09 21:01	05:31 21:40	05:35 21:48	06:11 21:15	06:57 20:15	31	08:40 (E1) 17:11
6	08:35 16:51	08:05 17:39	07:12 18:26	07:37 (E1) 23 08:00 (E1)	07:05 20:16	06:07 21:02	05:31 21:41	05:35 21:48	06:13 21:13	06:58 20:13	29	08:39 (E1) 17:09
7	08:35 16:52	08:03 17:41	07:10 18:28	07:35 (E1) 26 08:01 (E1)	07:03 20:17	06:05 21:04	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	27	08:11 (E1) 17:08
8	08:34 16:54	08:01 17:42	07:08 18:30	07:34 (E1) 28 08:02 (E1)	07:01 20:19	06:04 21:05	05:30 21:43	05:37 21:47	06:15 21:10	07:01 20:08	24	08:12 (E1) 17:03
9	08:34 16:55	08:00 17:44	07:06 18:31	07:33 (E1) 29 08:02 (E1)	06:59 20:20	06:02 21:07	05:29 21:44	05:38 21:46	06:17 21:08	07:03 20:06	21	08:15 (E1) 17:03
10	08:34 16:56	07:58 17:46	07:04 18:33	07:32 (E1) 31 08:03 (E1)	06:57 20:22	06:00 21:08	05:29 21:45	05:39 21:46	06:18 21:06	07:04 20:04	17	08:18 (E1) 17:01
11	08:33 16:57	07:56 17:48	07:02 18:34	07:32 (E1) 31 08:03 (E1)	06:55 20:23	05:59 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02	11	08:29 (E1) 17:00
12	08:32 16:59	07:55 17:49	07:00 18:36	07:30 (E1) 32 08:02 (E1)	06:53 20:25	05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:03	07:07 19:59		07:51 18:54
13	08:32 17:00	07:53 17:51	06:57 18:38	07:30 (E1) 32 08:02 (E1)	06:51 20:27	05:56 21:12	05:28 21:47	05:42 21:43	06:23 21:01	07:09 19:57		07:54 18:52
14	08:31 17:02	07:51 17:53	06:55 18:39	07:30 (E1) 32 08:02 (E1)	06:49 20:28	05:54 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55		07:56 18:50
15	08:31 17:03	07:49 17:54	06:53 18:41	07:30 (E1) 32 08:02 (E1)	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53		07:58 18:48
16	08:30 17:04	07:48 17:56	06:51 18:43	07:30 (E1) 31 08:01 (E1)	06:44 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51		07:59 18:46
17	08:29 17:06	07:46 17:58	06:49 18:44	07:31 (E1) 30 08:01 (E1)	06:42 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:53	07:15 19:49		08:01 18:44
18	08:28 17:07	07:44 18:00	06:47 18:46	07:30 (E1) 29 07:59 (E1)	06:40 20:34	05:49 21:19	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:46		08:02 18:42
19	08:27 17:09	07:42 18:01	06:44 18:47	07:31 (E1) 27 07:58 (E1)	06:38 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:44		08:04 18:40
20	08:26 17:11	07:40 18:03	06:42 18:49	07:32 (E1) 24 07:56 (E1)	06:36 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42		08:06 18:38
21	08:25 17:12	07:38 18:05	06:40 18:50	07:34 (E1) 20 07:54 (E1)	06:34 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	6	08:26 (E1) 08:22 (E1)
22	08:24 17:14	07:36 18:06	06:38 18:52	07:36 (E1) 16 07:52 (E1)	06:32 20:41	05:44 21:25	05:28 21:50	05:52 21:34	06:36 20:44	07:22 19:37	15	08:32 (E1) 08:37 (E1)
23	08:23 17:15	07:34 18:08	06:36 18:54	07:38 (E1) 9 07:47 (E1)	06:30 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:35	19	08:19 (E1) 08:38 (E1)
24	08:22 17:17	07:33 18:10	06:34 18:55		06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	23	08:17 (E1) 08:41 (E1)
25	08:21 17:19	07:31 18:11	06:31 18:57		06:27 20:45	05:40 21:29	05:29 21:50	05:56 21:31	06:41 20:38	07:27 19:31	26	08:15 (E1) 08:42 (E1)
26	08:20 17:20	07:29 18:13	06:29 18:58		06:25 20:47	05:39 21:30	05:29 21:50	05:57 21:30	06:42 20:36	07:28 19:29	28	08:13 (E1) 08:42 (E1)
27	08:19 17:22	07:27 18:15	06:27 19:00		06:23 20:48	05:38 21:31	05:30 21:50	05:59 21:28	06:43 20:34	07:30 19:27	29	08:12 (E1) 08:43 (E1)
28	08:17 17:24	07:25 18:16	06:25 19:02		06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:24	31	08:11 (E1) 08:43 (E1)
29	08:16 17:25		07:23 20:03		06:19 20:51	05:37 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:33 19:22	32	08:11 (E1) 08:43 (E1)
30	08:15 17:27		07:20 20:05		06:17 20:53	05:36 21:34	05:31 21:50	06:03 21:24	06:48 20:27	07:34 19:20	32	08:10 (E1) 08:42 (E1)
31	08:13 17:29		07:18 20:06			05:35 21:36		06:04 21:23	06:49 20:25	07:34 17:18		
Potential sun hours	267	282	368		412	477	488	492	448	380	334	273
Total, worst case			520									255
Sun reduction			0,27									0,29
Oper. time red.			1,00									1,00
Wind dir. red.			0,58									0,58
Total reduction			0,15									0,17
Total, real			80									43

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

Eeschpelt - Bârel

Licensed user:

Embridge
Route de Hannut, 55
BE-5000 Namur

Nicolas Jorion / nicolasj@embridge.be

Calculated:

05-06-25 16:09/4.1.254

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case
Assumptions for shadow calculations

Shadow receptor: R07 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (33)

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,58	3,05	3,17	4,85	6,15	5,19	6,45	6,12	4,77	3,14	2,23	1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18	08:04 (E1) 20:08	07:16 20:55	05:34 21:37	05:32 21:50	06:05 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:20 18:20	08:04 (E1) 20:09	07:14 20:56	05:33 21:38	05:33 21:50	06:07 21:19	06:52 20:21	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:18 18:21	08:04 (E1) 20:11	07:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	08:51 (E1) 17:12	07:29 16:38
4	08:36 16:49	08:08 17:35	07:16 18:23	08:04 (E1) 20:12	07:10 20:59	05:32 21:40	05:32 21:49	06:10 21:16	06:55 20:17	07:40 19:11	08:47 (E1) 17:11	07:30 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	08:05 (E1) 20:14	07:08 21:01	05:31 21:40	05:35 21:48	06:11 21:15	06:57 20:15	07:42 19:09	08:45 (E1) 17:09	07:32 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	08:05 (E1) 20:16	07:05 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:13	07:44 19:07	08:44 (E1) 17:08	07:34 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	08:06 (E1) 20:17	07:03 21:04	05:30 21:42	05:36 21:47	06:14 21:10	07:00 20:05	07:45 19:05	08:41 (E1) 17:06	07:35 16:36
8	08:34 16:53	08:01 17:42	07:08 18:30	08:07 (E1) 20:19	07:01 21:05	05:30 21:43	05:37 21:47	06:15 21:10	07:01 20:08	07:47 19:03	08:41 (E1) 17:04	07:37 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	08:09 (E1) 20:20	06:59 21:07	05:29 21:44	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:01	08:39 (E1) 17:03	07:39 16:36
10	08:34 16:56	07:58 17:46	07:04 18:33	08:11 (E1) 20:22	06:57 21:08	05:29 21:45	05:39 21:46	06:18 21:06	07:04 20:04	07:50 18:58	08:38 (E1) 17:01	07:40 16:36
11	08:33 16:57	07:56 17:48	07:02 18:34	08:28 (E1) 20:23	06:55 21:10	05:29 21:45	05:40 21:45	06:20 21:04	07:06 20:02	07:51 18:56	08:38 (E1) 17:00	07:42 16:36
12	08:32 16:59	07:55 17:49	07:00 18:36	08:23 (E1) 20:23	06:53 21:11	05:28 21:46	05:41 21:44	06:21 21:03	07:07 19:59	07:53 18:54	08:37 (E1) 17:00	07:44 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	07:53 20:27	05:56 21:12	05:28 21:47	05:42 21:43	06:23 21:01	07:09 19:57	07:54 18:52	08:37 (E1) 16:57	07:45 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	07:51 20:28	05:54 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:56 18:50	08:37 (E1) 16:56	07:47 16:36
15	08:31 17:03	07:49 17:54	06:53 18:41	07:49 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:58 18:48	08:36 (E1) 16:55	07:48 16:36
16	08:30 17:04	07:48 17:56	06:51 18:43	07:48 20:31	05:51 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:59 18:46	08:36 (E1) 16:53	07:50 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	07:46 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:53	07:15 19:48	08:01 18:44	08:37 (E1) 16:52	07:52 16:36
18	08:28 17:07	07:44 18:00	06:47 18:46	07:44 20:34	05:49 21:19	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:46	08:02 18:42	08:36 (E1) 16:51	07:53 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	07:42 20:36	05:48 21:21	05:28 21:49	05:48 21:38	06:32 20:50	07:18 19:44	08:04 18:40	08:37 (E1) 16:50	07:55 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	07:40 20:37	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	08:06 18:38	08:38 (E1) 16:49	07:56 16:37
21	08:25 17:12	07:38 18:05	06:40 18:50	07:38 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	08:07 18:36	08:38 (E1) 16:47	07:58 16:37
22	08:24 17:14	07:36 18:06	06:38 18:52	07:36 20:41	05:44 21:25	05:28 21:50	05:52 21:34	06:36 20:44	07:22 19:37	08:09 18:34	08:39 (E1) 16:46	08:00 16:38
23	08:23 17:15	07:34 18:08	06:36 18:54	07:34 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:35	08:11 18:32	08:41 (E1) 16:45	08:01 16:38
24	08:22 17:17	07:33 18:10	06:34 18:55	07:33 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	08:12 18:30	08:43 (E1) 16:45	08:03 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	07:31 20:45	05:40 21:29	05:29 21:50	05:56 21:31	06:40 20:38	07:27 19:31	07:14 18:28	07:44 (E1) 16:44	08:04 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	07:29 20:47	05:39 21:30	05:29 21:50	05:57 21:30	06:42 20:36	07:28 19:29	07:15 18:27	07:47 (E1) 16:43	08:06 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	07:27 20:48	05:38 21:31	05:30 21:50	05:59 21:28	06:43 20:34	07:30 19:26	07:17 18:25	08:07 16:42	08:35 16:41
28	08:17 17:24	07:25 18:16	06:25 19:02	07:25 20:50	05:37 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:24	07:19 18:23	08:09 16:41	08:35 16:42
29	08:16 17:25		07:23 20:03	07:23 20:51	05:37 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:33 19:22	07:20 18:21	08:10 16:40	08:36 16:43
30	08:15 17:27		07:20 20:05	07:20 20:53	05:36 21:34	05:31 21:50	06:03 21:24	06:48 20:27	07:34 19:20	07:22 18:20	08:11 16:40	08:36 16:43
31	08:13 17:29		07:18 20:06	07:18 21:36	05:35 21:36	05:35 21:36	06:04 21:23	06:49 20:25	07:24 19:18	07:18 18:18		08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	253
Total, worst case		398	302							704		
Sun reduction		0,30	0,27							0,29		
Oper. time red.		1,00	1,00							1,00		
Wind dir. red.		0,56	0,56							0,56		
Total reduction		0,17	0,15							0,16		
Total, real		68	46							116		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)



SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R08 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (34)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January		February		March		April		May		June		July		August		September		October		November		December	
1	08:36		08:12		08:45 (E1)	07:23	07:16	06:15	05:34	05:32	06:05	06:51	07:36			07:25		08:12 (E1)	08:13					
	16:46		17:30	34	09:19 (E1)	18:18	20:08	20:55	21:37	21:50	21:21	20:23	19:18			17:16	41	08:53 (E1)	16:39					
2	08:36		08:11		08:44 (E1)	07:20	07:14	06:14	05:33	05:33	06:07	06:52	07:37			07:27		08:11 (E1)	08:14					
	16:47		17:32	36	09:20 (E1)	18:20	20:09	20:56	21:38	21:50	21:19	20:21	19:16			17:14	41	08:52 (E1)	16:39					
3	08:36		08:09		08:44 (E1)	07:18	07:12	06:12	05:33	05:33	06:08	06:54	07:39			07:29		08:11 (E1)	08:15					
	16:48		17:34	37	09:21 (E1)	18:21	20:11	20:58	21:39	21:49	21:18	20:19	19:13			17:12	41	08:52 (E1)	16:38					
4	08:36		08:08		08:43 (E1)	07:16	07:10	06:10	05:32	05:34	06:10	06:55	07:40			07:30		08:12 (E1)	08:17					
	16:49		17:35	38	09:21 (E1)	18:23	20:12	20:59	21:40	21:49	21:16	20:17	19:11			17:11	40	08:52 (E1)	16:38					
5	08:35		08:06		08:42 (E1)	07:14	07:08	06:09	05:31	05:35	06:11	06:57	07:42			07:32		08:12 (E1)	08:18					
	16:50		17:37	40	09:22 (E1)	18:25	20:14	21:01	21:40	21:48	21:15	20:15	19:09			17:09	40	08:52 (E1)	16:37					
6	08:35		08:05		08:43 (E1)	07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:44			07:34		08:13 (E1)	08:19					
	16:51		17:39	40	09:23 (E1)	18:26	20:16	21:02	21:41	21:48	21:13	20:13	19:07			17:08	39	08:52 (E1)	16:37					
7	08:35		08:03		08:42 (E1)	07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45			07:35		08:13 (E1)	08:20					
	16:52		17:41	41	09:23 (E1)	18:28	20:17	21:04	21:42	21:47	21:11	20:10	19:05			17:06	38	08:51 (E1)	16:36					
8	08:34		08:01		08:42 (E1)	07:08	07:01	06:04	05:30	05:37	06:15	07:01	07:47			07:37		08:14 (E1)	08:21					
	16:53		17:42	41	09:23 (E1)	18:30	20:19	21:05	21:43	21:47	21:10	20:08	19:03			17:04	37	08:51 (E1)	16:36					
9	08:34		08:00		08:42 (E1)	07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48			07:39		08:15 (E1)	08:23					
	16:55		17:44	42	09:24 (E1)	18:31	20:20	21:07	21:44	21:46	21:08	20:06	19:01			17:03	35	08:50 (E1)	16:36					
10	08:34		07:58		08:42 (E1)	07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50			07:40		08:16 (E1)	08:24					
	16:56		17:46	41	09:23 (E1)	18:33	20:22	21:08	21:45	21:46	21:06	20:04	18:58			17:01	34	08:50 (E1)	16:36					
11	08:33		07:56		08:42 (E1)	07:02	06:55	05:59	05:29	05:40	06:20	07:06	07:51			07:42		08:17 (E1)	08:25					
	16:57		17:47	41	09:23 (E1)	18:34	20:23	21:10	21:45	21:45	21:04	20:02	18:56			17:00	33	08:50 (E1)	16:36					
12	08:32		07:55		08:42 (E1)	06:59	06:53	05:57	05:28	05:41	06:21	07:07	07:53			07:44		08:18 (E1)	08:26					
	16:59		17:49	41	09:23 (E1)	18:36	20:25	21:11	21:46	21:44	21:03	19:59	18:54			16:59	30	08:48 (E1)	16:36					
13	08:32		07:53		08:42 (E1)	06:57	06:51	05:56	05:28	05:42	06:23	07:09	07:54			07:45		08:19 (E1)	08:27					
	17:00		17:51	40	09:22 (E1)	18:38	20:27	21:12	21:46	21:43	21:01	19:57	18:52			16:57	28	08:47 (E1)	16:36					
14	08:31		07:51		08:43 (E1)	06:55	06:49	05:54	05:28	05:43	06:24	07:10	07:56			07:47		08:21 (E1)	08:27					
	17:02		17:53	40	09:23 (E1)	18:39	20:28	21:14	21:47	21:43	20:59	19:55	18:50			16:56	25	08:46 (E1)	16:36					
15	08:31		07:49		08:43 (E1)	06:53	06:46	05:53	05:28	05:44	06:26	07:12	07:58			07:48		08:23 (E1)	08:28					
	17:03		17:54	39	09:22 (E1)	18:41	20:30	21:15	21:48	21:42	20:57	19:53	18:48			16:55	22	08:45 (E1)	16:36					
16	08:30		07:48		08:44 (E1)	06:51	06:44	05:51	05:28	05:45	06:27	07:13	07:59			07:50		08:24 (E1)	08:29					
	17:04		17:56	38	09:22 (E1)	18:43	20:31	21:17	21:48	21:41	20:55	19:51	18:46			16:53	19	08:43 (E1)	16:36					
17	08:29		07:46		08:44 (E1)	06:49	06:42	05:50	05:28	05:46	06:29	07:15	08:01			07:52		08:27 (E1)	08:30					
	17:06		17:58	37	09:21 (E1)	18:44	20:33	21:18	21:49	21:40	20:53	19:48	18:44			16:52	14	08:41 (E1)	16:36					
18	08:28		07:44		08:45 (E1)	06:47	06:40	05:49	05:28	05:47	06:30	07:16	08:02			09:26 (E1)	07:53		08:31 (E1)	08:31				
	17:07		18:00	35	09:20 (E1)	18:46	20:34	21:19	21:49	21:39	20:52	19:46	18:42	13	09:39 (E1)	16:51	7	08:38 (E1)	16:36					
19	08:27		07:42		08:46 (E1)	06:44	06:38	05:47	05:28	05:48	06:32	07:18	08:04			09:23 (E1)	07:55		08:31					
	17:09		18:01	32	09:18 (E1)	18:47	20:36	21:21	21:49	21:38	20:50	19:44	18:40	19	09:42 (E1)	16:50			16:37					
20	08:26		07:40		08:47 (E1)	06:42	06:36	05:46	05:28	05:50	06:33	07:19	08:06			09:21 (E1)	07:56		08:32					
	17:11		18:03	30	09:17 (E1)	18:49	20:37	21:22	21:50	21:37	20:48	19:42	18:38	24	09:45 (E1)	16:49			16:37					
21	08:25		07:38		08:48 (E1)	06:40	06:34	05:45	05:28	05:51	06:35	07:21	08:07			09:18 (E1)	07:58		08:33					
	17:12		18:05	27	09:15 (E1)	18:50	20:39	21:24	21:50	21:36	20:46	19:40	18:36	28	09:46 (E1)	16:47			16:37					
22	08:24		07:36		08:50 (E1)	06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09			09:17 (E1)	08:00		08:33					
	17:14		18:06	23	09:13 (E1)	18:52	20:41	21:25	21:50	21:34	20:44	19:37	18:34	31	09:48 (E1)	16:46			16:38					
23	08:23		07:34		08:53 (E1)	06:36	06:30	05:43	05:28	05:53	06:37	07:24	08:11			09:16 (E1)	08:01		08:34					
	17:15		18:08	17	09:10 (E1)	18:54	20:42	21:26	21:50	21:33	20:42	19:35	18:32	33	09:49 (E1)	16:45			16:38					
24	08:22		07:33		08:57 (E1)	06:34	06:29	05:42	05:29	05:55	06:39	07:25	08:12			09:15 (E1)	08:03		08:34					
	17:17	7	09:04 (E1)	18:10	8	09:05 (E1)	18:55	20:44	21:27	21:50	21:32	20:40	19:33	35	09:50 (E1)	16:44			16:39					
25	08:21		08:54 (E1)	07:31		06:31	06:27	05:40	05:29	05:56	06:40	07:27	08:14			08:14 (E1)	08:04		08:34					
	17:19	14	09:08 (E1)	18:11		18:57	20:45	21:29	21:50	21:31	20:38	19:31	18:28	36	08:50 (E1)	16:44			16:40					
26	08:20		08:51 (E1)	07:29		06:29	06:25	05:39	05:29	05:57	06:42	07:28	08:15			08:13 (E1)	08:06		08:35					
	17:20	19	09:10 (E1)	18:13		18:58	20:47	21:30	21:50	21:29	20:36	19:29	18:27	38	08:51 (E1)	16:43			16:40					
27	08:19		08:50 (E1)	07:27		06:27	06:23	05:38	05:30	05:59	06:43	07:30	08:17			08:13 (E1)	08:07		08:35					
	17:22	22	09:12 (E1)	18:15		19:00	20:48	21:31	21:50	21:28	20:34	19:26	18:25	39	08:52 (E1)	16:42			16:41					
28	08:17		08:49 (E1)	07:25		06:25	06:21	05:37	05:30	06:00	06:45	07:31	08:19			08:13 (E1)	08:09		08:35					
	17:24	25	09:14 (E1)	18:16		19:01	20:50	21:32	21:50	21:27	20:32	19:24	18:23	40	08:53 (E1)	16:41			16:42					
29	08:16		08:47 (E1)			07:23	06:19	05:37	05:31	06:01	06:46	07:33	08:20			08:12 (E1)	08:10		08:36					
	17:25	28	09:15 (E1)			20:03	20:51	21:33	21:50	21:25	20:29	19:22												

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case
Assumptions for shadow calculations

Shadow receptor: R09 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (35)
Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.58	3.05	3.17	4.85	6.15	5.19	6.45	6.12	4.77	3.14	2.23	1.13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1,217	937	559	442	322	315	8,760

			January	February	March	April	May	June	July	August	September	October	November		December
	1	08:36	15:33 (E3)	08:12	07:22	07:16	06:15	05:34	05:32	06:05	06:51	07:36	07:25		08:12
		16:45	38	16:11 (E3)	17:30	18:18	20:08	20:54	21:36	21:50	21:21	20:23	19:18	17:16	16:39
	2	08:36	15:32 (E3)	08:10	07:20	07:14	06:14	05:33	05:32	06:07	06:52	07:37	07:27		08:14
		16:46	39	16:11 (E3)	17:32	18:20	20:09	20:56	21:37	21:49	21:19	20:21	19:15	17:14	16:38
	3	08:35	15:33 (E3)	08:09	07:18	07:12	06:12	05:32	05:33	06:08	06:54	07:39	07:28		08:15
		16:47	38	16:11 (E3)	17:34	18:21	20:11	20:57	21:38	21:49	21:18	20:19	19:13	17:12	16:38
	4	08:35	15:34 (E3)	08:07	07:16	07:09	06:10	05:32	05:34	06:09	06:55	07:40	07:30		08:16
		16:49	38	16:12 (E3)	17:35	18:23	20:12	20:59	21:39	21:49	21:16	20:17	19:11	17:11	16:37
	5	08:35	15:35 (E3)	08:06	07:14	07:07	06:08	05:31	05:34	06:11	06:57	07:42	07:32		08:18
		16:50	38	16:13 (E3)	17:37	18:24	20:14	21:00	21:40	21:48	21:15	20:14	19:09	17:09	16:37
	6	08:35	15:35 (E3)	08:04	07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:43	07:33		08:19
		16:51	38	16:13 (E3)	17:39	18:26	20:15	21:02	21:41	21:48	21:13	20:12	19:07	17:07	16:37
	7	08:35	15:35 (E3)	08:03	07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45	07:35		08:20
		16:52	38	16:13 (E3)	17:40	18:28	20:17	21:03	21:42	21:47	21:11	20:10	19:05	17:06	16:36
	8	08:34	15:35 (E3)	08:01	07:08	07:01	06:03	05:30	05:37	06:15	07:01	07:46	07:37		08:21
		16:53	38	16:13 (E3)	17:42	18:29	20:19	21:05	21:43	21:47	21:10	20:08	19:03	17:04	16:36
	9	08:34	15:37 (E3)	08:00	07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48	07:38		08:22
		16:55	37	16:14 (E3)	17:44	18:31	20:20	21:06	21:44	21:46	21:08	20:06	19:00	17:03	16:36
	10	08:33	15:37 (E3)	07:58	07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50	07:40		08:23
		16:56	37	16:14 (E3)	17:46	18:33	20:22	21:08	21:44	21:45	21:06	20:04	18:58	17:01	16:36
	11	08:33	15:37 (E3)	07:56	07:01	06:55	05:59	05:28	05:40	06:20	07:06	07:51	07:42		08:24
		16:57	37	16:14 (E3)	17:47	18:34	20:23	21:09	21:45	21:45	21:04	20:01	18:56	17:00	16:35
	12	08:32	15:38 (E3)	07:55	06:59	06:53	05:57	05:28	05:41	06:21	07:07	07:53	07:43		08:25
		16:59	37	16:15 (E3)	17:49	18:36	20:25	21:11	21:46	21:44	21:02	19:59	18:54	16:58	16:35
	13	08:32	15:39 (E3)	07:53	06:57	06:50	05:56	05:28	05:42	06:22	07:09	07:54	07:45		08:26
		17:00	36	16:15 (E3)	17:51	18:38	20:26	21:12	21:46	21:43	21:01	19:57	18:52	16:57	16:35
	14	08:31	15:39 (E3)	07:51	06:55	06:48	05:54	05:28	05:43	06:24	07:10	07:56	07:47		08:27
		17:01	36	16:15 (E3)	17:52	18:39	20:28	21:14	21:47	21:42	20:59	19:55	18:50	16:56	16:35
	15	08:30	15:40 (E3)	07:49	06:53	06:46	05:53	05:28	05:44	06:25	07:12	07:57	07:48		08:28
		17:03	34	16:14 (E3)	17:54	18:41	20:29	21:15	21:47	21:42	20:57	19:53	18:48	16:54	16:36
	16	08:30	15:40 (E3)	07:47	06:51	06:44	05:51	05:28	05:45	06:27	07:13	07:59	07:50	15:28 (E3)	08:29
		17:04	34	16:14 (E3)	17:56	18:42	20:31	21:17	21:48	21:41	20:55	19:50	18:46	16:53	16:36
	17	08:29	15:42 (E3)	07:46	06:49	06:42	05:50	05:27	05:46	06:28	07:15	08:01	07:52	15:26 (E3)	08:30
		17:06	33	16:15 (E3)	17:58	18:44	20:33	21:18	21:48	21:40	20:53	19:48	18:44	16:52	16:36
	18	08:28	15:43 (E3)	07:44	06:46	06:40	05:49	05:27	05:47	06:30	07:16	08:02	07:53	15:25 (E3)	08:30
		17:07	32	16:15 (E3)	17:59	18:46	20:34	21:19	21:49	21:39	20:51	19:46	18:42	16:51	16:36
	19	08:27	15:43 (E3)	07:42	06:44	06:38	05:47	05:28	05:48	06:31	07:17	08:04	07:55	15:23 (E3)	08:31
		17:09	31	16:14 (E3)	18:01	18:47	20:36	21:21	21:49	21:38	20:49	19:44	18:40	16:49	16:36
	20	08:26	15:44 (E3)	07:40	06:42	06:36	05:46	05:28	05:49	06:33	07:19	08:05	07:56	15:22 (E3)	08:32
		17:10	29	16:13 (E3)	18:03	18:49	20:37	21:22	21:49	21:37	20:47	19:42	18:38	16:48	16:37
	21	08:25	15:45 (E3)	07:38	06:40	06:34	05:45	05:28	05:51	06:34	07:20	08:07	07:58	15:21 (E3)	08:32
		17:12	28	16:13 (E3)	18:04	18:50	20:39	21:23	21:50	21:35	20:45	19:39	18:36	16:47	16:37
	22	08:24	15:47 (E3)	07:36	06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09	07:59	15:20 (E3)	08:33
		17:14	26	16:13 (E3)	18:06	18:52	20:40	21:25	21:50	21:34	20:44	19:37	18:34	16:46	16:36
	23	08:23	15:49 (E3)	07:34	06:36	06:30	05:42	05:28	05:53	06:37	07:23	08:10	08:01	15:20 (E3)	08:33
		17:15	23	16:12 (E3)	18:08	18:53	20:42	21:26	21:50	21:33	20:42	19:35	18:32	16:45	16:38
	24	08:22	15:51 (E3)	07:32	06:33	06:28	05:41	05:28	05:54	06:39	07:25	08:12	08:02	15:20 (E3)	08:34
		17:17	20	16:11 (E3)	18:10	18:55	20:44	21:27	21:50	21:32	20:40	19:33	18:30	16:44	16:39
	25	08:21	15:52 (E3)	07:30	06:31	06:26	05:40	05:29	05:56	06:40	07:27	07:14	08:04	15:19 (E3)	08:34
		17:18	17	16:09 (E3)	18:11	18:57	20:45	21:28	21:50	21:31	20:37	19:31	17:28	16:43	16:39
	26	08:20	15:55 (E3)	07:28	06:29	06:25	05:39	05:29	05:57	06:42	07:28	07:15	08:05	15:19 (E3)	08:35
		17:20	12	16:07 (E3)	18:13	18:58	20:47	21:30	21:50	21:29	20:35	19:28	17:26	16:43	16:40
	27	08:18		07:26	06:27	06:23	05:38	05:30	05:58	06:43	07:30	07:17	08:07	15:19 (E3)	08:35
		17:22		18:15	19:00	20:48	21:31	21:50	21:28	20:33	19:26	17:25	16:42	15:53 (E3)	16:41
	28	08:17		07:24	06:25	06:21	05:37	05:30	06:00	06:45	07:31	07:19	08:08	15:19 (E3)	08:35
		17:23		18:16	19:01	20:50	21:32	21:50	21:27	20:31	19:24	17:23	16:41	15:55 (E3)	16:42
	29	08:16			07:22	06:19	05:36	05:31	06:01	06:46	07:33	07:20	08:10	15:20 (E3)	08:35
		17:25			20:03	20:51	21:33	21:50	21:25	20:29	19:22	17:21	16:40	15:56 (E3)	16:42
	30	08:15			07:20	06:17	05:35	05:31	06:02	06:48	07:34	07:22	08:11	15:19 (E3)	08:35
		17:27			20:04	20:53	21:34	21:50	21:24	20:27	19:20	17:19	16:40	15:56 (E3)	16:43
	31	08:13			07:18		05:35		06:04	06:49		07:23			08:36
		17:28			20:06		21:35		21:22	20:25		17:17			16:44
Potential sun hours		267		282	368	412	477	488	492	448	380	334	273		253
Total, worst case		844											428		1168
Sun reduction		0,18											0,24		0,14
Oper. time red.		1,00											1,00		1,00
Wind dir. red.		0,73											0,73		0,73
Total reduction		0,13											0,18		0,10
Total, real		112											76		117

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker
			(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R10 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (36)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:36	15:46 (E3)	08:12	07:22	07:16	06:15	05:34	05:32	06:05	06:51	07:36	07:25			08:12	15:32 (E3)
	16:45	27 16:13 (E3)	17:30	18:18	20:08	20:54	21:36	21:50	21:21	20:23	19:18	17:16			16:39	31 16:03 (E3)
2	08:36	15:46 (E3)	08:10	07:20	07:14	06:14	05:33	05:32	06:07	06:52	07:37	07:27			08:14	15:32 (E3)
	16:46	27 16:13 (E3)	17:32	18:20	20:09	20:56	21:37	21:49	21:19	20:21	19:15	17:14			16:38	32 16:04 (E3)
3	08:35	15:46 (E3)	08:09	07:18	07:12	06:12	05:32	05:33	06:08	06:54	07:39	07:28			08:15	15:32 (E3)
	16:47	29 16:15 (E3)	17:34	18:21	20:11	20:57	21:38	21:49	21:18	20:19	19:13	17:12			16:38	32 16:04 (E3)
4	08:35	15:47 (E3)	08:07	07:16	07:09	06:10	05:32	05:34	06:09	06:55	07:40	07:30			08:16	15:33 (E3)
	16:49	29 16:16 (E3)	17:35	18:23	20:12	20:59	21:39	21:49	21:16	20:17	19:11	17:11			16:37	32 16:05 (E3)
5	08:35	15:48 (E3)	08:06	07:14	07:07	06:08	05:31	05:34	06:11	06:57	07:42	07:32			08:18	15:33 (E3)
	16:50	30 16:18 (E3)	17:37	18:24	20:14	21:00	21:40	21:48	21:15	20:14	19:09	17:09			16:37	32 16:05 (E3)
6	08:35	15:47 (E3)	08:04	07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:43	07:33			08:19	15:33 (E3)
	16:51	31 16:18 (E3)	17:39	18:26	20:15	21:02	21:41	21:48	21:13	20:12	19:07	17:07			16:37	32 16:05 (E3)
7	08:35	15:48 (E3)	08:03	07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45	07:35			08:20	15:34 (E3)
	16:52	32 16:20 (E3)	17:40	18:28	20:17	21:03	21:42	21:47	21:11	20:10	19:05	17:06			16:36	30 16:04 (E3)
8	08:34	15:48 (E3)	08:01	07:08	07:01	06:03	05:30	05:37	06:15	07:01	07:46	07:37			08:21	15:35 (E3)
	16:53	32 16:20 (E3)	17:42	18:29	20:19	21:05	21:43	21:47	21:10	20:08	19:03	17:04			16:36	29 16:04 (E3)
9	08:34	15:49 (E3)	08:00	07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48	07:38			08:22	15:35 (E3)
	16:55	32 16:21 (E3)	17:44	18:31	20:20	21:06	21:44	21:46	21:08	20:06	19:00	17:03			16:36	29 16:04 (E3)
10	08:33	15:49 (E3)	07:58	07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50	07:40			08:23	15:36 (E3)
	16:56	32 16:21 (E3)	17:46	18:33	20:22	21:08	21:44	21:45	21:06	20:04	18:58	17:01			16:36	28 16:04 (E3)
11	08:33	15:49 (E3)	07:56	07:01	06:55	05:59	05:28	05:40	06:20	07:06	07:51	07:42			08:24	15:36 (E3)
	16:57	32 16:21 (E3)	17:47	18:34	20:23	21:09	21:45	21:45	21:04	20:01	18:56	17:00			16:35	27 16:03 (E3)
12	08:32	15:51 (E3)	07:55	06:59	06:53	05:57	05:28	05:41	06:21	07:07	07:53	07:43			08:25	15:37 (E3)
	16:59	31 16:22 (E3)	17:49	18:36	20:25	21:11	21:46	21:44	21:02	19:59	18:54	16:58			16:35	26 16:03 (E3)
13	08:32	15:51 (E3)	07:53	06:57	06:50	05:56	05:28	05:42	06:22	07:09	07:54	07:45			08:26	15:37 (E3)
	17:00	31 16:22 (E3)	17:51	18:37	20:26	21:12	21:46	21:43	21:01	19:57	18:52	16:57			16:35	26 16:03 (E3)
14	08:31	15:51 (E3)	07:51	06:55	06:48	05:54	05:28	05:43	06:24	07:10	07:56	07:47			08:27	15:38 (E3)
	17:01	31 16:22 (E3)	17:52	18:39	20:28	21:14	21:47	21:42	20:59	19:55	18:50	16:56			16:35	25 16:03 (E3)
15	08:30	15:52 (E3)	07:49	06:53	06:46	05:53	05:28	05:44	06:25	07:12	07:57	07:48			08:28	15:38 (E3)
	17:03	30 16:22 (E3)	17:54	18:41	20:29	21:15	21:47	21:42	20:57	19:53	18:48	16:54			16:36	26 16:04 (E3)
16	08:30	15:52 (E3)	07:47	06:51	06:44	05:51	05:28	05:45	06:27	07:13	07:59	07:50			08:29	15:38 (E3)
	17:04	30 16:22 (E3)	17:56	18:42	20:31	21:17	21:48	21:41	20:55	19:50	18:46	16:53	6	15:41 (E3)	08:29	15:38 (E3)
17	08:29	15:53 (E3)	07:46	06:49	06:42	05:50	05:27	05:46	06:28	07:15	08:01	07:51			15:38 (E3)	08:30
	17:06	29 16:23 (E3)	17:58	18:44	20:33	21:18	21:48	21:40	20:53	19:48	18:44	16:52	13	15:51 (E3)	16:36	24 16:03 (E3)
18	08:28	15:55 (E3)	07:44	06:46	06:40	05:49	05:27	05:47	06:30	07:16	08:02	07:53			15:36 (E3)	08:30
	17:07	28 16:23 (E3)	17:59	18:45	20:34	21:19	21:49	21:39	20:51	19:46	18:42	16:51	17	15:53 (E3)	16:36	24 16:04 (E3)
19	08:27	15:55 (E3)	07:42	06:44	06:38	05:47	05:28	05:48	06:31	07:17	08:04	07:55			15:34 (E3)	08:31
	17:09	26 16:21 (E3)	18:01	18:47	20:36	21:21	21:49	21:38	20:49	19:44	18:40	16:49	20	15:54 (E3)	16:36	23 16:03 (E3)
20	08:26	15:56 (E3)	07:40	06:42	06:36	05:46	05:28	05:49	06:33	07:19	08:05	07:56			15:34 (E3)	08:32
	17:10	25 16:21 (E3)	18:03	18:49	20:37	21:22	21:49	21:37	20:47	19:42	18:38	16:48	21	15:55 (E3)	16:37	24 16:04 (E3)
21	08:25	15:57 (E3)	07:38	06:40	06:34	05:45	05:28	05:51	06:34	07:20	08:07	07:58			15:33 (E3)	08:32
	17:12	24 16:21 (E3)	18:04	18:50	20:39	21:23	21:50	21:35	20:45	19:39	18:36	16:47	24	15:57 (E3)	16:37	24 16:05 (E3)
22	08:24	15:59 (E3)	07:36	06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09	07:59			15:32 (E3)	08:33
	17:14	21 16:20 (E3)	18:06	18:52	20:40	21:25	21:50	21:34	20:43	19:37	18:34	16:46	25	15:57 (E3)	16:38	24 16:05 (E3)
23	08:23	16:00 (E3)	07:34	06:35	06:30	05:42	05:28	05:53	06:37	07:23	08:10	08:01			15:32 (E3)	08:33
	17:15	20 16:20 (E3)	18:08	18:53	20:42	21:26	21:50	21:33	20:42	19:35	18:32	16:45	27	15:59 (E3)	16:38	24 16:05 (E3)
24	08:22	16:02 (E3)	07:32	06:33	06:28	05:41	05:28	05:54	06:39	07:25	08:12	08:02			15:32 (E3)	08:34
	17:17	17 16:19 (E3)	18:09	18:55	20:44	21:27	21:50	21:32	20:39	19:33	18:30	16:44	28	16:00 (E3)	16:39	24 16:06 (E3)
25	08:21	16:04 (E3)	07:30	06:31	06:26	05:40	05:29	05:56	06:40	07:26	08:14	08:04			15:31 (E3)	08:34
	17:18	12 16:16 (E3)	18:11	18:57	20:45	21:28	21:50	21:31	20:37	19:31	17:28	16:43	29	16:00 (E3)	16:39	24 16:07 (E3)
26	08:20	16:08 (E3)	07:28	06:29	06:25	05:39	05:29	05:57	06:42	07:28	08:15	08:05			15:31 (E3)	08:35
	17:20	6 16:14 (E3)	18:13	18:58	20:47	21:30	21:50	21:29	20:35	19:28	17:26	16:43	30	16:01 (E3)	16:40	24 16:07 (E3)
27	08:18		07:26	06:27	06:23	05:38	05:30	05:58	06:43	07:30	08:17	08:07			15:31 (E3)	08:35
	17:22		18:15	19:00	20:48	21:31	21:50	21:28	20:33	19:26	17:25	16:42	30	16:01 (E3)	16:41	25 16:09 (E3)
28	08:17		07:24	06:25	06:21	05:37	05:30	06:00	06:45	07:31	08:19	08:08			15:31 (E3)	08:35
	17:23		18:16	19:01	20:50	21:32	21:50	21:27	20:31	19:24	17:23	16:41	31	16:02 (E3)	16:42	25 16:09 (E3)
29	08:16			07:22	06:19	05:36	05:31	06:01	06:46	07:33	08:20	08:10			15:32 (E3)	08:35
	17:25			20:03	20:51	21:33	21:50	21:25	20:29	19:22	17:21	16:40	31	16:03 (E3)	16:42	25 16:10 (E3)
30	08:15			07:20	06:17	05:35	05:31	06:02	06:48	07:34	08:22	08:11			15:32 (E3)	08:35
	17:27			20:04	20:53	21:34	21:50	21:24	20:27	19:20	17:19	16:40	31	16:03 (E3)	16:43	26 16:11 (E3)
31	08:13			07:18		05:35		06:04	06:49		07:23				08:35	15:45 (E3)
	17:28			20:06		21:35		21:22	20:25		17:17				16:44	27 16:12 (E3)
Potential sun hours	267		282	368	412	477	488	492	448	380	334	273			253	829
Total, worst case		694											363			0,14
Sun reduction		0,18											0,24			1,00
Oper. time red.		1,00											1,00			0,73
Wind dir. red.		0,73											0,73			0,10
Total reduction		0,13											0,18			83
Total, real		92											64			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker
			(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R11 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (37)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January		February		March		April		May		June		July		August		September		October		November		December	
1	08:36	15:58 (E3)	08:12	16:13 (E3)	07:22	07:16	06:15	05:34	05:32	06:05	06:51	07:36	07:25							08:12		15:40 (E3)		
	16:45	15	16:13 (E3)	17:30	18	16:31 (E3)	18:18	20:08	20:54	21:36	21:50	21:21	20:23	19:18	17:16					16:39	27	16:07 (E3)		
2	08:36	15:57 (E3)	08:10	16:15 (E3)	07:20	07:14	06:14	05:33	05:32	06:07	06:52	07:37	07:27							16:38		15:42 (E3)		
	16:46	17	16:14 (E3)	17:32	14	16:29 (E3)	18:20	20:09	20:56	21:37	21:49	21:19	20:21	19:15	17:14					16:38	25	16:07 (E3)		
3	08:35	15:57 (E3)	08:09	16:19 (E3)	07:18	07:12	06:12	05:32	05:33	06:08	06:54	07:39	07:28							16:38		15:42 (E3)		
	16:47	18	16:15 (E3)	17:34	6	16:25 (E3)	18:21	20:11	20:57	21:38	21:49	21:18	20:19	19:13	17:12					16:38	24	16:06 (E3)		
4	08:35	15:58 (E3)	08:07			07:16	07:09	06:10	05:32	05:34	06:09	06:55	07:40	07:30						16:37		15:43 (E3)		
	16:49	18	16:16 (E3)	17:35		18:23	20:12	20:59	21:39	21:49	21:16	20:17	19:11	17:11						16:37	23	16:06 (E3)		
5	08:35	15:58 (E3)	08:06			07:14	07:07	06:08	05:31	05:34	06:11	06:57	07:42	07:32						16:37		15:44 (E3)		
	16:50	20	16:18 (E3)	17:37		18:24	20:14	21:00	21:40	21:48	21:15	20:14	19:09	17:09						16:37	21	16:05 (E3)		
6	08:35	15:58 (E3)	08:04			07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:43	07:33						16:37		15:44 (E3)		
	16:51	20	16:18 (E3)	17:39		18:26	20:15	21:02	21:41	21:48	21:13	20:12	19:07	17:07						16:37	21	16:05 (E3)		
7	08:35	15:58 (E3)	08:03			07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45	07:35						16:37		15:44 (E3)		
	16:52	22	16:20 (E3)	17:40		18:28	20:17	21:03	21:42	21:47	21:11	20:10	19:05	17:06						16:36	20	16:04 (E3)		
8	08:34	15:58 (E3)	08:01			07:08	07:01	06:03	05:30	05:37	06:15	07:01	07:46	07:37					15:49 (E3)	16:36		15:46 (E3)		
	16:53	23	16:21 (E3)	17:42		18:29	20:19	21:05	21:43	21:47	21:10	20:08	19:03	17:04					15:56 (E3)	16:36	18	16:04 (E3)		
9	08:34	15:59 (E3)	08:00			07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48	07:38					15:46 (E3)	16:36		15:46 (E3)		
	16:55	24	16:23 (E3)	17:44		18:31	20:20	21:06	21:44	21:46	21:08	20:06	19:00	17:03					16:00 (E3)	16:36	18	16:04 (E3)		
10	08:33	15:59 (E3)	07:58			07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50	07:40					15:44 (E3)	16:36		15:47 (E3)		
	16:56	25	16:24 (E3)	17:46		18:33	20:22	21:08	21:44	21:45	21:06	20:04	18:58	17:01					16:02 (E3)	16:36	17	16:04 (E3)		
11	08:33	15:58 (E3)	07:56			07:01	06:55	05:59	05:28	05:40	06:20	07:06	07:51	07:42					15:41 (E3)	16:36		15:48 (E3)		
	16:57	27	16:25 (E3)	17:47		18:34	20:23	21:09	21:45	21:45	21:04	20:01	18:56	17:00					16:03 (E3)	16:35	15	16:03 (E3)		
12	08:32	15:59 (E3)	07:55			06:59	06:53	05:57	05:28	05:41	06:21	07:07	07:53	07:43					15:40 (E3)	16:35		15:48 (E3)		
	16:59	28	16:27 (E3)	17:49		18:36	20:25	21:11	21:46	21:44	21:02	19:59	18:54	16:58					16:05 (E3)	16:35	15	16:03 (E3)		
13	08:32	15:59 (E3)	07:53			06:57	06:50	05:56	05:28	05:42	06:22	07:09	07:54	07:45					15:40 (E3)	16:35		15:49 (E3)		
	17:00	29	16:28 (E3)	17:51		18:37	20:26	21:12	21:46	21:43	21:01	19:57	18:52	16:57					16:06 (E3)	16:35	14	16:03 (E3)		
14	08:31	15:59 (E3)	07:51			06:55	06:48	05:54	05:28	05:43	06:24	07:10	07:56	07:47					15:39 (E3)	16:35		15:50 (E3)		
	17:01	31	16:30 (E3)	17:52		18:39	20:28	21:14	21:47	21:42	20:59	19:55	18:50	16:56					16:07 (E3)	16:35	13	16:03 (E3)		
15	08:30	15:59 (E3)	07:49			06:53	06:46	05:53	05:28	05:44	06:25	07:12	07:57	07:48					15:38 (E3)	16:35		15:51 (E3)		
	17:03	32	16:31 (E3)	17:54		18:41	20:29	21:15	21:47	21:42	20:57	19:53	18:48	16:54					16:08 (E3)	16:36	13	16:04 (E3)		
16	08:30	15:59 (E3)	07:47			06:51	06:44	05:51	05:28	05:45	06:27	07:13	07:59	07:50					15:38 (E3)	16:36		15:51 (E3)		
	17:04	34	16:33 (E3)	17:56		18:42	20:31	21:17	21:48	21:41	20:55	19:50	18:46	16:53					16:09 (E3)	16:36	12	16:03 (E3)		
17	08:29	16:00 (E3)	07:46			06:49	06:42	05:50	05:27	05:46	06:28	07:15	08:01	07:51					15:38 (E3)	16:36		15:52 (E3)		
	17:06	34	16:34 (E3)	17:58		18:44	20:33	21:18	21:48	21:40	20:53	19:48	18:44	16:52					16:09 (E3)	16:36	11	16:03 (E3)		
18	08:28	16:01 (E3)	07:44			06:46	06:40	05:49	05:27	05:47	06:30	07:16	08:02	07:53					15:38 (E3)	16:36		15:52 (E3)		
	17:07	35	16:36 (E3)	17:59		18:45	20:34	21:19	21:49	21:39	20:51	19:46	18:42	16:51					16:10 (E3)	16:36	12	16:04 (E3)		
19	08:27	16:00 (E3)	07:42			06:44	06:38	05:47	05:28	05:48	06:31	07:17	08:04	07:55					15:37 (E3)	16:36		15:52 (E3)		
	17:09	35	16:35 (E3)	18:01		18:47	20:36	21:21	21:49	21:38	20:49	19:44	18:40	16:49					16:10 (E3)	16:36	11	16:03 (E3)		
20	08:26	16:01 (E3)	07:40			06:42	06:36	05:46	05:28	05:49	06:33	07:19	08:05	07:56					15:37 (E3)	16:36		15:53 (E3)		
	17:10	34	16:35 (E3)	18:03		18:49	20:37	21:22	21:49	21:37	20:47	19:42	18:38	16:48					16:11 (E3)	16:37	11	16:04 (E3)		
21	08:25	16:01 (E3)	07:38			06:40	06:34	05:45	05:28	05:51	06:34	07:20	08:07	07:58					15:37 (E3)	16:37		15:54 (E3)		
	17:12	35	16:36 (E3)	18:04		18:50	20:39	21:23	21:50	21:35	20:45	19:39	18:36	16:47					16:12 (E3)	16:37	11	16:05 (E3)		
22	08:24	16:02 (E3)	07:36			06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09	07:59					15:37 (E3)	16:37		15:54 (E3)		
	17:14	34	16:36 (E3)	18:06		18:52	20:40	21:25	21:50	21:34	20:43	19:37	18:34	16:46					16:11 (E3)	16:38	11	16:05 (E3)		
23	08:23	16:03 (E3)	07:34			06:35	06:30	05:42	05:28	05:53	06:37	07:23	08:10	08:01					15:37 (E3)	16:38		15:54 (E3)		
	17:15	33	16:36 (E3)	18:08		18:53	20:42	21:26	21:50	21:33	20:42	19:35	18:32	16:45					16:12 (E3)	16:38	11	16:05 (E3)		
24	08:22	16:04 (E3)	07:32			06:33	06:28	05:41	05:28	05:54	06:39	07:25	08:12	08:02					15:38 (E3)	16:38		15:55 (E3)		
	17:17	32	16:36 (E3)	18:09		18:55	20:44	21:27	21:50	21:32	20:39	19:33	18:30	16:44					16:13 (E3)	16:39	11	16:06 (E3)		
25	08:21	16:04 (E3)	07:30			06:31	06:26	05:40	05:29	05:56	06:40	07:26	07:14	08:04					15:38 (E3)	16:39		15:55 (E3)		
	17:18	31	16:35 (E3)	18:11		18:57	20:45	21:28	21:50	21:31	20:37	19:31	17:28	16:43					16:12 (E3)	16:39	12	16:07 (E3)		
26	08:20	16:05 (E3)	07:28			06:29	06:25	05:39	05:29	05:57	06:42	07:28	07:15	08:05					15:38 (E3)	16:39		15:55 (E3)		
	17:20	31	16:36 (E3)	18:13		18:58	20:47	21:30	21:50	21:29	20:35	19:28	17:26	16:43					16:12 (E3)	16:40	12	16:07 (E3)		
27	08:18	16:06 (E3)	07:26			06:27	06:23	05:38	05:30	05:58	06:43	07:30	07:17	08:07					15:38 (E3)	16:40		15:57 (E3)		
	17:22	30	16:36 (E3)	18:15		19:00	20:48	21:31	21:50	21:28	20:33	19:26	17:25	16:42					16:10 (E3)	16:41	12	16:09 (E3)		
28	08:17	16:06 (E3)	07:24			06:25	06:21	05:37	05:30	06:00	06:45	07:31	07:19	08:08					15:39 (E3)	16:41		15:57 (E3)		
	17:23	28	16:34 (E3)	18:16		19:01	20:50	21:32	21:50	21:27	20:31	19:24	17:23	16:41					16:10 (E3)	16:42	12	16:09 (E3)		
29																								

Project:

Eeschpelt - Bârel

Licensed user:

Embridge
Route de Hannut, 55
BE-5000 Namur

Nicolas Jorion / nicolasj@embridge.be

Calculated:

05-06-25 16:09/4.1.254

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R12 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (38)
Assumptions for shadow calculationsSunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:36 16:45	12:30 (E4) 13:07 (E4)	08:12 17:30	16:30 (E3) 17:02 (E3)	07:22 18:18	07:16 20:08	06:15 20:54	05:34 21:36	05:32 21:50	06:05 21:21	07:36 20:23	17:16 19:18	15:58 (E3) 16:36 (E3)	08:12 16:39	10 12:29 (E4)
2	08:36 16:46	12:30 (E4) 13:06 (E4)	08:10 17:32	16:29 (E3) 17:03 (E3)	07:20 18:20	07:14 20:09	06:14 20:56	05:33 21:37	05:32 21:49	06:07 21:19	07:37 20:21	17:14 19:15	15:58 (E3) 16:36 (E3)	08:14 16:38	17 12:26 (E4)
3	08:35 16:47	12:31 (E4) 13:06 (E4)	08:09 17:34	16:29 (E3) 17:05 (E3)	07:18 18:21	07:12 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	07:39 19:13	17:12 19:13	15:58 (E3) 16:37 (E3)	08:15 16:38	22 12:24 (E4)
4	08:35 16:49	12:32 (E4) 13:06 (E4)	08:07 17:35	16:29 (E3) 17:06 (E3)	07:16 18:23	07:09 20:12	06:10 20:59	05:32 21:39	05:34 21:49	06:09 21:16	07:40 19:11	17:11 19:11	15:59 (E3) 16:37 (E3)	08:16 16:37	25 12:23 (E4)
5	08:35 16:50	12:34 (E4) 13:06 (E4)	08:06 17:37	16:28 (E3) 17:06 (E3)	07:14 18:24	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	07:42 19:09	17:11 19:09	15:59 (E3) 16:37 (E3)	08:18 16:37	28 12:22 (E4)
6	08:35 16:51	12:35 (E4) 13:05 (E4)	08:04 17:39	16:29 (E3) 17:07 (E3)	07:12 18:26	07:05 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	07:43 19:07	17:12 19:07	15:58 (E3) 16:36 (E3)	08:19 16:37	30 12:21 (E4)
7	08:35 16:52	12:37 (E4) 13:05 (E4)	08:03 17:40	16:29 (E3) 17:07 (E3)	07:10 18:28	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:45 19:05	17:13 19:05	15:59 (E3) 16:36 (E3)	08:20 16:36	32 12:20 (E4)
8	08:34 16:53	12:38 (E4) 13:03 (E4)	08:01 17:42	16:29 (E3) 17:07 (E3)	07:08 18:29	07:01 20:19	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:46 19:03	17:14 19:03	15:59 (E3) 16:35 (E3)	08:21 16:36	33 12:21 (E4)
9	08:34 16:55	12:41 (E4) 13:03 (E4)	08:00 17:44	16:29 (E3) 17:07 (E3)	07:06 18:31	06:59 20:20	06:02 21:06	05:29 21:44	05:38 21:46	06:17 21:08	07:48 19:00	17:14 19:00	16:00 (E3) 16:34 (E3)	08:22 16:36	35 12:20 (E4)
10	08:33 16:56	12:43 (E4) 13:01 (E4)	07:58 17:46	16:30 (E3) 17:07 (E3)	07:04 18:33	06:57 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:50 18:58	17:13 19:01	16:01 (E3) 16:33 (E3)	08:23 16:36	36 12:20 (E4)
11	08:33 16:57	12:46 (E4) 12:57 (E4)	07:56 17:47	16:30 (E3) 17:07 (E3)	07:01 18:34	06:55 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:20 21:04	07:06 18:56	17:14 19:00	16:01 (E3) 16:30 (E3)	08:24 16:35	37 12:20 (E4)
12	08:32 16:59		07:55 17:49	16:30 (E3) 17:06 (E3)	06:59 18:36	06:53 20:25	05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 18:54	17:15 19:01	16:02 (E3) 16:29 (E3)	08:25 16:35	38 12:20 (E4)
13	08:32 17:00		07:53 17:51	16:31 (E3) 17:05 (E3)	06:57 18:38	06:50 20:26	05:56 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:09 18:52	17:16 19:02	16:03 (E3) 16:28 (E3)	08:26 16:35	39 12:20 (E4)
14	08:31 17:01		07:51 17:52	16:31 (E3) 17:05 (E3)	06:55 18:39	06:48 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 18:50	17:17 19:03	16:04 (E3) 16:27 (E3)	08:27 16:35	40 13:00 (E4)
15	08:30 17:03		07:49 17:54	16:33 (E3) 17:05 (E3)	06:53 18:41	06:46 20:29	05:53 21:15	05:28 21:47	05:44 21:42	06:25 20:57	07:12 18:53	17:18 19:04	16:05 (E3) 16:24 (E3)	08:28 16:36	41 13:01 (E4)
16	08:30 17:04		07:47 17:56	16:34 (E3) 17:03 (E3)	06:51 18:42	06:44 20:31	05:51 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 18:46	17:19 19:05	16:06 (E3) 16:23 (E3)	08:29 16:36	42 13:00 (E4)
17	08:29 17:06		07:46 17:58	16:35 (E3) 17:02 (E3)	06:49 18:44	06:42 20:33	05:50 21:18	05:27 21:48	05:46 21:40	06:28 20:53	07:15 18:44	17:20 19:06	16:08 (E3) 16:22 (E3)	08:30 16:36	43 13:01 (E4)
18	08:28 17:07		07:44 17:59	16:37 (E3) 17:00 (E3)	06:46 18:46	06:40 20:34	05:49 21:19	05:27 21:49	05:47 21:39	06:30 21:05	07:16 18:42	17:21 19:07	16:10 (E3) 16:21 (E3)	08:31 16:36	44 13:02 (E4)
19	08:27 17:09		07:42 18:01	16:39 (E3) 16:58 (E3)	06:44 18:47	06:38 20:36	05:47 21:21	05:28 21:49	05:48 21:38	06:31 20:49	07:17 18:40	17:22 19:08	16:12 (E3) 16:19 (E3)	08:32 16:36	45 13:03 (E4)
20	08:26 17:10		07:40 18:03	16:42 (E3) 16:55 (E3)	06:42 18:49	06:36 20:37	05:46 21:22	05:28 21:49	05:49 21:37	06:33 20:47	07:19 18:38	17:23 19:09	16:15 (E3) 16:18 (E3)	08:33 16:37	46 13:04 (E4)
21	08:25 17:12		07:38 18:04	16:40 18:50	06:40 20:39	06:34 21:23	05:45 21:25	05:28 21:50	05:51 21:35	06:34 20:45	07:20 18:36	17:24 19:11	16:16 (E3) 17:11 (E3)	08:34 16:38	47 13:05 (E4)
22	08:24 17:14	16:40 (E3) 16:43 (E3)	07:36 18:06	16:38 18:52	06:32 20:40	06:32 21:25	05:44 21:50	05:28 21:34	05:52 21:40	06:36 20:43	07:22 18:34	17:25 19:12	16:17 (E3) 17:12 (E3)	08:35 16:39	48 13:06 (E4)
23	08:23 17:15	16:38 (E3) 16:45 (E3)	07:34 18:08	16:35 18:53	06:30 20:42	06:30 21:26	05:42 21:50	05:28 21:33	05:53 21:42	06:37 20:42	07:23 18:35	17:26 19:13	16:18 (E3) 17:09 (E3)	08:36 16:40	49 13:07 (E4)
24	08:22 17:17	16:36 (E3) 16:47 (E3)	07:32 18:10	16:33 18:55	06:28 20:43	06:28 21:27	05:41 21:50	05:28 21:32	05:54 21:40	06:39 20:39	07:25 18:30	17:27 19:14	16:19 (E3) 17:10 (E3)	08:37 16:41	50 13:08 (E4)
25	08:21 17:18	16:34 (E3) 16:48 (E3)	07:30 18:11	16:31 18:57	06:26 20:45	06:26 21:28	05:40 21:50	05:29 21:31	05:56 21:40	06:40 20:37	07:26 18:31	17:28 19:15	16:20 (E3) 16:32 (E3)	08:38 16:43	51 13:09 (E4)
26	08:20 17:20	16:33 (E3) 16:50 (E3)	07:28 18:13	16:29 18:58	06:25 20:47	06:25 21:30	05:39 21:50	05:29 21:29	05:57 21:35	06:42 20:35	07:28 18:32	17:29 19:16	16:21 (E3) 16:33 (E3)	08:39 16:44	52 13:10 (E4)
27	08:18 17:22	16:33 (E3) 16:52 (E3)	07:26 18:15	16:27 19:00	06:23 20:48	06:23 21:31	05:38 21:50	05:30 21:28	05:58 21:33	06:43 20:33	07:30 19:26	17:30 19:19	16:22 (E3) 16:34 (E3)	08:40 16:45	53 13:11 (E4)
28	08:17 17:23	16:31 (E3) 16:54 (E3)	07:24 18:16	16:25 19:01	06:21 20:50	06:21 21:32	05:37 21:50	05:30 21:27	06:00 21:31	06:45 20:31	07:31 19:24	17:31 19:20	16:23 (E3) 16:36 (E3)	08:41 16:46	54 13:12 (E4)
29	08:16 17:25	16:31 (E3) 16:56 (E3)		07:22 20:03	06:19 20:51	06:19 21:33	05:36 21:50	05:31 21:25	06:01 21:29	06:46 20:29	07:33 19:22	17:32 19:21	16:24 (E3) 16:37 (E3)	08:42 16:47	55 13:13 (E4)
30	08:15 17:27	16:31 (E3) 16:58 (E3)		07:20 20:04	06:17 20:53	06:17 21:34	05:35 21:50	05:31 21:24	06:02 21:27	06:48 20:27	07:34 19:20	17:33 19:21	16:25 (E3) 16:38 (E3)	08:43 16:48	56 13:14 (E4)
31	08:13 17:28	16:30 (E3) 17:00 (E3)		07:18 20:06	07:18 20:06	07:18 20:06	05:35 21:35	06:04 21:22	06:49 20:25		07:35 19:21	17:34 19:22	16:26 (E3) 16:39 (E3)	08:44 16:49	57 13:15 (E4)
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254	1120		
Total, worst case	484	650													
Sun reduction	0,18	0,30													
Oper. time red.	1,00	1,00													
Wind dir. red.	0,68	0,71													
Total reduction	0,12	0,22													
Total, real	60	140								61	94	103			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		



SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R13 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (39)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January		February		March	April	May	June	July	August	September	October	November		December		
1	08:36	15:55 (E3)	08:12	07:22	07:16	06:15	05:34	05:32	06:05	06:51	07:36	07:25			08:12	15:40 (E3)	
2	16:45	18	16:13 (E3)	17:30	18:18	20:08	20:54	21:36	21:50	21:21	20:23	19:18	17:16		16:39	26	16:06 (E3)
	08:36	15:54 (E3)	08:10	07:20	07:14	06:14	05:33	05:32	06:07	06:52	07:37	07:27			08:14	15:41 (E3)	
3	16:46	19	16:13 (E3)	17:32	18:20	20:09	20:56	21:37	21:49	21:19	20:21	19:15	17:14		16:38	26	16:07 (E3)
	08:35	15:55 (E3)	08:09	07:18	07:12	06:12	05:32	05:33	06:08	06:54	07:39	07:28			08:15	15:41 (E3)	
4	16:47	20	16:15 (E3)	17:33	18:21	20:11	20:57	21:38	21:49	21:18	20:19	19:13	17:12		16:38	25	16:06 (E3)
	08:35	15:55 (E3)	08:07	07:16	07:09	06:10	05:32	05:34	06:09	06:55	07:40	07:30			08:16	15:42 (E3)	
5	16:49	21	16:16 (E3)	17:35	18:23	20:12	20:59	21:39	21:49	21:16	20:17	19:11	17:11		16:37	24	16:06 (E3)
	08:35	15:56 (E3)	08:06	07:14	07:07	06:08	05:31	05:34	06:11	06:57	07:42	07:32			08:18	15:42 (E3)	
6	16:50	22	16:18 (E3)	17:37	18:24	20:14	21:00	21:40	21:48	21:14	20:14	19:09	17:09		16:37	23	16:05 (E3)
	08:35	15:56 (E3)	08:04	07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:43	07:33			08:19	15:42 (E3)	
7	16:51	22	16:18 (E3)	17:39	18:26	20:15	21:02	21:41	21:48	21:13	20:12	19:07	17:07		16:37	23	16:05 (E3)
	08:35	15:57 (E3)	08:03	07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45	07:35			08:20	15:42 (E3)	
8	16:52	23	16:20 (E3)	17:40	18:28	20:17	21:03	21:42	21:47	21:11	20:10	19:05	17:06		16:36	22	16:04 (E3)
	08:34	15:57 (E3)	08:01	07:08	07:01	06:03	05:30	05:37	06:15	07:01	07:46	07:37			08:21	15:44 (E3)	
9	16:53	24	16:21 (E3)	17:42	18:29	20:19	21:05	21:43	21:47	21:09	20:08	19:02	17:04		16:36	20	16:04 (E3)
	08:34	15:58 (E3)	08:00	07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48	07:38			08:22	15:44 (E3)	
10	16:55	25	16:23 (E3)	17:44	18:31	20:20	21:06	21:44	21:46	21:08	20:06	19:00	17:03		16:36	20	16:04 (E3)
	08:33	15:58 (E3)	07:58	07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50	07:40			08:23	15:44 (E3)	
11	16:56	26	16:24 (E3)	17:46	18:33	20:22	21:08	21:44	21:45	21:06	20:04	18:58	17:01		16:36	20	16:04 (E3)
	08:33	15:58 (E3)	07:56	07:01	06:55	05:59	05:28	05:40	06:20	07:06	07:51	07:42			08:24	15:45 (E3)	
12	16:57	26	16:24 (E3)	17:47	18:34	20:23	21:09	21:45	21:45	21:04	20:01	18:56	17:00		16:35	18	16:03 (E3)
	08:32	16:00 (E3)	07:55	06:59	06:52	05:57	05:28	05:41	06:21	07:07	07:53	07:43			08:25	15:45 (E3)	
13	16:59	25	16:25 (E3)	17:49	18:36	20:25	21:11	21:46	21:44	21:02	19:59	18:54	16:58		16:35	18	16:03 (E3)
	08:32	16:00 (E3)	07:53	06:57	06:50	05:56	05:28	05:42	06:22	07:09	07:54	07:45			08:26	15:46 (E3)	
14	17:00	25	16:25 (E3)	17:51	18:37	20:26	21:12	21:46	21:43	21:01	19:57	18:52	16:57		16:35	17	16:03 (E3)
	08:31	16:01 (E3)	07:51	06:55	06:48	05:54	05:28	05:43	06:24	07:10	07:56	07:47			08:27	15:46 (E3)	
15	17:01	23	16:24 (E3)	17:52	18:39	20:28	21:14	21:47	21:42	20:59	19:55	18:50	16:56		16:35	17	16:03 (E3)
	08:30	16:01 (E3)	07:49	06:53	06:46	05:53	05:28	05:44	06:25	07:12	07:57	07:48			08:28	15:47 (E3)	
16	17:03	23	16:24 (E3)	17:54	18:41	20:29	21:15	21:47	21:42	20:57	19:53	18:48	16:54		16:36	16	16:03 (E3)
	08:30	16:02 (E3)	07:47	06:51	06:44	05:51	05:27	05:45	06:27	07:13	07:59	07:50			08:29	15:47 (E3)	
17	17:04	22	16:24 (E3)	17:56	18:42	20:31	21:17	21:48	21:41	20:55	19:50	18:46	16:53		16:36	16	16:03 (E3)
	08:29	16:03 (E3)	07:46	06:49	06:42	05:50	05:27	05:46	06:28	07:14	08:01	07:51			08:30	15:47 (E3)	
18	17:06	21	16:24 (E3)	17:58	18:44	20:33	21:18	21:48	21:40	20:53	19:48	18:44	16:52		16:36	16	16:03 (E3)
	08:28	16:05 (E3)	07:44	06:46	06:40	05:49	05:27	05:47	06:30	07:16	08:02	07:53			08:30	15:48 (E3)	
19	17:07	19	16:24 (E3)	17:59	18:45	20:34	21:19	21:49	21:39	20:51	19:46	18:42	16:51		16:36	16	16:04 (E3)
	08:27	16:05 (E3)	07:42	06:44	06:38	05:47	05:27	05:48	06:31	07:17	08:04	07:55			08:31	15:48 (E3)	
20	17:09	18	16:23 (E3)	18:01	18:47	20:36	21:21	21:49	21:38	20:49	19:44	18:40	16:49		16:36	15	16:03 (E3)
	08:26	16:07 (E3)	07:40	06:42	06:36	05:46	05:28	05:49	06:33	07:19	08:05	07:56			08:32	15:49 (E3)	
21	17:10	15	16:22 (E3)	18:03	18:49	20:37	21:22	21:49	21:37	20:47	19:42	18:38	16:48	7	15:54 (E3)	15	16:04 (E3)
	08:25	16:09 (E3)	07:38	06:40	06:34	05:45	05:28	05:51	06:34	07:20	08:07	07:58			08:32	15:50 (E3)	
22	17:12	12	16:21 (E3)	18:04	18:50	20:39	21:23	21:50	21:35	20:45	19:39	18:36	16:47	12	15:57 (E3)	15	16:05 (E3)
	08:24	16:12 (E3)	07:36	06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09	07:59			08:33	15:50 (E3)	
23	17:13	7	16:19 (E3)	18:06	18:52	20:40	21:25	21:50	21:34	20:43	19:37	18:34	16:46	15	15:58 (E3)	15	16:05 (E3)
	08:23		07:34	06:35	06:30	05:42	05:28	05:53	06:37	07:23	08:10	08:01			08:33	15:50 (E3)	
24	17:15		18:08	18:53	20:42	21:26	21:50	21:33	20:41	19:35	18:32	16:45	18	16:00 (E3)	15	16:05 (E3)	
	08:22		07:32	06:33	06:28	05:41	05:28	05:54	06:39	07:25	08:12	08:02			08:34	15:51 (E3)	
25	17:17		18:09	18:55	20:43	21:27	21:50	21:32	20:39	19:33	18:30	16:44	19	16:01 (E3)	15	16:06 (E3)	
	08:21		07:30	06:31	06:26	05:40	05:29	05:56	06:40	07:26	07:14	08:04			08:34	15:51 (E3)	
26	17:18		18:11	18:57	20:45	21:28	21:50	21:31	20:37	19:31	17:28	16:43	21	16:02 (E3)	16	16:07 (E3)	
	08:20		07:28	06:29	06:24	05:39	05:29	05:57	06:42	07:28	07:15	08:05			08:35	15:51 (E3)	
27	17:20		18:13	18:58	20:47	21:30	21:50	21:29	20:35	19:28	17:26	16:43	22	16:03 (E3)	16	16:07 (E3)	
	08:18		07:26	06:27	06:23	05:38	05:30	05:58	06:43	07:30	07:17	08:07			08:35	15:52 (E3)	
28	17:22		18:15	19:00	20:48	21:31	21:50	21:28	20:33	19:26	17:25	16:42	23	16:03 (E3)	17	16:09 (E3)	
	08:17		07:24	06:25	06:21	05:37	05:30	06:00	06:45	07:31	07:19	08:08			08:35	15:53 (E3)	
29	17:23		18:16	19:01	20:50	21:32	21:50	21:27	20:31	19:24	17:23	16:41	24	16:05 (E3)	16	16:09 (E3)	
	08:16			07:22	06:19	05:36	05:31	06:01	06:46	07:33	07:20	08:10			08:35	15:53 (E3)	
30	17:25			20:03	20:51	21:33	21:50	21:25	20:29	19:22	17:21	16:40	25	16:06 (E3)	17	16:10 (E3)	
	08:15			07:20	06:17	05:35	05:31	06:02	06:48	07:34	07:22	08:11			08:35	15:53 (E3)	
31	17:27			20:04	20:53	21:34	21:50	21:24	20:27	19:20	17:19	16:40	25	16:06 (E3)	18	16:11 (E3)	
	08:13			07:18		05:35		06:04	06:49		07:23				08:35	15:54 (E3)	
	17:28			20:06		21:35		21:22	20:25		17:17				16:44	18	16:12 (E3)
Potential sun hours	267		282	368	412	477	488	492	448	380	334	273			253	571	
Total, worst case		456														0,14	
Sun reduction		0,18											0,24			0,14	
Oper. time red.		1,00											1,00			1,00	
Wind dir. red.		0,73											0,73			0,73	
Total reduction		0,13											0,18			0,10	
Total, real		61											37			57	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker
			(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R14 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (40)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

January		February		March	April	May	June	July	August	September	October	November	December	
1	08:36 16:45		08:12 17:30	16:31 (E3) 18:18	07:22 20:08	07:16 20:54	05:34 21:36	05:32 21:50	06:05 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:12 16:39	16:02 (E3) 16:07 (E3)
2	08:36 16:46		08:10 17:32	16:35 (E3) 18:19	07:20 20:09	07:14 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:37 19:15	07:27 17:14	08:14 16:38	16:04 (E3) 16:07 (E3)
3	08:35 16:47		08:09 17:33	16:38 (E3) 18:19	07:18 20:09	07:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	07:28 17:12	08:15 16:38	16:05 (E3) 16:06 (E3)
4	08:35 16:49		08:07 17:35		07:16 20:12	07:09 20:59	05:32 21:39	05:34 21:49	06:09 21:16	06:55 20:17	07:40 19:11	07:30 17:11	08:16 16:37	
5	08:35 16:50		08:06 17:37		07:14 20:14	07:07 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:42 19:09	07:32 17:09	08:18 16:37	
6	08:35 16:51		08:04 17:39		07:12 20:15	07:05 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:43 19:07	07:33 17:07	08:19 16:37	
7	08:35 16:52		08:03 17:40		07:10 20:16	07:03 21:05	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:45 19:05	07:35 17:06	08:20 16:36	
8	08:34 16:53		08:01 17:42		07:08 20:17	07:01 21:03	05:30 21:42	05:37 21:47	06:15 21:11	07:01 20:10	07:46 19:05	07:37 17:06	08:21 16:36	
9	08:34 16:55		08:00 17:44		07:06 20:18	06:59 21:06	05:29 21:44	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:00	07:38 17:03	08:22 16:36	
10	08:33 16:56	1	16:23 (E3) 07:58		07:04 20:20	06:57 21:06	05:29 21:44	05:39 21:46	06:18 21:08	07:04 20:06	07:50 19:00	07:40 17:03	16:02 (E3) 16:03 (E3)	16:36
11	08:33 16:57	3	16:24 (E3) 07:56		07:03 20:22	06:55 21:08	05:28 21:44	05:40 21:45	06:20 21:06	07:06 20:04	07:51 18:58	07:42 17:01	16:00 (E3) 16:14 (E3)	16:36
12	08:32 16:59	5	16:25 (E3) 07:55		07:01 20:23	06:55 21:09	05:28 21:45	05:40 21:45	06:20 21:04	07:06 20:01	07:51 18:56	07:42 17:00	16:00 (E3) 16:15 (E3)	16:36
13	08:32 17:00	6	16:27 (E3) 07:53		06:59 20:25	06:52 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 19:59	07:53 18:54	07:43 16:58	15:58 (E3) 16:16 (E3)	16:35
14	08:31 17:01	7	16:28 (E3) 07:51		06:57 20:26	06:50 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:09 19:57	07:54 18:52	07:45 16:57	15:58 (E3) 16:18 (E3)	16:35
15	08:30 17:03	10	16:30 (E3) 07:49		06:55 20:28	06:48 21:14	05:28 21:47	05:43 21:42	06:24 21:05	07:10 19:55	07:56 18:50	07:47 16:56	15:57 (E3) 16:19 (E3)	16:35
16	08:30 17:04	11	16:31 (E3) 07:47		06:53 20:29	06:46 21:15	05:27 21:47	05:44 21:42	06:25 21:05	07:12 19:53	07:57 18:48	07:48 16:54	15:56 (E3) 16:19 (E3)	16:35
17	08:29 17:06	13	16:33 (E3) 07:46		06:51 20:31	06:44 21:16	05:27 21:48	05:45 21:41	06:27 21:05	07:13 19:50	07:59 18:46	07:50 16:53	15:56 (E3) 16:20 (E3)	16:35
18	08:28 17:07	14	16:34 (E3) 07:44		06:49 20:33	06:42 21:18	05:27 21:48	05:46 21:40	06:28 21:03	07:14 19:48	08:01 18:44	07:51 16:52	15:56 (E3) 16:21 (E3)	16:35
19	08:27 17:09	16	16:36 (E3) 07:42		06:46 20:34	06:40 21:19	05:27 21:49	05:47 21:39	06:30 21:05	07:16 19:46	08:02 18:42	07:53 16:51	15:56 (E3) 16:21 (E3)	16:35
20	08:26 17:10	18	16:38 (E3) 07:40		06:44 20:36	06:38 21:21	05:27 21:49	05:48 21:38	06:31 21:04	07:17 19:44	08:04 18:40	07:55 16:49	15:56 (E3) 16:19 (E3)	16:35
21	08:25 17:12	19	16:39 (E3) 07:38		06:42 20:37	06:36 21:22	05:28 21:49	05:49 21:37	06:33 21:04	07:19 19:42	08:05 18:38	07:56 16:48	15:56 (E3) 16:18 (E3)	16:35
22	08:24 17:13	20	16:41 (E3) 07:36		06:40 20:39	06:34 21:23	05:28 21:50	05:51 21:35	06:34 21:05	07:20 19:39	08:07 18:36	07:58 16:47	15:57 (E3) 16:17 (E3)	16:35
23	08:23 17:15	22	16:43 (E3) 07:34		06:38 20:42	06:32 21:26	05:28 21:50	05:52 21:33	06:36 21:04	07:22 19:35	08:09 18:32	07:59 16:45	15:56 (E3) 16:15 (E3)	16:35
24	08:22 17:17	23	16:45 (E3) 07:32		06:35 20:44	06:30 21:25	05:28 21:50	05:53 21:34	06:37 21:03	07:23 19:35	08:10 18:30	08:01 16:44	15:57 (E3) 16:16 (E3)	16:35
25	08:21 17:18	25	16:47 (E3) 07:30		06:33 20:46	06:28 21:27	05:28 21:50	05:54 21:32	06:39 21:04	07:25 19:33	08:12 18:30	08:02 16:44	15:58 (E3) 16:14 (E3)	16:35
26	08:20 17:20	26	16:49 (E3) 07:28		06:31 20:48	06:26 21:28	05:29 21:50	05:56 21:31	06:40 21:03	07:26 19:31	08:04 18:28	07:26 16:43	15:58 (E3) 16:12 (E3)	16:35
27	08:18 17:22	27	16:51 (E3) 07:26		06:30 20:50	06:24 21:29	05:29 21:50	05:57 21:29	06:42 21:05	07:28 19:35	08:05 18:26	07:28 16:43	15:59 (E3) 16:12 (E3)	16:35
28	08:17 17:23	28	16:53 (E3) 07:24		06:27 20:52	06:23 21:30	05:30 21:50	05:58 21:28	06:43 21:04	07:29 19:35	08:07 18:30	07:29 16:44	15:59 (E3) 16:13 (E3)	16:35
29	08:16 17:25	29	16:55 (E3) 07:22		06:25 20:54	06:21 21:32	05:30 21:50	06:00 21:27	06:45 21:03	07:31 19:35	08:08 18:30	07:31 16:45	16:00 (E3) 16:14 (E3)	16:35
30	08:15 17:27	30	16:57 (E3) 07:20		06:23 20:56	06:19 21:34	05:31 21:50	06:01 21:25	06:46 21:05	07:33 19:35	08:10 18:30	07:33 16:46	16:02 (E3) 16:16 (E3)	16:35
31	08:13 17:28	31	16:59 (E3) 07:18		06:21 20:58	06:17 21:36	05:31 21:50	06:02 21:24	06:48 21:07	07:34 19:35	08:11 18:30	07:34 16:47	16:03 (E3) 16:17 (E3)	16:35
Potential sun hours	267		282		368	412	477	488	492	448	380	334	273	253
Total, worst case	359		14									369		9
Sun reduction	0,18		0,30									0,24		0,14
Oper. time red.	1,00		1,00									1,00		1,00
Wind dir. red.	0,72		0,72									0,72		0,72
Total reduction	0,13		0,22									0,18		0,10
Total, real	47		3									65		1

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R15 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (41)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:35 16:45	08:12 17:30	07:22 18:18	17:45 (E4) 17:53 (E4)	07:16 20:07	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	18:17 (E4) 18:36 (E4)	07:25 17:16	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	17:43 (E4) 17:55 (E4)	07:14 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	18:16 (E4) 18:37 (E4)	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	17:40 (E4) 17:56 (E4)	07:12 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	18:15 (E4) 18:38 (E4)	07:28 17:12	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	17:39 (E4) 17:58 (E4)	07:09 20:12	06:10 20:59	05:32 21:39	05:34 21:49	06:09 21:16	06:55 20:16	18:14 (E4) 18:37 (E4)	07:30 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	17:38 (E4) 17:59 (E4)	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	18:14 (E4) 18:37 (E4)	07:32 17:09	08:18 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	17:37 (E4) 18:00 (E4)	07:05 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	18:13 (E4) 18:37 (E4)	07:33 17:07	08:19 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	17:37 (E4) 18:01 (E4)	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	18:13 (E4) 18:36 (E4)	07:35 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	17:37 (E4) 18:01 (E4)	07:01 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	18:13 (E4) 18:35 (E4)	07:37 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	17:37 (E4) 18:00 (E4)	06:59 20:20	06:02 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	18:13 (E4) 18:34 (E4)	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	17:36 (E4) 17:59 (E4)	06:57 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:04	18:14 (E4) 18:32 (E4)	07:40 17:01	08:23 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	17:37 (E4) 17:58 (E4)	06:55 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	18:15 (E4) 18:29 (E4)	07:42 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:30	17:38 (E4) 18:36 (E4)	06:52 20:25	05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 19:59	18:17 (E4) 18:27 (E4)	07:43 16:58	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:31	17:39 (E4) 18:37 (E4)	06:50 20:26	05:56 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	18:20 (E4) 18:25 (E4)	07:45 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:32	17:41 (E4) 18:39 (E4)	06:48 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	18:25 (E4) 18:32 (E4)	07:47 16:56	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:32	17:44 (E4) 18:41 (E4)	06:46 20:29	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	18:32 (E4) 18:39 (E4)	07:48 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:34	17:51 (E4) 18:42 (E4)	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	18:40 (E4) 18:46 (E4)	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:48 18:34	18:44 (E4) 18:44 (E4)	06:42 20:33	05:50 21:18	05:28 21:48	05:46 21:40	06:28 20:53	07:14 19:48	18:46 (E4) 18:52 (E4)	07:51 16:52	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:34	18:46 (E4) 18:45 (E4)	06:40 20:34	05:49 21:19	05:27 21:49	05:47 21:39	06:30 20:51	07:16 19:46	18:44 (E4) 19:01 (E4)	07:53 16:51	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:34	18:46 (E4) 18:47 (E4)	06:38 20:36	05:47 21:21	05:27 21:49	05:48 21:38	06:31 20:49	07:17 19:44	18:43 (E4) 18:50 (E4)	07:55 16:49	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:33	18:47 (E4) 18:49 (E4)	06:36 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	18:46 (E4) 18:53 (E4)	07:56 16:48	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:33	18:49 (E4) 18:50 (E4)	06:34 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	18:54 (E4) 18:59 (E4)	07:58 16:47	08:32 16:37
22	08:24 17:13	07:36 18:06	06:38 18:32	18:52 (E4) 18:52 (E4)	06:32 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	18:59 (E4) 19:04 (E4)	07:59 16:46	08:33 16:38
23	08:23 17:15	07:34 18:08	06:35 18:31	18:53 (E4) 18:53 (E4)	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	19:04 (E4) 19:09 (E4)	08:01 16:45	08:33 16:38
24	08:22 17:17	07:32 18:09	06:33 18:29	18:56 (E4) 18:55 (E4)	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	19:10 (E4) 19:15 (E4)	08:02 16:44	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:27	18:56 (E4) 18:56 (E4)	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	19:16 (E4) 19:21 (E4)	08:04 16:43	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:23	18:58 (E4) 18:58 (E4)	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	19:26 (E4) 19:31 (E4)	08:05 16:42	08:34 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	18:58 (E4) 19:00 (E4)	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	19:36 (E4) 19:41 (E4)	08:07 16:42	08:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	19:01 (E4) 19:01 (E4)	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	19:42 (E4) 19:47 (E4)	08:08 16:41	08:35 16:42
29	08:16 17:25	07:22 18:16	06:22 20:03	19:01 (E4) 20:03 (E4)	06:19 20:51	05:36 21:33	05:30 21:50	06:01 21:25	06:46 20:29	07:32 19:22	19:52 (E4) 19:57 (E4)	08:10 16:40	08:35 16:42
30	08:14 17:27	07:20 18:14	06:20 20:04	19:01 (E4) 20:04 (E4)	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	20:02 (E4) 20:07 (E4)	08:11 16:39	08:35 16:43
31	08:13 17:28	07:18 18:13	06:18 20:06	19:01 (E4) 20:06 (E4)	06:16 20:52	05:34 21:33	05:30 21:50	06:03 21:24	06:49 20:27	07:35 19:20	20:08 (E4) 20:13 (E4)	08:12 16:38	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254	
Total, worst case		279	270						29	528			
Sun reduction		0,30	0,27						0,38	0,29			
Oper. time red.		1,00	1,00						1,00	1,00			
Wind dir. red.		0,56	0,68						0,68	0,61			
Total reduction		0,17	0,18						0,25	0,18			
Total, real		47	49						7	94			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R16 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (42)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:49 (E5) 24 08:13 (E5) 20:07	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	07:36 19:17	07:25 17:16	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:49 (E5) 24 08:13 (E5) 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:37 19:15	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:48 (E5) 24 08:12 (E5) 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	07:28 17:12	08:15 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:48 (E5) 23 08:11 (E5) 20:12	06:10 20:59	05:32 21:39	05:34 21:48	06:09 21:16	06:55 20:16	07:40 19:11	08:33 (E5) 5 08:38 (E5) 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:48 (E5) 23 08:11 (E5) 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:42 19:09	08:30 (E5) 12 08:42 (E5) 17:09	08:18 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:49 (E5) 21 08:10 (E5) 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:43 19:07	08:27 (E5) 16 08:43 (E5) 17:07	08:19 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:50 (E5) 18 08:08 (E5) 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:45 19:05	08:26 (E5) 19 08:45 (E5) 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:52 (E5) 14 08:06 (E5) 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	07:46 19:02	08:24 (E5) 21 08:45 (E5) 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	07:54 (E5) 10 08:04 (E5) 20:20	06:02 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:00	08:23 (E5) 23 08:46 (E5) 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	07:03 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:04	07:49 18:58	08:23 (E5) 24 08:47 (E5) 17:01	08:23 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	07:01 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	07:51 18:56	08:22 (E5) 24 08:46 (E5) 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 19:59	07:53 18:54	08:22 (E5) 24 08:46 (E5) 16:58	07:43 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	18:07 (E4) 6 18:13 (E4) 20:26	05:56 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	07:54 18:52	07:45 24 08:41 (E5) 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	18:04 (E4) 11 18:15 (E4) 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:56 18:50	08:21 (E5) 24 08:45 (E5) 16:56	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	18:02 (E4) 15 18:17 (E4) 20:29	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:57 18:48	08:22 (E5) 23 08:45 (E5) 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	18:00 (E4) 17 18:17 (E4) 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:59 18:48	08:24 (E5) 20 08:44 (E5) 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:48 18:44	17:59 (E4) 20 18:19 (E4) 20:32	05:50 21:18	05:27 21:48	05:46 21:40	06:28 20:53	07:14 19:48	08:01 18:47	08:25 (E5) 14 09:02 (E4) 17:44	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	17:58 (E4) 23 18:21 (E4) 20:34	05:49 21:19	05:27 21:49	05:47 21:39	06:30 20:51	07:16 19:46	08:02 17 19:04 (E4) 18:42	08:27 (E5) 14 08:41 (E5) 16:51	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	17:58 (E4) 23 18:21 (E4) 20:36	05:47 21:21	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:04 20 19:04 (E4) 18:40	08:29 (E5) 10 08:39 (E5) 16:49	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	17:57 (E4) 24 18:21 (E4) 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	08:05 21 19:05 (E4) 18:38	08:40 08:07	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	17:56 (E4) 24 18:20 (E4) 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	08:07 23 18:42 (E4) 18:36	08:41 18:34	08:32 16:47
22	08:24 17:13	07:36 18:06	06:38 18:52	17:57 (E4) 23 18:20 (E4) 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	08:09 23 18:41 (E4) 18:34	08:42 18:34	08:33 16:46
23	08:23 17:15	07:34 18:08	06:35 18:53	17:57 (E4) 22 18:19 (E4) 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:01 24 18:41 (E4) 18:32	08:43 18:32	08:33 16:45
24	08:22 17:17	07:32 18:09	06:33 18:55	17:58 (E4) 20 18:18 (E4) 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	08:02 24 18:41 (E4) 18:30	08:44 18:30	08:34 16:44
25	08:21 17:18	07:30 18:11	06:31 18:56	17:59 (E4) 18 18:17 (E4) 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	08:04 23 18:41 (E4) 17:28	08:45 17:28	08:34 16:43
26	08:20 17:20	07:28 18:13	06:29 18:58	18:00 (E4) 15 18:15 (E4) 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	08:05 21 19:02 (E4) 17:26	08:46 17:26	08:34 16:42
27	08:18 17:22	07:26 18:14	06:27 19:00	18:02 (E4) 9 18:11 (E4) 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	08:07 19 18:41 (E4) 17:24	08:47 17:24	08:35 16:42
28	08:17 17:23	07:24 18:16	06:25 19:01	07:49 (E5) 24 08:13 (E5) 19:01	06:21 20:50	05:37 21:32	06:00 21:26	06:45 20:31	07:31 19:24	08:08 16 18:43 (E4) 17:23	08:48 17:23	08:35 16:41
29	08:16 17:25	07:22 18:14	06:22 19:03	07:49 (E5) 20:03	06:19 20:51	05:36 21:33	06:01 21:25	06:46 20:29	07:32 19:22	08:10 12 18:55 (E4) 17:21	08:49 17:21	08:35 16:40
30	08:14 17:27	07:20 18:14	06:20 19:04	07:49 (E5) 20:04	06:17 20:53	05:35 21:34	06:02 21:24	06:48 20:27	07:34 19:20	08:11 8 18:53 (E4) 17:19	08:50 17:19	08:35 16:43
31	08:13 17:28	07:18 18:14	06:18 19:06	07:18 20:06	05:35 21:35	06:04 21:22	06:49 20:25	07:23 20:25	07:23 17:17	08:35 273	08:50 254	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case		118	451						273	300		
Sun reduction		0,30	0,27						0,38	0,29		
Oper. time red.		1,00	1,00						1,00	1,00		
Wind dir. red.		0,57	0,62						0,65	0,57		
Total reduction		0,17	0,17						0,24	0,17		
Total, real		20	75						67	50		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R17 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (43)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:47 (E5) 20:07	07:16 19:10 (E4)	06:15 20:54	05:34 21:36	05:32 21:49	06:05 20:23	06:51 19:17	08:23 (E5) 17:16	07:25 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:46 (E5) 20:09	07:14 19:20 (E4)	06:13 20:56	05:33 21:37	05:32 21:49	06:07 20:21	06:52 19:15	08:22 (E5) 17:14	07:27 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:44 (E5) 20:11	07:12 19:21	06:12 20:57	05:32 21:38	05:33 21:49	06:08 20:19	06:54 19:13	08:21 (E5) 17:12	07:28 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:43 (E5) 20:12	07:09 19:22	06:10 20:59	05:32 21:39	05:34 21:48	06:09 20:16	06:55 19:11	08:20 (E5) 17:11	07:30 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:43 (E5) 20:14	07:07 19:24	06:08 21:00	05:31 21:40	05:34 21:48	06:11 20:14	06:57 19:09	08:19 (E5) 17:09	07:32 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:42 (E5) 20:15	07:05 19:25	06:07 21:02	05:31 21:41	05:35 21:48	06:12 20:12	06:58 19:07	08:18 (E5) 17:07	07:33 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:42 (E5) 20:17	07:03 19:26	06:05 21:03	05:30 21:42	05:36 21:47	06:14 20:10	07:00 19:05	08:18 (E5) 17:06	07:35 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:42 (E5) 20:18	07:01 19:27	06:03 21:05	05:30 21:43	05:37 21:47	06:15 20:08	07:01 19:02	08:17 (E5) 17:04	07:37 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	07:42 (E5) 20:20	06:59 19:28	06:02 21:06	05:29 21:43	05:38 21:46	06:17 20:06	07:03 19:00	08:18 (E5) 17:03	07:38 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	07:42 (E5) 20:22	06:57 19:29	06:00 21:08	05:29 21:44	05:39 21:45	06:18 20:04	07:04 18:58	08:19 (E5) 17:01	07:40 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	07:43 (E5) 20:23	06:55 19:30	05:59 21:09	05:28 21:45	05:40 21:45	06:19 20:01	07:05 19:13 (E4)	08:18 (E5) 17:00	07:42 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	07:44 (E5) 20:25	06:52 19:31	05:57 21:11	05:28 21:46	05:41 21:44	06:21 20:02	07:07 19:59	08:20 (E5) 16:58	07:43 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	07:45 (E5) 20:26	06:50 19:32	05:56 21:12	05:28 21:46	05:42 21:43	06:22 20:01	07:08 19:57	08:19 (E5) 16:57	07:45 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	07:47 (E5) 20:28	06:48 19:33	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	08:18 (E5) 16:56	07:47 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	07:51 (E5) 20:29	06:46 19:34	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	08:17 (E5) 16:54	07:48 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	07:55 (E5) 20:31	06:44 19:35	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	08:16 (E5) 16:53	07:50 16:36
17	08:29 17:06	07:46 17:58	06:48 18:44	06:42 20:32	06:42 19:36	05:50 21:18	05:27 21:48	05:46 21:40	06:28 20:53	07:14 19:48	08:15 (E4) 16:52	08:00 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	06:40 19:37	05:49 21:19	05:27 21:49	05:47 21:39	06:30 20:51	07:16 19:46	08:14 (E4) 16:51	08:02 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	18:16 (E4) 20:36	06:38 19:38	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:14 (E4) 16:50	08:04 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	18:13 (E4) 20:37	06:36 19:39	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	08:14 (E4) 16:48	08:05 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	18:10 (E4) 20:39	06:34 19:40	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	08:14 (E4) 16:47	08:07 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	18:09 (E4) 20:40	06:32 19:41	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	08:14 (E4) 16:46	08:09 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	18:08 (E4) 20:42	06:30 19:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:14 (E4) 16:45	08:10 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	18:07 (E4) 20:43	06:28 19:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	08:13 (E4) 16:44	08:12 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	18:07 (E4) 20:45	06:26 19:44	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	08:13 (E4) 16:43	07:13 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	18:07 (E4) 20:46	06:24 19:45	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	08:12 (E4) 16:42	07:15 16:40
27	08:18 17:22	07:26 18:14	06:27 18:59	18:06 (E4) 20:48	06:23 19:46	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	08:11 (E4) 16:41	07:17 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	18:06 (E4) 20:50	06:21 19:47	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	08:10 (E4) 16:40	07:18 16:42
29	08:16 17:25	07:23 18:17	06:24 19:02	18:05 (E5) 20:51	06:19 19:48	05:36 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:32 19:22	08:09 (E5) 16:39	07:20 16:42
30	08:14 17:27	07:21 18:19	06:23 19:01	18:04 (E4) 20:53	06:17 19:49	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	08:08 (E5) 16:38	07:22 16:43
31	08:13 17:28	07:20 18:20	06:22 19:03	18:03 (E4) 20:54	06:15 19:50	05:34 21:35	05:30 21:51	06:03 21:25	06:49 20:25	07:35 19:17	08:07 (E5) 16:44	07:23 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case		27	556	10					273		335	
Sun reduction		0,30	0,27	0,35					0,38		0,29	
Oper. time red.		1,00	1,00	1,00					1,00		1,00	
Wind dir. red.		0,57	0,60	0,64					0,64		0,57	
Total reduction		0,17	0,16	0,23					0,24		0,17	
Total, real		5	90	2					65		56	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R18 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (44)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	19:20 (E4) 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	19:04 (E4) 19:17	07:36 17:16	07:25 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	19:15 (E4) 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	19:03 (E4) 19:15	07:37 17:14	07:27 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	19:12 (E4) 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	19:03 (E4) 19:13	07:39 17:12	07:28 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:09 20:12	19:11 (E4) 20:59	05:30 21:39	05:34 21:49	06:09 21:16	06:55 20:17	19:03 (E4) 19:11	07:40 17:11	07:30 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	19:09 (E4) 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	19:03 (E4) 19:09	07:42 17:09	07:32 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	19:08 (E4) 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	19:04 (E4) 19:07	07:43 17:07	07:33 16:37
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	19:07 (E4) 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	19:04 (E4) 19:30 (E4)	07:45 17:05	07:35 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	19:06 (E4) 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	19:06 (E4) 19:29 (E4)	07:46 17:02	07:37 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20	19:06 (E4) 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	19:06 (E4) 19:26 (E4)	07:48 17:00	07:38 16:36
10	08:33 16:56	07:58 17:46	07:03 18:33	06:57 20:22	19:04 (E4) 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:04	19:08 (E4) 19:23 (E4)	07:49 17:01	07:40 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	19:04 (E4) 21:09	05:28 21:45	05:40 21:45	06:20 21:04	07:06 20:01	19:11 (E4) 19:20 (E4)	07:51 17:00	07:42 16:35
12	08:32 16:59	07:54 17:49	06:59 18:36	06:52 20:25	19:04 (E4) 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 19:59	18:56 18:54	17:00 16:58	16:35 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	19:04 (E4) 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	18:54 18:52	17:00 16:57	16:35 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	19:04 (E4) 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	19:29 (E4) 18:50	17:00 16:56	16:35 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	19:04 (E4) 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	19:26 (E4) 18:48	17:00 16:54	16:35 16:36
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 20:31	19:05 (E4) 21:16	05:28 21:48	05:45 21:40	06:27 20:55	07:13 19:50	18:59 18:46	16:50 16:53	16:35 16:36
17	08:29 17:06	07:46 17:58	06:48 18:44	06:42 20:33	19:05 (E4) 21:18	05:27 21:48	05:46 21:40	06:28 20:53	07:14 19:48	19:01 18:44	16:51 16:52	16:35 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	19:06 (E4) 21:19	05:27 21:49	05:47 21:39	06:30 20:51	07:16 19:46	18:52 18:42	16:51 16:51	16:35 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	19:07 (E4) 21:21	05:28 21:49	05:48 21:38	06:31 20:49	07:17 19:44	18:50 18:40	16:55 16:49	16:35 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	19:09 (E4) 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	18:50 18:38	16:56 16:48	16:35 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	19:10 (E4) 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	19:19 (E4) 19:28 (E4)	16:58 16:47	16:35 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	19:15 (E4) 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	19:15 (E4) 19:30 (E4)	16:59 16:46	16:35 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	19:22 (E4) 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	19:13 (E4) 19:33 (E4)	16:51 16:45	16:35 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	19:11 (E4) 19:33 (E4)	16:51 16:44	16:35 16:39
25	08:21 17:18	07:30 18:11	06:31 18:57	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	19:10 (E4) 19:35 (E4)	16:51 16:43	16:35 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:47	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	19:08 (E4) 19:35 (E4)	16:51 16:43	16:35 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	19:06 (E4) 19:35 (E4)	16:51 16:42	16:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	19:06 (E4) 19:36 (E4)	16:51 16:41	16:35 16:42
29	08:16 17:25	07:22 18:03	06:19 19:03	06:19 20:51	05:36 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:32 19:22	19:05 (E4) 19:36 (E4)	16:51 16:40	16:35 16:42
30	08:14 17:27	07:20 18:04	06:17 19:00	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	19:05 (E4) 19:36 (E4)	16:51 16:40	16:35 16:43
31	08:13 17:28	07:18 18:06	06:18 20:06	06:18 20:53	05:35 21:35	06:04 21:22	06:49 20:25	06:49 20:25	07:34 19:20	19:04 (E4) 19:36 (E4)	16:51 16:40	16:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case				541					271			
Sun reduction				0,35					0,42			
Oper. time red.				1,00					1,00			
Wind dir. red.				0,63					0,63			
Total reduction				0,22					0,24			
Total, real				120					65			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R19 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (45)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	08:05 (E5) 20:54	06:15 21:36	05:32 21:49	06:05 21:21	06:51 20:23	19:30 (E4) 19:17	07:36 17:16	07:25 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	08:08 (E5) 20:56	06:13 21:37	05:32 21:49	06:07 21:19	06:52 20:21	19:30 (E4) 19:15	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	19:39 (E4) 20:57	06:12 21:38	05:33 21:49	06:08 21:18	06:54 20:19	19:29 (E4) 19:13	07:39 17:12	08:15 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:09 20:12	19:37 (E4) 20:59	06:10 21:39	05:34 21:48	06:09 21:16	06:55 20:16	19:30 (E4) 19:11	07:40 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	19:35 (E4) 21:00	06:08 21:40	05:34 21:48	06:11 21:14	06:57 20:14	19:29 (E4) 19:09	07:42 17:09	08:17 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	19:34 (E4) 21:02	06:07 21:41	05:35 21:48	06:12 21:13	06:58 20:12	19:30 (E4) 19:07	07:43 17:07	08:19 16:37
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	19:33 (E4) 21:03	06:05 21:42	05:36 21:47	06:14 21:11	07:00 20:10	19:31 (E4) 19:05	07:45 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	19:33 (E4) 21:05	06:03 21:43	05:37 21:47	06:15 21:09	07:01 20:08	19:31 (E4) 19:02	07:46 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	06:59 20:20	19:32 (E4) 21:06	06:02 21:43	05:38 21:46	06:17 21:08	07:03 20:06	19:33 (E4) 19:00	07:48 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	06:57 20:22	19:31 (E4) 21:08	06:00 21:44	05:39 21:45	06:18 21:06	07:04 20:04	08:02 (E5) 18:58	07:49 17:01	08:23 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	19:31 (E4) 21:09	05:59 21:45	05:40 21:45	06:19 21:04	07:05 20:01	07:59 (E5) 18:56	07:51 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	19:31 (E4) 21:11	05:57 21:46	05:41 21:44	06:21 21:02	07:07 19:59	07:56 (E5) 18:54	07:53 17:03	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	19:32 (E4) 21:12	05:56 21:46	05:42 21:43	06:22 21:01	07:08 19:57	07:55 (E5) 18:52	07:54 17:05	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	19:33 (E4) 21:14	05:54 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:53 (E5) 18:50	07:56 17:06	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	19:34 (E4) 21:15	05:53 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:52 (E5) 18:48	07:57 17:04	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	07:14 (E5) 20:31	19:36 (E4) 21:16	05:51 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:51 (E5) 18:46	07:59 17:03	08:29 16:36
17	08:29 17:06	07:45 17:58	06:48 18:44	07:11 (E5) 20:32	19:40 (E4) 21:18	05:50 21:48	05:46 21:40	06:28 20:53	07:14 19:48	07:49 (E5) 18:44	08:00 17:01	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	07:09 (E5) 20:34	19:41 (E4) 21:19	05:49 21:49	05:47 21:39	06:30 20:51	07:16 19:46	07:49 (E5) 18:42	08:02 17:01	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	07:07 (E5) 20:36	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	07:48 (E5) 18:40	08:04 17:03	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	07:06 (E5) 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	07:49 (E5) 18:38	08:05 17:04	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	07:04 (E5) 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	07:48 (E5) 18:36	08:07 17:03	08:32 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	07:03 (E5) 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	07:49 (E5) 18:34	08:09 17:04	08:33 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	07:02 (E5) 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	07:49 (E5) 18:32	08:10 17:03	08:33 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	07:02 (E5) 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	07:50 (E5) 18:30	08:12 17:04	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	07:02 (E5) 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	07:51 (E5) 18:28	07:13 17:04	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	07:02 (E5) 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:45	07:53 (E5) 18:28	07:15 17:04	08:35 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	07:01 (E5) 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:48	08:09 (E5) 18:26	07:17 17:04	08:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	07:02 (E5) 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:51	07:54 (E5) 18:24	07:18 17:04	08:35 16:41
29	08:16 17:25	07:22 18:03	06:22 19:03	08:02 (E5) 20:51	05:36 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:32 19:51	07:55 (E5) 18:22	07:20 17:04	08:35 16:42
30	08:14 17:27	07:20 18:04	06:20 19:04	08:03 (E5) 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:52	07:56 (E5) 18:20	07:22 17:04	08:35 16:43
31	08:13 17:28	07:18 18:06	06:19 19:08	08:04 (E5) 20:53	05:35 21:35	06:04 21:22	06:49 20:25	06:51 19:52	07:34 19:20	07:57 (E5) 18:19	07:23 17:04	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case			367	261				86	549			
Sun reduction			0,27	0,35				0,42	0,38			
Oper. time red.			1,00	1,00				1,00	1,00			
Wind dir. red.			0,61	0,61				0,61	0,61			
Total reduction			0,16	0,22				0,26	0,23			
Total, real			60	56				22	127			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R20 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (46)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	07:42 (E5) 20:54	06:15 21:36	05:32 21:49	06:05 21:21	06:51 20:23	19:50 (E4) 19:56 (E4)	07:36 19:17	07:25 17:16
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	07:42 (E5) 20:56	06:13 21:37	05:32 21:49	06:07 21:19	06:57 20:21	19:51 19:15	07:37 17:14	07:27 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	07:43 (E5) 20:57	06:12 21:38	05:33 21:49	06:08 21:18	06:54 20:19	19:50 19:13	07:39 17:12	07:28 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:09 20:12	07:43 (E5) 20:59	06:10 21:39	05:34 21:48	06:09 21:16	06:55 20:16	19:56 (E4) 07:55 (E5)	07:40 19:11	07:30 17:11
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	07:44 (E5) 21:00	06:08 21:40	05:34 21:48	06:11 21:14	06:57 20:14	19:51 07:57 (E5)	07:42 19:09	07:32 17:09
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	07:45 (E5) 21:02	06:07 21:41	05:35 21:48	06:12 21:13	06:58 20:12	19:52 07:59 (E5)	07:43 19:07	07:33 17:07
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	07:46 (E5) 21:03	06:05 21:42	05:36 21:47	06:14 21:11	07:00 20:10	19:53 08:00 (E5)	07:45 19:05	07:35 17:06
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	07:49 (E5) 21:05	06:03 21:43	05:37 21:47	06:15 21:09	07:01 20:08	19:54 08:00 (E5)	07:46 19:02	07:37 17:04
9	08:34 16:55	07:59 17:44	07:06 18:31	06:59 20:20	07:58 (E5) 21:05	06:02 21:43	05:38 21:46	06:17 21:08	07:03 20:06	19:55 08:01 (E5)	07:48 19:00	07:38 17:03
10	08:33 16:56	07:58 17:46	07:03 18:33	06:57 20:22	07:59 (E5) 21:06	06:00 21:44	05:39 21:45	06:18 21:06	07:04 20:04	19:56 08:00 (E5)	07:49 18:58	07:40 17:01
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	19:51 (E4) 21:09	05:59 21:45	05:40 21:45	06:19 21:04	07:06 20:01	19:57 08:01 (E5)	07:51 18:56	07:42 17:00
12	08:32 16:59	07:54 17:49	06:59 18:36	06:52 20:25	19:49 (E4) 21:11	05:57 21:46	05:41 21:44	06:21 21:02	07:07 19:59	19:58 08:00 (E5)	07:53 18:54	07:43 16:58
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	19:47 (E4) 21:12	05:56 21:46	05:42 21:43	06:22 21:01	07:08 19:57	19:59 08:00 (E5)	07:54 18:52	07:45 16:57
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	20:01 (E4) 21:14	05:54 21:47	05:43 21:42	06:24 20:59	07:10 19:55	19:58 07:59 (E5)	07:56 18:50	07:47 16:56
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	19:44 (E4) 21:15	05:53 21:47	05:44 21:41	06:25 20:57	07:11 19:53	19:59 07:59 (E5)	07:57 18:48	07:48 16:54
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 20:31	19:44 (E4) 21:16	05:51 21:48	05:45 21:40	06:27 20:55	07:13 19:50	19:54 (E4) 07:57 (E5)	07:59 18:46	07:50 16:53
17	08:29 17:06	07:46 17:58	06:48 18:44	06:42 20:32	19:43 (E4) 21:18	05:50 21:48	05:46 21:40	06:28 20:53	07:14 19:48	19:54 (E4) 07:58 (E5)	08:00 18:44	07:51 16:52
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	19:43 (E4) 21:19	05:49 21:49	05:47 21:39	06:30 20:51	07:16 19:46	19:52 (E4) 07:54 (E5)	08:02 18:42	07:53 16:51
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	20:07 (E4) 21:20	05:47 21:49	05:48 21:37	06:31 20:49	07:17 19:44	19:50 (E4) 07:51 (E5)	08:04 18:40	07:55 16:49
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	20:06 (E4) 21:22	05:46 21:49	05:49 21:36	06:33 20:47	07:19 19:42	19:49 (E4) 07:52 (E5)	08:05 18:38	07:56 16:48
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	19:42 (E4) 21:23	05:45 21:49	05:51 21:35	06:34 20:45	07:20 19:39	19:48 (E4) 07:53 (E5)	08:07 18:36	07:58 16:47
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	19:44 (E4) 21:24	05:44 21:50	05:52 21:34	06:36 20:43	07:22 19:37	19:47 (E4) 07:54 (E5)	08:09 18:34	07:59 16:46
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	20:05 (E4) 21:26	05:42 21:50	05:53 21:33	06:37 20:41	07:23 19:35	19:47 (E4) 07:55 (E5)	08:10 18:32	08:01 16:45
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	19:44 (E4) 21:27	05:41 21:50	05:54 21:32	06:39 20:39	07:25 19:33	19:46 (E4) 07:56 (E5)	08:12 18:30	08:02 16:44
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	19:46 (E4) 21:28	05:40 21:50	05:56 21:30	06:40 20:37	07:26 19:31	19:46 (E4) 07:57 (E5)	08:13 18:28	08:04 16:43
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	20:01 (E4) 21:29	05:39 21:50	05:57 21:29	06:42 20:35	07:28 19:28	19:46 (E4) 07:58 (E5)	08:14 18:26	08:05 16:42
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	19:50 (E4) 21:31	05:38 21:50	05:58 21:28	06:43 20:33	07:29 19:26	19:46 (E4) 07:59 (E5)	08:15 18:24	08:07 16:42
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 20:50	19:56 (E4) 21:32	05:37 21:50	06:00 21:26	06:45 20:31	07:31 19:24	19:46 (E4) 07:59 (E5)	08:16 18:23	08:08 16:41
29	08:16 17:25	07:22 18:03	06:22 19:03	06:19 20:51	07:08 (E5) 21:33	06:19 21:50	06:01 21:25	06:46 20:29	07:32 19:22	19:46 (E4) 07:59 (E5)	08:17 18:21	08:10 16:40
30	08:14 17:27	07:20 18:04	06:20 19:04	06:17 20:53	07:44 (E5) 21:34	06:17 21:50	06:02 21:24	06:48 20:27	07:34 19:20	19:48 (E4) 07:59 (E5)	08:18 18:20	08:11 16:40
31	08:13 17:28	07:18 18:06	06:19 19:08	06:16 20:55	07:43 (E5) 21:35	06:16 21:50	06:04 21:22	06:49 20:25	07:34 19:19	19:49 (E4) 07:59 (E5)	08:19 18:21	08:12 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case			157	458				294	329			
Sun reduction			0,27	0,35				0,42	0,38			
Oper. time red.			1,00	1,00				1,00	1,00			
Wind dir. red.			0,63	0,61				0,59	0,63			
Total reduction			0,17	0,21				0,25	0,24			
Total, real			27	98				73	78			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R21 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (47)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	07:35 19:17	07:25 17:16	07:51 (E5) 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:37 19:15	07:27 17:14	07:53 (E5) 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	07:28 17:12	07:55 (E5) 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	07:09 20:12	06:10 20:59	05:32 21:39	05:34 21:48	06:09 21:16	06:55 20:16	07:40 19:11	07:30 17:11	07:57 (E5) 16:37
5	08:35 16:50	08:06 17:37	08:30 (E5) 18:24	07:07 20:14	06:08 20:54	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:42 19:09	07:32 17:09	07:59 (E5) 16:38
6	08:35 16:51	08:04 17:39	08:28 (E5) 18:26	07:12 20:15	06:07 20:51	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:43 19:07	07:33 17:07	08:00 (E5) 16:39
7	08:34 16:52	08:03 17:40	08:27 (E5) 18:28	07:10 20:17	06:05 20:57	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:45 19:05	07:35 17:06	08:08 (E5) 16:36
8	08:34 16:53	08:01 17:42	08:25 (E5) 18:29	07:08 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	07:46 19:02	07:37 17:04	08:11 (E5) 16:36
9	08:34 16:54	07:59 17:44	08:23 (E5) 18:31	07:06 20:20	06:59 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:00	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	08:22 (E5) 18:33	07:03 20:22	06:57 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:04	07:49 18:58	07:40 17:01	08:23 16:35
11	08:33 16:57	07:56 17:47	08:21 (E5) 18:34	07:01 20:23	06:55 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	07:51 18:56	07:42 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	08:20 (E5) 18:36	06:59 20:25	06:52 21:11	05:28 21:46	05:41 21:44	06:21 21:02	07:07 19:59	07:53 18:54	07:43 17:05	08:25 16:35
13	08:32 17:00	07:53 17:51	08:20 (E5) 18:37	06:57 20:26	06:50 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	07:54 18:52	07:45 17:06	08:26 16:35
14	08:31 17:01	07:51 17:52	08:20 (E5) 18:39	06:55 20:28	06:48 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:56 18:50	07:47 17:07	08:27 16:35
15	08:30 17:03	07:49 17:54	08:20 (E5) 18:41	06:53 20:29	06:46 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:57 18:48	07:48 17:08	08:28 16:35
16	08:29 17:04	07:47 17:56	08:21 (E5) 18:42	06:51 20:31	06:44 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:59 18:46	07:50 17:10	08:29 16:36
17	08:29 17:06	07:46 17:58	08:21 (E5) 18:44	06:48 20:32	06:42 21:18	05:50 21:48	05:46 21:40	06:28 20:53	07:14 19:48	08:00 18:44	07:51 17:12	08:30 16:36
18	08:28 17:07	07:44 17:59	08:21 (E5) 18:45	06:46 20:34	06:40 21:19	05:49 21:49	05:47 21:39	06:30 20:51	07:16 19:46	08:02 18:42	07:53 17:13	08:30 16:36
19	08:27 17:09	07:42 18:01	08:22 (E5) 18:47	06:44 20:36	06:38 21:21	05:47 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:04 18:40	07:55 17:14	08:31 16:36
20	08:26 17:10	07:40 18:03	08:23 (E5) 18:49	06:42 20:37	06:36 21:22	05:46 21:49	05:49 21:36	06:33 20:47	07:19 19:42	08:05 18:38	07:56 17:15	08:32 16:37
21	08:25 17:12	07:38 18:04	08:24 (E5) 18:50	06:40 20:39	06:34 21:23	05:45 21:49	05:51 21:35	06:34 20:45	07:20 19:39	08:07 18:36	07:58 17:16	08:32 16:37
22	08:24 17:13	07:36 18:06	08:25 (E5) 18:52	06:38 20:40	06:32 21:24	05:44 21:50	05:52 21:34	06:36 20:43	07:22 19:37	08:09 18:34	07:59 17:17	08:33 16:38
23	08:23 17:15	07:34 18:08	08:28 (E5) 18:53	06:35 20:42	06:30 21:26	05:42 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:10 18:32	08:01 17:18	08:33 16:38
24	08:22 17:17	07:32 18:09	08:38 (E5) 18:55	06:33 20:43	06:28 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	08:12 18:30	08:02 17:19	08:34 16:39
25	08:21 17:18	07:30 18:11	08:45 (E5) 18:56	06:31 20:45	06:26 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	07:13 17:28	08:04 17:15	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	07:15 17:26	08:05 17:26	08:34 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	07:17 17:24	08:07 17:24	08:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	07:18 17:23	08:08 17:23	08:35 16:42
29	08:16 17:25	07:22 18:16	07:22 19:01	06:19 20:51	05:36 21:33	05:30 21:50	06:01 21:25	06:46 20:29	07:32 19:22	07:20 17:21	08:10 17:21	08:35 16:42
30	08:14 17:27	07:20 18:14	07:20 19:04	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	07:22 17:19	08:11 17:19	08:35 16:43
31	08:13 17:28	07:18 18:06	07:18 19:06	06:15 20:56	05:33 21:35	05:29 21:51	06:04 21:22	06:49 20:25	07:23 17:17	07:23 17:17	08:12 17:17	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case		401							308			
Sun reduction		0,30							0,29		98	
Oper. time red.		1,00							1,00		1,00	
Wind dir. red.		0,55							0,55		0,55	
Total reduction		0,17							0,16		0,14	
Total, real		67							49		13	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

Eeschpelt - Bârel

Licensed user:

Embridge
Route de Hannut, 55
BE-5000 Namur

Nicolas Jorion / nicolasj@embridge.be

Calculated:

05-06-25 16:09/4.1.254

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case
Assumptions for shadow calculations

Shadow receptor: R22 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (48)

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,58	3,05	3,17	4,85	6,15	5,19	6,45	6,12	4,77	3,14	2,23	1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	08:05 (E5) 20:07	07:16 20:54	06:15 21:36	05:34 21:49	05:32 21:21	06:05 20:23	06:51 19:17	07:25 17:16	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	08:06 (E5) 20:09	07:14 20:56	06:13 21:37	05:33 21:49	05:32 21:19	06:07 20:21	06:52 19:15	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	08:06 (E5) 20:11	07:12 20:57	06:12 21:38	05:33 21:49	05:33 21:18	06:08 20:19	06:54 19:13	07:28 17:12	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	08:08 (E5) 20:12	07:09 20:59	06:10 21:39	05:32 21:48	05:34 21:16	06:09 20:16	06:55 19:11	07:30 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	08:11 (E5) 20:14	07:07 21:00	06:08 21:40	05:31 21:48	05:34 21:14	06:11 20:14	06:57 19:09	07:32 17:09	08:17 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	08:21 (E5) 20:15	07:05 21:02	06:07 21:41	05:31 21:48	05:35 21:13	06:12 20:12	06:58 19:07	07:33 17:07	08:19 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 21:03	06:05 21:42	05:30 21:47	05:36 21:11	06:14 20:10	07:00 19:05	07:45 18:51	07:35 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 21:05	06:03 21:43	05:30 21:47	05:37 21:09	06:15 20:08	07:01 19:02	07:46 18:52	07:37 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	06:59 21:06	06:02 21:43	05:29 21:46	05:38 21:08	06:17 20:06	07:03 19:00	07:48 18:51	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	06:57 21:08	06:00 21:44	05:29 21:45	05:39 21:06	06:18 20:04	07:04 18:58	07:49 18:51	07:40 17:01	08:23 16:35
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 21:09	05:59 21:45	05:28 21:45	05:40 21:04	06:19 20:01	07:05 18:56	07:51 18:51	07:42 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 21:11	05:57 21:46	05:28 21:44	05:41 21:02	06:21 19:59	07:07 18:54	07:53 18:54	07:43 17:00	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 21:12	05:55 21:46	05:28 21:43	05:42 21:01	06:22 19:57	07:08 18:52	07:54 18:52	07:45 17:00	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 21:14	05:54 21:47	05:28 21:42	05:43 20:59	06:24 19:55	07:10 18:50	07:56 18:50	07:47 17:00	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 21:15	05:53 21:47	05:28 21:41	05:44 20:57	06:25 19:53	07:11 18:48	07:57 18:48	07:48 17:00	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 21:16	05:51 21:48	05:27 21:40	05:45 20:55	06:27 19:50	07:13 18:46	07:59 18:46	07:50 17:00	08:29 16:36
17	08:29 17:06	07:45 17:58	06:48 18:44	06:42 21:18	05:50 21:48	05:27 21:40	05:46 20:53	06:28 19:48	07:14 18:44	08:00 18:44	07:51 17:00	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 21:19	05:49 21:49	05:27 21:39	05:47 20:51	06:30 19:46	07:16 18:42	08:02 18:42	07:53 17:00	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 21:20	05:47 21:49	05:27 21:37	05:48 20:49	06:31 19:44	07:17 18:40	08:04 18:40	07:55 17:00	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 21:22	05:46 21:49	05:28 21:36	05:49 20:47	06:33 19:42	07:19 18:38	08:05 18:38	07:56 17:00	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 21:23	05:45 21:49	05:28 21:35	05:51 20:45	06:34 19:39	07:20 18:36	08:07 18:36	07:58 17:00	08:32 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 21:24	05:44 21:50	05:28 21:34	05:52 20:43	06:36 19:37	07:22 18:34	08:09 18:34	07:59 17:00	08:33 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 21:26	05:42 21:50	05:28 21:33	05:53 20:41	06:37 19:35	07:23 18:32	08:10 18:32	08:01 17:00	08:33 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 21:27	05:41 21:50	05:28 21:32	05:54 20:39	06:39 19:33	07:25 18:30	08:12 18:30	08:02 17:00	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 21:28	05:40 21:50	05:29 21:30	05:56 20:37	06:40 19:31	07:26 17:28	07:13 17:28	08:04 17:00	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 21:29	05:39 21:50	05:29 21:29	05:57 20:35	06:42 19:28	07:28 17:26	07:15 17:26	08:05 17:00	08:34 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 21:31	05:38 21:50	05:30 21:28	05:58 20:33	06:43 19:26	07:29 17:24	07:17 17:24	08:07 17:00	08:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 21:32	05:37 21:50	05:30 21:26	06:00 20:31	06:45 19:24	07:31 17:23	07:18 17:23	08:08 17:00	08:35 16:42
29	08:16 17:25		07:22 20:03	06:19 21:33	05:36 21:50	06:01 21:25	06:46 20:29	07:32 19:22	07:20 17:21	07:20 17:21	08:10 17:00	08:35 16:42
30	08:14 17:27		07:20 20:04	06:17 21:34	05:35 21:50	06:02 21:24	06:48 20:27	07:34 19:20	07:22 17:19	07:22 17:19	08:11 17:00	08:35 16:43
31	08:13 17:28		07:18 20:06	06:13 21:35	05:35 21:50	06:04 21:22	06:49 20:25	07:34 17:17	07:23 17:17	07:23 17:17	08:12 17:00	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case		378	94							479		
Sun reduction		0,30	0,27							0,29		
Oper. time red.		1,00	1,00							1,00		
Wind dir. red.		0,56	0,56							0,56		
Total reduction		0,17	0,15							0,16		
Total, real		65	14							79		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)



SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R23 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (49)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:51 (E5) 08:19 (E5)	07:16 20:07	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23		08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:49 (E5) 08:19 (E5)	07:14 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	33 08:24 (E5)	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:48 (E5) 08:20 (E5)	07:12 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	34 08:58 (E5)	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	07:47 (E5) 08:20 (E5)	07:09 20:12	06:10 20:59	05:32 21:39	05:34 21:48	06:09 21:16	06:55 20:16	35 08:58 (E5)	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:46 (E5) 08:21 (E5)	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	36 08:58 (E5)	08:17 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:46 (E5) 08:21 (E5)	07:05 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	36 08:58 (E5)	08:19 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:45 (E5) 08:21 (E5)	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	36 08:57 (E5)	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:45 (E5) 08:21 (E5)	07:01 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	35 08:57 (E5)	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	07:45 (E5) 08:21 (E5)	06:59 20:20	06:02 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	35 08:56 (E5)	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	07:44 (E5) 08:19 (E5)	06:57 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:03	34 08:56 (E5)	08:23 16:35
11	08:33 16:57	07:56 17:47	07:01 18:34	07:45 (E5) 08:19 (E5)	06:54 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	33 08:55 (E5)	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	07:45 (E5) 08:18 (E5)	06:52 20:25	05:57 21:11	05:28 21:45	05:41 21:44	06:21 21:02	07:07 19:59	32 08:54 (E5)	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	07:46 (E5) 08:17 (E5)	06:50 20:26	05:55 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	30 08:53 (E5)	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	07:46 (E5) 08:16 (E5)	06:48 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	27 08:52 (E5)	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	07:47 (E5) 08:15 (E5)	06:46 20:29	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	24 08:49 (E5)	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	07:48 (E5) 08:12 (E5)	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	21 08:48 (E5)	08:29 16:35
17	08:29 17:06	07:45 17:58	06:48 18:44	07:49 (E5) 08:10 (E5)	06:42 20:32	05:50 21:18	05:27 21:48	05:46 21:39	06:28 20:53	07:14 19:48	15 08:45 (E5)	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	07:51 (E5) 08:08 (E5)	06:40 20:34	05:48 21:19	05:27 21:49	05:47 21:38	06:30 20:51	07:16 19:46	6 08:40 (E5)	08:31 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	07:55 (E5) 08:04 (E5)	06:38 20:36	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44		08:32 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	05:46 21:22	05:48 21:29	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42		08:33 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	05:45 21:23	05:45 21:29	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39		08:34 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	05:44 21:24	05:44 21:50	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37		08:35 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	05:42 21:26	05:42 21:50	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35		08:36 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:41 21:50	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33		08:37 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:40 21:50	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	14 08:35 (E5)	08:38 16:40
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:39 21:50	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	14 08:49 (E5)	08:39 16:41
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:38 21:50	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	20 08:52 (E5)	08:40 16:42
28	08:17 17:23	07:24 18:16	06:24 19:01	06:21 20:50	05:37 21:32	06:00 21:50	06:00 21:26	07:31 20:31	06:45 19:24	07:31 19:24	23 08:53 (E5)	08:41 16:42
29	08:16 17:25		06:22 20:03	06:19 20:51	05:36 21:33	06:01 21:50	06:01 21:25	06:46 20:29	07:32 19:22	07:20 19:22	27 08:55 (E5)	08:42 16:42
30	08:14 17:27		06:20 20:04	06:17 20:53	05:35 21:34	06:02 21:50	06:02 21:24	06:48 20:27	07:34 19:20	07:22 19:19	30 08:56 (E5)	08:43 16:43
31	08:13 17:28		07:18 20:06		05:35 21:35		06:04 21:22	06:49 20:25		07:23 17:17	31 08:57 (E5)	08:44 16:44
Potential sun hours	267	282	368		412	477	488	492	448	380	334	273
Total, worst case		76	563							145	502	
Sun reduction		0,30	0,27							0,38	0,29	
Oper. time red.		1,00	1,00							1,00	1,00	
Wind dir. red.		0,57	0,57							0,57	0,57	
Total reduction		0,17	0,15							0,22	0,17	
Total, real		13	86							31	84	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R24 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (50)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	08:09 (E5) 29 08:38 (E5)	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	07:35 19:17	07:25 17:16	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	08:10 (E5) 27 08:37 (E5)	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:37 19:15	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	08:11 (E5) 24 08:35 (E5)	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:13	07:28 17:12	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	07:09 20:12	08:13 (E5) 19 08:32 (E5)	06:10 20:59	05:32 21:39	05:34 21:48	06:09 21:16	06:55 20:16	07:40 19:11	07:30 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	08:16 (E5) 13 08:29 (E5)	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:42 19:09	07:32 17:09	08:17 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:43 19:07	07:33 17:07	08:19 16:36	
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	08:12 (E5) 12 08:24 (E5)	07:45 19:05	07:35 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	08:08 (E5) 18 08:26 (E5)	07:46 19:02	07:37 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	06:59 20:20	06:02 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	08:06 (E5) 23 08:29 (E5)	07:48 19:00	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	06:57 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:03	08:03 (E5) 27 08:30 (E5)	07:49 18:58	07:40 17:01	08:23 16:35
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	08:02 (E5) 29 08:31 (E5)	07:51 18:56	07:42 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	05:57 21:11	05:28 21:45	05:41 21:44	06:21 21:02	07:07 19:59	08:00 (E5) 32 08:32 (E5)	07:53 18:54	07:43 16:58	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	05:56 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	08:00 (E5) 33 08:33 (E5)	07:54 18:52	07:45 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:58 (E5) 35 08:33 (E5)	07:56 18:50	07:46 16:56	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:58 (E5) 36 08:34 (E5)	07:57 18:48	07:48 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:57 (E5) 36 08:33 (E5)	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:45 17:58	06:48 18:44	06:42 20:32	05:50 21:18	05:27 21:48	05:46 21:39	06:28 20:53	07:14 19:48	07:56 (E5) 37 08:33 (E5)	08:00 18:44	07:51 16:52	08:30 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	05:49 21:19	05:27 21:49	05:47 21:38	06:30 20:51	07:16 19:46	07:56 (E5) 37 08:33 (E5)	08:02 18:42	07:53 16:51	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	07:55 (E5) 37 08:32 (E5)	08:04 18:40	07:55 16:49	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	07:55 (E5) 37 08:32 (E5)	08:05 18:38	07:56 16:48	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	07:55 (E5) 36 08:31 (E5)	08:07 18:36	07:58 16:47	08:32 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	07:55 (E5) 36 08:31 (E5)	08:09 18:34	07:59 16:46	08:33 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	07:55 (E5) 35 08:30 (E5)	08:10 18:32	08:01 16:45	08:33 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	07:56 (E5) 33 08:29 (E5)	08:12 18:30	08:02 16:44	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	07:56 (E5) 31 08:27 (E5)	07:13 17:28	08:04 16:43	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	07:57 (E5) 29 08:26 (E5)	07:15 17:26	08:05 16:42	08:34 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	07:58 (E5) 26 08:24 (E5)	07:17 17:24	08:07 16:42	08:35 16:41
28	08:17 17:23	07:24 18:16	06:24 19:01	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	08:00 (E5) 23 08:23 (E5)	07:18 17:23	08:08 16:41	08:35 16:42
29	08:16 17:25	07:22 18:03	06:19 18:53	06:19 20:51	05:36 21:33	05:30 21:50	06:01 21:25	06:46 20:29	07:32 19:22	08:01 (E5) 18 08:19 (E5)	07:20 17:21	08:10 16:40	08:35 16:42
30	08:14 17:27	07:20 18:04	06:17 18:55	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	08:05 (E5) 11 08:16 (E5)	07:22 17:19	08:11 16:39	08:35 16:43
31	08:13 17:28	07:18 18:06	06:16 18:41	06:16 20:53	05:35 21:35	06:04 21:22	06:49 20:25	06:49 20:25	07:34 19:20	08:05 (E5) 11 08:16 (E5)	07:23 17:17	08:11 16:44	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254	
Total, worst case			590	112						707			
Sun reduction			0,27	0,35						0,38			
Oper. time red.			1,00	1,00						1,00			
Wind dir. red.			0,61	0,61						0,61			
Total reduction			0,16	0,21						0,23			
Total, real			96	24					162				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R25 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (51)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	07:39 (E5) 20:54	06:15 21:36	05:32 21:49	06:05 21:21	06:51 20:23	07:39 (E5) 19:17	07:35 17:16	07:25 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	07:38 (E5) 20:56	06:13 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:38 (E5) 19:15	07:37 17:14	07:27 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	07:38 (E5) 20:57	06:12 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:36 (E5) 19:13	07:35 17:12	07:28 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:09 20:12	07:38 (E5) 20:59	06:10 21:39	05:34 21:48	06:09 21:16	06:55 20:16	07:35 (E5) 19:11	07:40 17:11	07:30 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	07:38 (E5) 21:00	06:08 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:34 (E5) 19:09	07:42 17:09	07:32 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	07:38 (E5) 21:02	06:07 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:34 (E5) 19:07	07:43 17:07	07:33 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	07:38 (E5) 21:03	06:05 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:33 (E5) 19:05	07:45 17:06	07:35 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	07:38 (E5) 21:05	06:03 21:43	05:37 21:47	06:15 21:09	07:01 20:08	07:32 (E5) 19:02	07:46 17:04	07:37 16:36
9	08:34 16:54	07:59 17:44	07:06 18:31	06:59 20:20	07:38 (E5) 21:06	06:02 21:43	05:38 21:46	06:17 21:08	07:03 20:06	07:32 (E5) 19:00	07:48 17:03	07:38 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	06:57 20:22	07:39 (E5) 21:08	06:00 21:44	05:39 21:45	06:18 21:06	07:04 20:04	07:32 (E5) 18:58	07:49 17:01	07:40 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	07:40 (E5) 21:09	05:59 21:45	05:40 21:45	06:19 21:04	07:05 20:01	07:32 (E5) 18:56	07:51 17:00	07:42 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	07:41 (E5) 21:11	05:57 21:45	05:41 21:44	06:21 21:02	07:07 19:59	07:32 (E5) 18:54	07:53 17:00	07:43 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	07:43 (E5) 21:12	05:56 21:45	05:42 21:43	06:22 21:01	07:08 19:57	07:33 (E5) 18:52	07:54 17:00	07:45 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	07:46 (E5) 21:14	05:54 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:34 (E5) 18:50	07:56 17:00	07:47 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	07:54 (E5) 21:15	05:53 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:36 (E5) 18:48	07:57 17:00	07:48 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:37 (E5) 18:46	07:59 17:00	07:50 16:36
17	08:29 17:06	07:45 17:58	06:48 18:44	06:42 20:32	05:50 21:18	05:27 21:48	05:46 21:39	06:28 20:53	07:14 19:48	07:38 (E5) 18:44	08:00 17:00	07:51 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	05:49 21:19	05:27 21:49	05:47 21:38	06:30 20:51	07:16 19:46	07:40 (E5) 18:42	08:02 17:00	07:53 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	07:39 (E5) 18:40	08:04 17:00	07:55 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	07:38 (E5) 18:38	08:05 17:00	07:56 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	07:37 (E5) 18:36	08:07 17:00	07:58 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	07:36 (E5) 18:34	08:09 17:00	07:59 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	07:35 (E5) 18:32	08:10 17:00	08:01 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	07:34 (E5) 18:30	08:12 17:00	08:02 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	07:33 (E5) 18:28	07:13 17:00	08:04 16:40
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	07:32 (E5) 18:26	07:15 17:00	08:05 16:41
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	07:31 (E5) 18:24	07:17 17:00	08:07 16:42
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	07:30 (E5) 18:22	07:18 17:00	08:08 16:43
29	08:16 17:25	07:22 20:03	07:22 19:08	06:19 20:51	05:36 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:32 19:22	07:29 (E5) 18:20	07:20 17:00	08:10 16:44
30	08:14 17:27	07:20 20:04	07:20 19:08	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	07:44 (E5) 18:19	07:22 17:00	08:11 16:45
31	08:13 17:28	07:18 20:06	07:18 19:10	06:10 (E5) 20:53	05:35 21:35	06:04 21:22	06:49 20:25	06:49 20:19	07:41 (E5) 19:20	07:23 18:17	07:23 17:00	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case			143	362				42	468			
Sun reduction			0,27	0,35				0,42	0,38			
Oper. time red.			1,00	1,00				1,00	1,00			
Wind dir. red.			0,64	0,64				0,64	0,64			
Total reduction			0,17	0,22				0,27	0,24			
Total, real			24	81				11	112			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R26 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (52)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	06:15 20:54	05:34 21:36	05:32 21:49	06:05 21:21	06:51 20:23	07:15 (E5) 19:17	07:25 17:16	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:07 21:19	06:52 20:21	07:17 (E5) 19:15	07:37 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:12 20:11	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:18	06:54 20:19	07:18 (E5) 19:13	07:39 17:12	08:15 16:38
4	08:35 16:49	08:07 17:35	07:16 18:23	07:09 20:12	06:10 20:59	05:32 21:39	05:34 21:48	06:09 21:16	06:55 20:16	07:21 (E5) 19:11	07:40 17:11	08:16 16:37
5	08:35 16:50	08:06 17:37	07:14 18:24	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:57 20:14	07:28 (E5) 19:09	07:42 17:09	08:17 16:37
6	08:35 16:51	08:04 17:39	07:12 18:26	07:05 20:15	06:07 21:02	05:31 21:41	05:35 21:48	06:12 21:13	06:58 20:12	07:43 19:07	07:33 17:07	08:19 16:37
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:14 21:11	07:00 20:10	07:45 19:05	07:35 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	06:03 21:05	05:30 21:43	05:37 21:47	06:15 21:09	07:01 20:08	07:46 19:02	07:37 17:04	08:21 16:36
9	08:34 16:55	07:59 17:44	07:06 18:31	06:59 20:20	06:02 21:06	05:29 21:43	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:00	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:33	06:57 20:22	06:00 21:08	05:29 21:44	05:39 21:45	06:18 21:06	07:04 20:04	07:49 18:58	07:40 17:01	08:23 16:36
11	08:33 16:57	07:56 17:47	07:01 18:34	06:55 20:23	05:59 21:09	05:28 21:45	05:40 21:45	06:19 21:04	07:05 20:01	07:51 18:56	07:42 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	05:57 21:11	05:28 21:45	05:41 21:44	06:21 21:02	07:07 19:59	07:53 18:54	07:43 16:58	08:25 16:35
13	08:32 17:00	07:53 17:51	06:57 18:37	06:50 20:26	05:56 21:12	05:28 21:46	05:42 21:43	06:22 21:01	07:08 19:57	07:54 18:52	07:45 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	05:54 21:14	05:28 21:47	05:43 21:42	06:24 20:59	07:10 19:55	07:56 18:50	07:46 16:56	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:41	06:46 20:29	05:53 21:15	05:28 21:47	05:44 21:41	06:25 20:57	07:11 19:53	07:57 18:48	07:48 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:51 18:42	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:59 18:46	07:50 16:53	08:29 16:36
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18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	05:49 21:19	05:27 21:49	05:47 21:38	06:30 20:51	07:16 19:46	08:02 18:42	07:53 16:51	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:36	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:04 18:40	07:55 16:49	08:31 16:36
20	08:26 17:10	07:40 18:03	06:42 18:49	06:36 20:37	05:46 21:22	05:28 21:49	05:49 21:36	06:33 20:47	07:19 19:42	08:05 18:38	07:56 16:48	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	05:45 21:23	05:28 21:49	05:51 21:35	06:34 20:45	07:20 19:39	08:07 18:36	07:58 16:47	08:32 16:37
22	08:24 17:13	07:36 18:06	06:38 18:52	06:32 20:40	05:44 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	08:09 18:34	07:59 16:46	08:33 16:38
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:10 18:32	08:01 16:45	08:33 16:38
24	08:22 17:17	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	08:12 18:30	08:02 16:44	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:31	08:13 17:28	08:04 16:43	08:34 16:39
26	08:20 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	08:14 17:26	08:05 16:42	08:34 16:40
27	08:18 17:22	07:26 18:14	06:27 19:00	06:23 20:48	05:38 21:31	05:30 21:50	05:58 21:28	06:43 20:33	07:29 19:26	08:17 17:24	08:07 16:42	08:35 16:41
28	08:17 17:23	07:24 18:16	06:25 19:01	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:26	06:45 20:31	07:31 19:24	08:18 17:23	08:08 16:41	08:35 16:42
29	08:16 17:25	07:22 18:16	06:19 19:01	06:15 20:51	05:36 21:33	05:31 21:50	06:01 21:25	06:46 20:29	07:32 19:22	08:19 17:21	08:10 16:40	08:35 16:42
30	08:14 17:27	07:20 18:16	06:17 19:01	06:13 20:53	05:35 21:34	05:31 21:50	06:02 21:24	06:48 20:27	07:34 19:20	08:22 17:19	08:11 16:40	08:35 16:43
31	08:13 17:28	07:18 18:06	06:16 19:00	06:12 20:54	05:35 21:35	06:04 21:22	06:49 20:25	06:49 20:25	07:35 19:21	08:23 17:17	08:12 16:44	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Total, worst case				528				481				
Sun reduction				0,35				0,42				
Oper. time red.				1,00				1,00				
Wind dir. red.				0,65				0,65				
Total reduction				0,23				0,28				
Total, real				122				133				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Calculation: Scénario 1 : Worst + real case Shadow receptor: R27 - Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (54)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

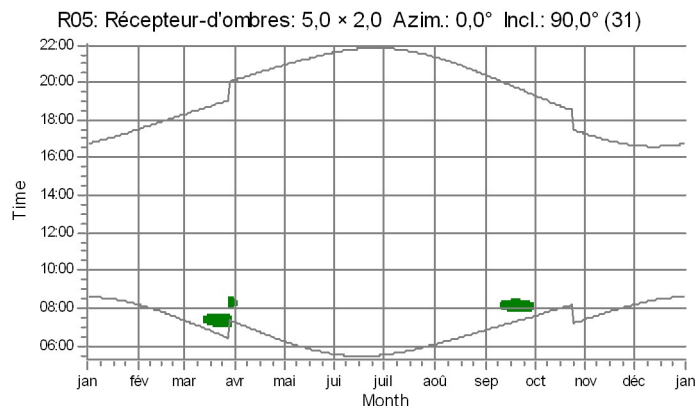
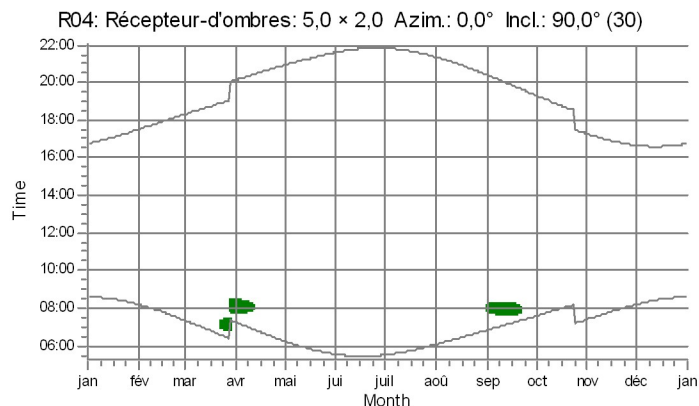
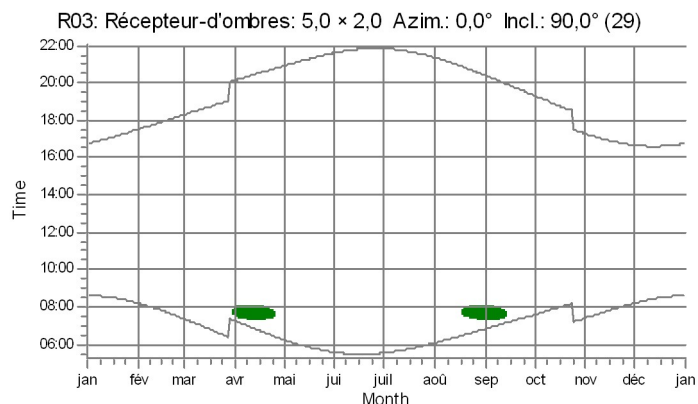
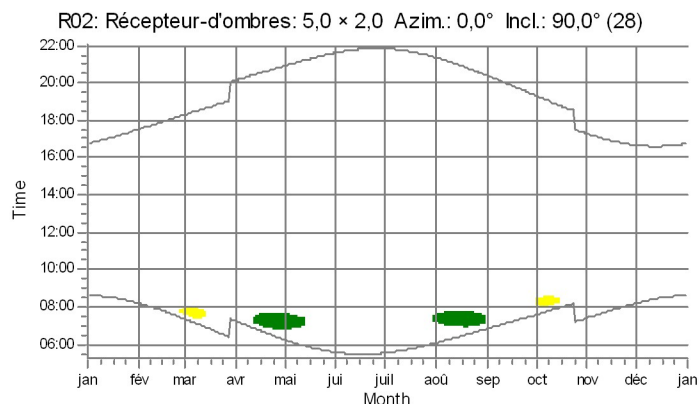
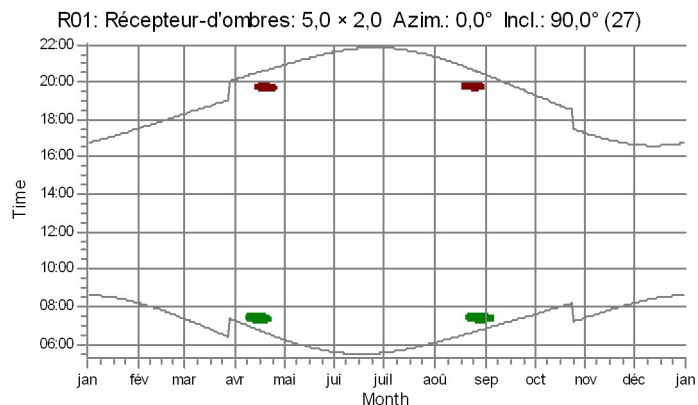
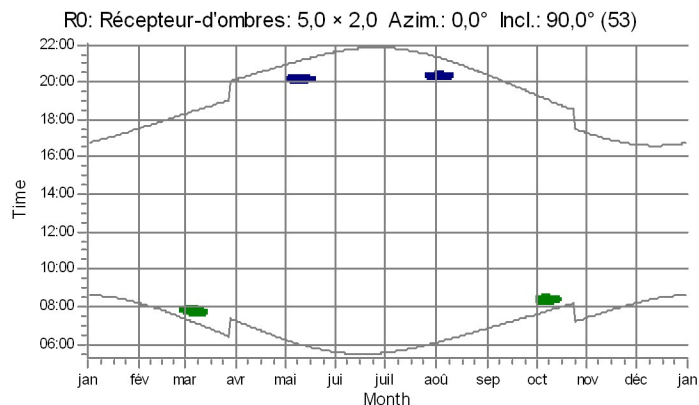
	January		February		March	April	May	June	July	August	September	October	November	December	
1	08:36	15:47 (E3)	08:12	07:22	07:16	06:15	05:34	05:32	06:05	06:51	07:36	07:25		08:12	15:36 (E3)
	16:45	25 16:12 (E3)	17:30	18:18	20:08	20:54	21:36	21:50	21:21	20:23	19:18	17:16		16:39	18 15:54 (E3)
2	08:36	15:47 (E3)	08:10	07:20	07:14	06:14	05:33	05:32	06:07	06:52	07:37	07:27		08:14	15:36 (E3)
	16:46	24 16:11 (E3)	17:32	18:20	20:09	20:56	21:37	21:49	21:19	20:21	19:15	17:14		16:38	20 15:56 (E3)
3	08:35	15:48 (E3)	08:09	07:18	07:12	06:12	05:32	05:33	06:08	06:54	07:39	07:28		08:15	15:36 (E3)
	16:47	24 16:12 (E3)	17:33	18:21	20:11	20:57	21:38	21:49	21:18	20:19	19:13	17:12		16:38	20 15:56 (E3)
4	08:35	15:49 (E3)	08:07	07:16	07:09	06:10	05:32	05:34	06:09	06:55	07:40	07:30		08:16	15:36 (E3)
	16:49	23 16:12 (E3)	17:35	18:23	20:12	20:59	21:39	21:49	21:16	20:17	19:11	17:11		16:37	22 15:58 (E3)
5	08:35	15:50 (E3)	08:06	07:14	07:07	06:08	05:31	05:34	06:11	06:57	07:42	07:32		08:18	15:36 (E3)
	16:50	23 16:13 (E3)	17:37	18:24	20:14	21:00	21:40	21:48	21:15	20:14	19:09	17:09		16:37	22 15:58 (E3)
6	08:35	15:50 (E3)	08:04	07:12	07:05	06:07	05:31	05:35	06:12	06:58	07:43	07:33		08:19	15:36 (E3)
	16:51	22 16:12 (E3)	17:39	18:26	20:15	21:02	21:41	21:48	21:13	20:12	19:07	17:07		16:37	23 15:59 (E3)
7	08:35	15:51 (E3)	08:03	07:10	07:03	06:05	05:30	05:36	06:14	07:00	07:45	07:35		08:20	15:36 (E3)
	16:52	22 16:13 (E3)	17:40	18:28	20:17	21:03	21:42	21:47	21:11	20:10	19:05	17:06		16:36	23 15:59 (E3)
8	08:34	15:51 (E3)	08:01	07:08	07:01	06:03	05:30	05:37	06:15	07:01	07:46	07:37		08:21	15:37 (E3)
	16:53	22 16:13 (E3)	17:42	18:29	20:19	21:05	21:43	21:47	21:10	20:08	19:02	17:04		16:36	23 16:00 (E3)
9	08:34	15:53 (E3)	08:00	07:06	06:59	06:02	05:29	05:38	06:17	07:03	07:48	07:38		08:22	15:37 (E3)
	16:55	20 16:13 (E3)	17:44	18:31	20:20	21:06	21:44	21:46	21:08	20:06	19:00	17:03		16:36	24 16:01 (E3)
10	08:33	15:53 (E3)	07:58	07:04	06:57	06:00	05:29	05:39	06:18	07:04	07:50	07:40		08:23	15:37 (E3)
	16:56	20 16:13 (E3)	17:46	18:33	20:22	21:08	21:44	21:45	21:06	20:04	18:58	17:01		16:36	24 16:01 (E3)
11	08:33	15:54 (E3)	07:56	07:01	06:55	05:59	05:28	05:40	06:20	07:06	07:51	07:42		08:24	15:37 (E3)
	16:57	18 16:12 (E3)	17:47	18:34	20:23	21:09	21:45	21:45	21:04	20:01	18:56	17:00		16:35	25 16:02 (E3)
12	08:32	15:56 (E3)	07:55	06:59	06:52	05:57	05:28	05:41	06:21	07:07	07:53	07:43		08:25	15:37 (E3)
	16:59	17 16:13 (E3)	17:49	18:36	20:25	21:11	21:46	21:44	21:02	19:59	18:54	16:58		16:35	25 16:02 (E3)
13	08:32	15:57 (E3)	07:53	06:57	06:50	05:56	05:28	05:42	06:22	07:09	07:54	07:45		08:26	15:38 (E3)
	17:00	15 16:12 (E3)	17:51	18:37	20:26	21:12	21:46	21:43	21:01	19:57	18:52	16:57		16:35	25 16:03 (E3)
14	08:31	15:58 (E3)	07:51	06:55	06:48	05:54	05:28	05:43	06:24	07:10	07:56	07:47		08:27	15:38 (E3)
	17:01	13 16:11 (E3)	17:52	18:39	20:28	21:14	21:47	21:42	20:59	19:55	18:50	16:56		16:35	25 16:03 (E3)
15	08:30	16:00 (E3)	07:49	06:53	06:46	05:53	05:28	05:44	06:25	07:12	07:57	07:48		08:28	15:39 (E3)
	17:03	9 16:09 (E3)	17:54	18:41	20:29	21:15	21:47	21:42	20:57	19:53	18:48	16:54		16:36	24 16:03 (E3)
16	08:30	16:03 (E3)	07:47	06:51	06:44	05:51	05:27	05:45	06:27	07:13	07:59	07:50		08:29	15:38 (E3)
	17:04	4 16:07 (E3)	17:56	18:42	20:31	21:17	21:48	21:41	20:55	19:50	18:46	16:53		16:36	25 16:03 (E3)
17	08:29		07:46	06:49	06:42	05:50	05:27	05:46	06:28	07:14	08:01	07:51		08:30	15:39 (E3)
	17:06		17:58	18:44	20:33	21:18	21:48	21:40	20:53	19:48	18:44	16:52		16:36	24 16:03 (E3)
18	08:28		07:44	06:46	06:40	05:49	05:27	05:47	06:30	07:16	08:02	07:53		08:30	15:40 (E3)
	17:07		17:59	18:45	20:34	21:19	21:49	21:39	20:51	19:46	18:42	16:51		16:36	24 16:04 (E3)
19	08:27		07:42	06:44	06:38	05:47	05:27	05:48	06:31	07:17	08:04	07:55		08:31	15:40 (E3)
	17:09		18:01	18:47	20:36	21:21	21:49	21:38	20:49	19:44	18:40	16:49		16:36	23 16:03 (E3)
20	08:26		07:40	06:42	06:36	05:46	05:28	05:49	06:33	07:19	08:05	07:56		08:32	15:41 (E3)
	17:10		18:03	18:49	20:37	21:22	21:49	21:37	20:47	19:42	18:38	16:48		16:37	23 16:04 (E3)
21	08:25		07:38	06:40	06:34	05:45	05:28	05:51	06:34	07:20	08:07	07:58		08:32	15:41 (E3)
	17:12		18:04	18:50	20:39	21:23	21:50	21:35	20:45	19:39	18:36	16:47		16:37	24 16:05 (E3)
22	08:24		07:36	06:38	06:32	05:44	05:28	05:52	06:36	07:22	08:09	07:59		08:33	15:41 (E3)
	17:13		18:06	18:52	20:40	21:25	21:50	21:34	20:43	19:37	18:34	16:46		16:38	24 16:05 (E3)
23	08:23		07:34	06:35	06:30	05:42	05:28	05:53	06:37	07:23	08:10	08:01		08:33	15:42 (E3)
	17:15		18:08	18:53	20:42	21:26	21:50	21:33	20:41	19:35	18:32	16:45		16:38	23 16:05 (E3)
24	08:22		07:32	06:33	06:28	05:41	05:28	05:54	06:39	07:25	08:12	08:02		08:34	15:43 (E3)
	17:17		18:09	18:55	20:43	21:27	21:50	21:32	20:39	19:33	18:30	16:44		16:39	23 16:06 (E3)
25	08:21		07:30	06:31	06:26	05:40	05:29	05:56	06:40	07:26	07:14	08:04		08:34	15:43 (E3)
	17:18		18:11	18:57	20:45	21:28	21:50	21:31	20:37	19:31	17:28	16:43		16:39	24 16:07 (E3)
26	08:20		07:28	06:29	06:24	05:39	05:29	05:57	06:42	07:28	07:15	08:05		15:43 (E3)	08:35 15:43 (E3)
	17:20		18:13	18:58	20:47	21:30	21:50	21:29	20:35	19:28	17:26	16:43	2 15:45 (E3)	16:40	24 16:07 (E3)
27	08:18		07:26	06:27	06:23	05:38	05:30	05:58	06:43	07:30	07:17	08:07		15:39 (E3)	08:35 15:44 (E3)
	17:22		18:15	19:00	20:48	21:31	21:50	21:28	20:33	19:26	17:25	16:42	9 15:48 (E3)	16:41	25 16:09 (E3)
28	08:17		07:24	06:25	06:21	05:37	05:30	06:00	06:45	07:31	07:19	08:08		15:38 (E3)	08:35 15:45 (E3)
	17:23		18:16	19:01	20:50	21:32	21:50	21:27	20:31	19:24	17:23	16:41	13 15:51 (E3)	16:42	24 16:09 (E3)
29	08:16			07:22	06:19	05:36	05:31	06:01	06:46	07:33	07:20	08:10		15:38 (E3)	08:35 15:45 (E3)
	17:25			20:03	20:51	21:33	21:50	21:25	20:29	19:22	17:21	16:40	15 15:53 (E3)	16:42	25 16:10 (E3)
30	08:15			07:20	06:17	05:35	05:31	06:02	06:48	07:34	07:22	08:11		15:37 (E3)	08:35 15:46 (E3)
	17:27			20:04	20:53	21:34	21:50	21:24	20:27	19:20	17:19	16:40	17 15:54 (E3)	16:43	25 16:11 (E3)
31	08:13			07:18		05:35		06:04	06:49		07:23			08:35	15:46 (E3)
	17:28			20:06		21:35		21:22	20:25		17:17			16:44	25 16:11 (E3)
Potential sun hours	267		282	368	412	477	488	492	448	380	334	273		253	728
Total, worst case		301													0,14
Sun reduction		0,18											56		0,14
Oper. time red.		1,00											1,00		1,00
Wind dir. red.		0,73											0,73		0,73
Total reduction		0,13											0,18		0,10
Total, real		40											10		73

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar, graphical

Calculation: Scénario 1 : Worst + real case



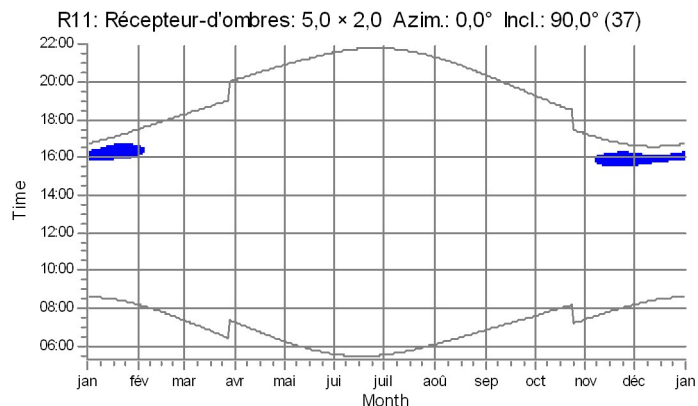
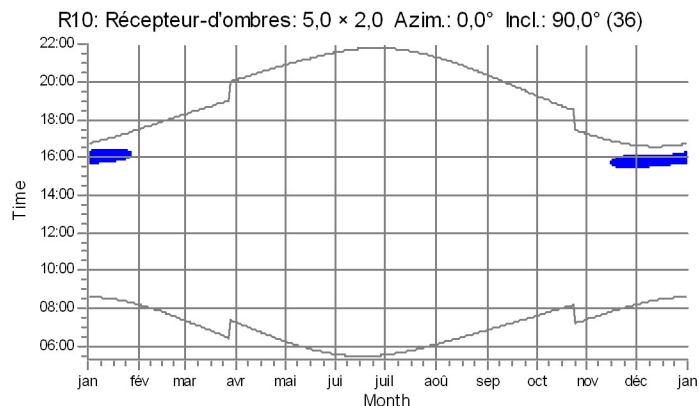
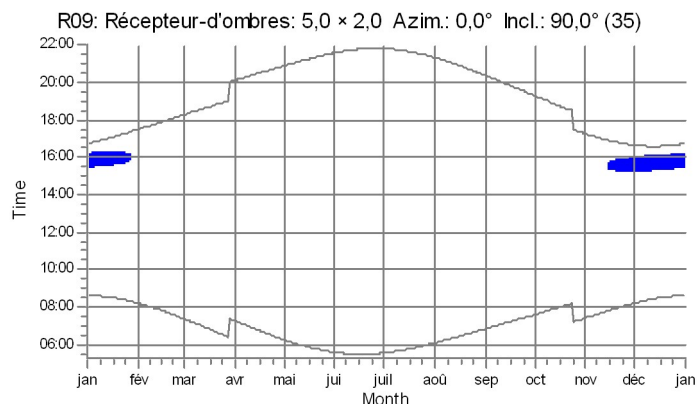
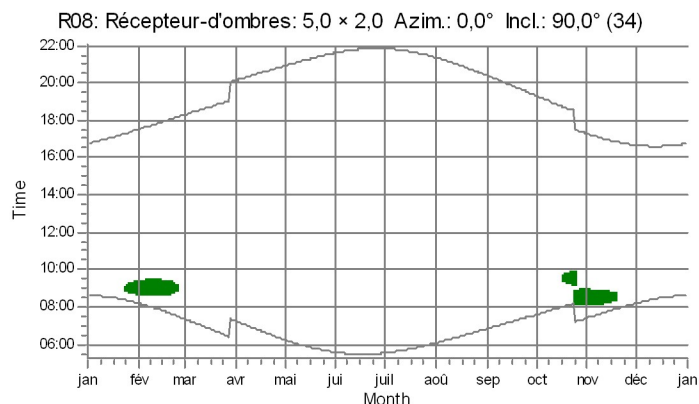
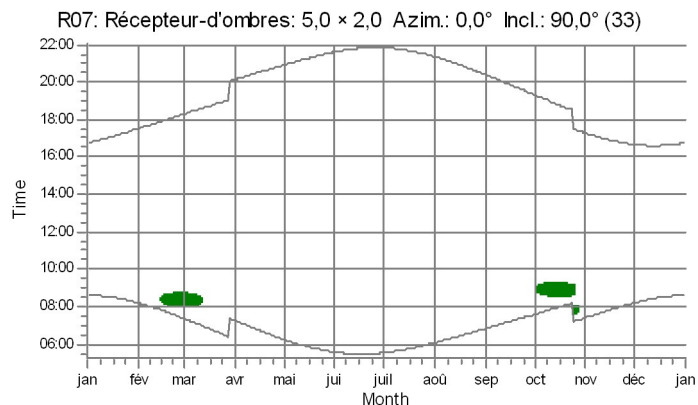
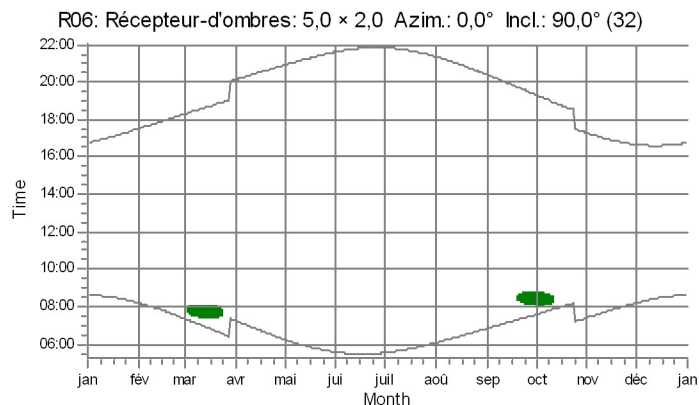
WTGs

E1: NORDEX N175/6.X 6800 175.0 I-I moyeu: 179,0 m (TOT: 266,5 m) (6)
 E2: NORDEX N175/6.X 6800 175.0 I-I moyeu: 179,0 m (TOT: 266,5 m) (7)

TAR2: ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (17)
 TAR3: ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (18)

SHADOW - Calendar, graphical

Calculation: Scénario 1 : Worst + real case



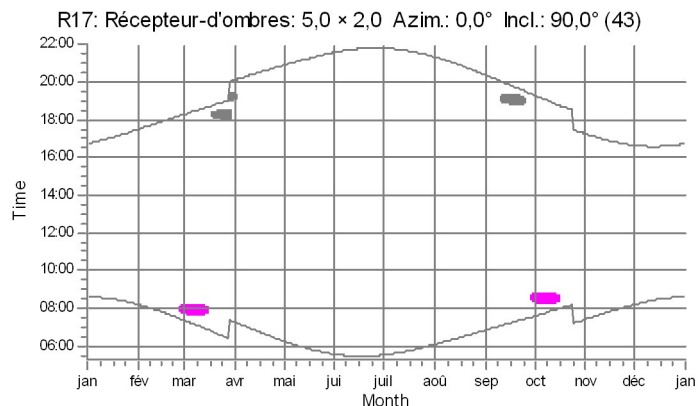
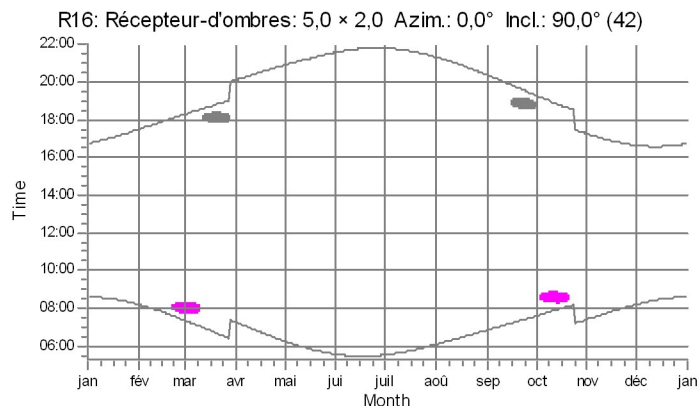
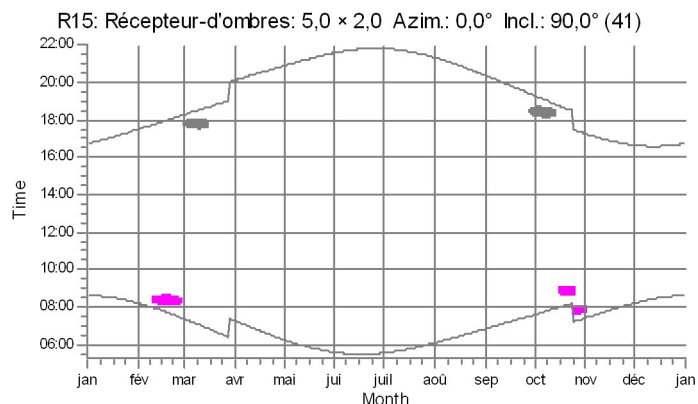
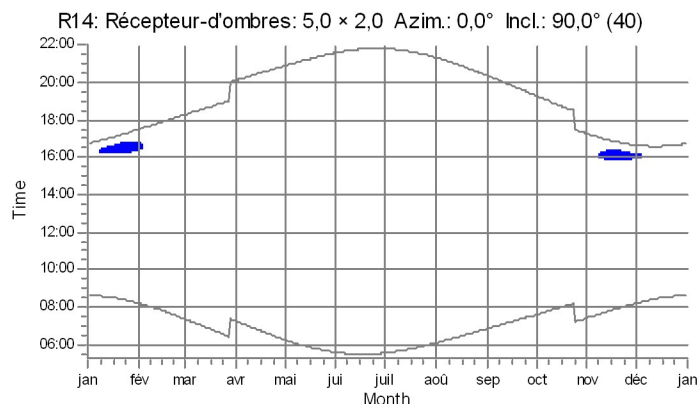
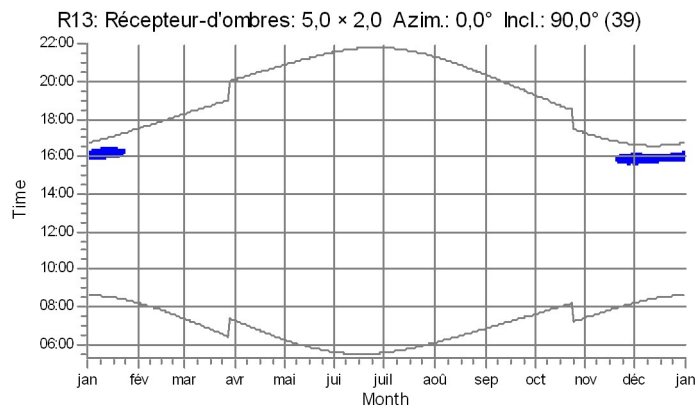
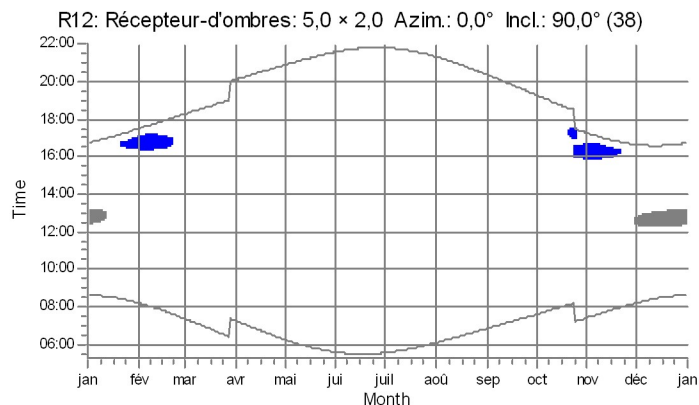
WTGs

E1: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (6)

E3: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (8)

SHADOW - Calendar, graphical

Calculation: Scénario 1 : Worst + real case



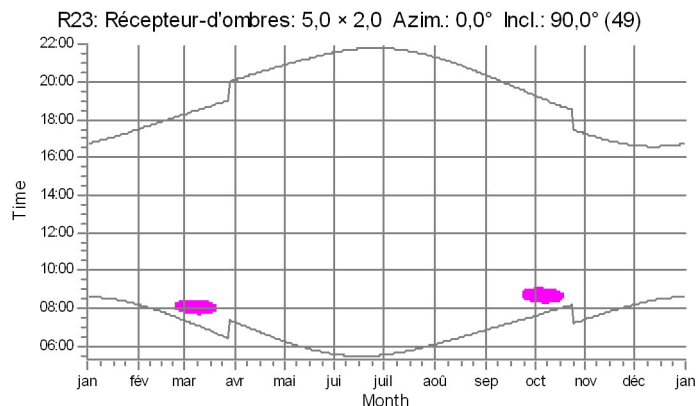
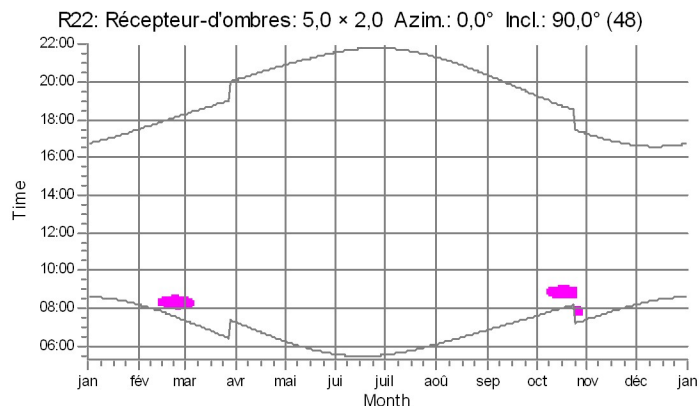
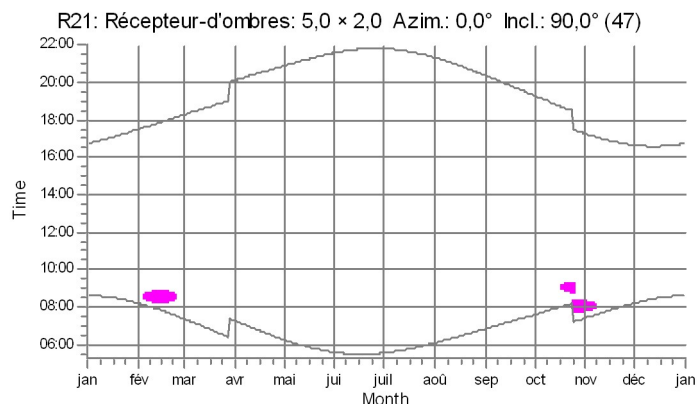
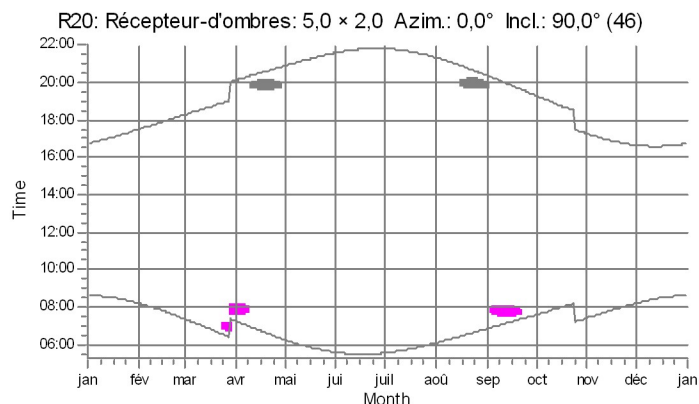
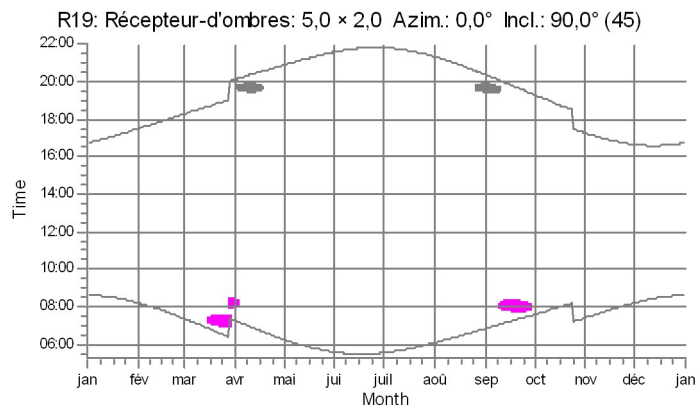
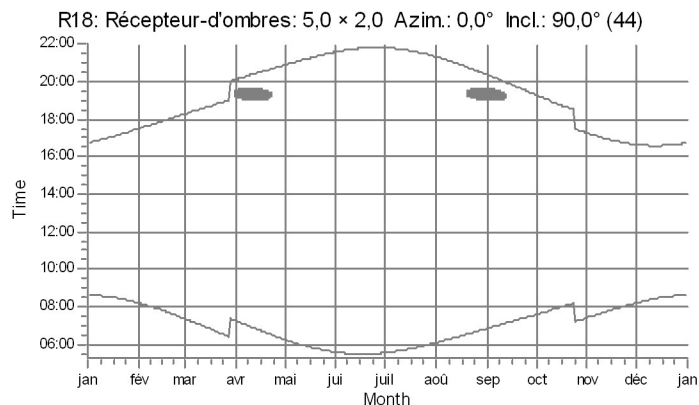
WTGs

E3: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (8)
E4: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (9)

E5: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (10)

SHADOW - Calendar, graphical

Calculation: Scénario 1 : Worst + real case



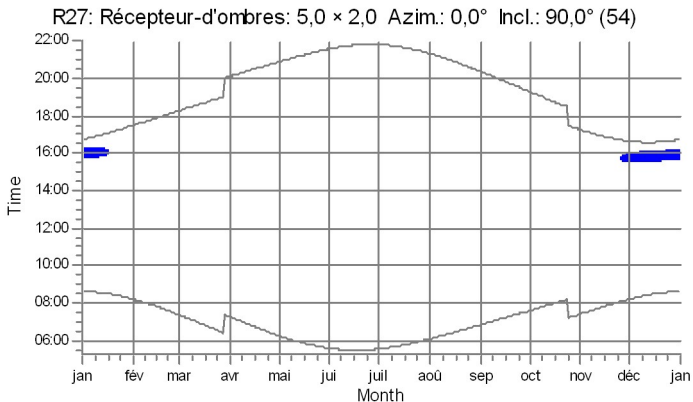
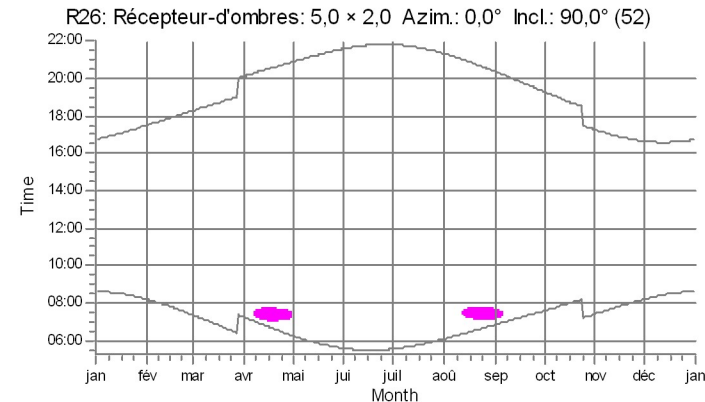
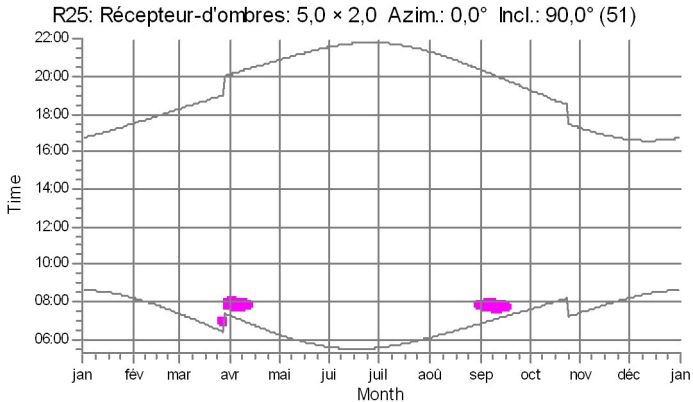
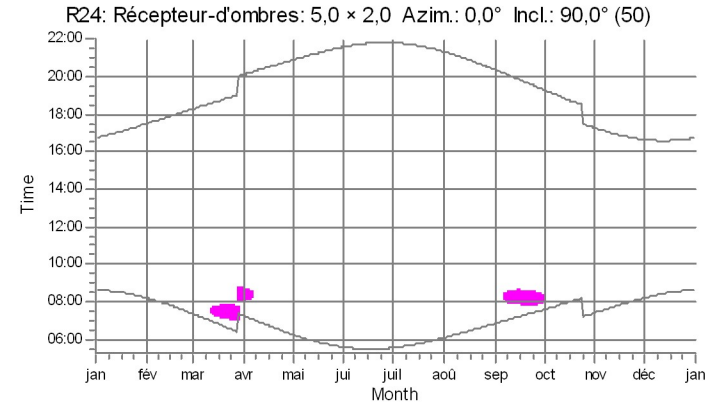
WTGs

E4: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (9)

E5: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (10)

SHADOW - Calendar, graphical

Calculation: Scénario 1 : Worst + real case



WTGs

E3: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (8)

E5: NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (10)

SHADOW - Calendar per WTG

Calculation: Scénario 1 : Worst + real case WTG: E1 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (6)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June
1	08:36 16:46	08:12 08:45-09:19/34 17:30	07:22 08:04-08:40/36 18:18 07:45-07:57/12	07:16 07:39-08:22/43 20:08	06:15 06:56-07:34/38 20:54	05:34 21:36
2	08:36 16:47	08:11 08:44-09:20/36 17:32	07:20 08:04-08:40/36 18:20 07:43-07:58/15	07:14 07:36-08:22/46 20:09	06:14 06:56-07:33/37 20:56	05:33 21:38
3	08:36 16:48	08:09 08:44-09:21/37 17:34	07:18 08:04-08:39/35 18:21 07:41-07:59/18	07:12 07:34-08:22/48 20:11	06:12 06:56-07:32/36 20:58	05:33 21:38
4	08:35 16:49	08:08 08:43-09:21/38 17:35	07:16 08:04-08:38/34 18:23 07:39-07:59/20	07:10 07:31-08:20/49 20:12	06:10 06:57-07:32/35 20:59	05:32 21:39
5	08:35 16:50	08:06 08:42-09:22/40 17:37	07:14 08:05-08:38/33 18:25 07:37-07:59/22	07:07 07:30-08:19/49 20:14	06:08 06:58-07:30/32 21:01	05:31 21:40
6	08:35 16:51	08:05 08:43-09:23/40 17:39	07:12 08:05-08:35/30 18:26 07:34-08:00/26	07:05 07:29-08:18/49 20:16	06:07 06:59-07:30/31 21:02	05:31 21:41
7	08:35 16:52	08:03 08:42-09:23/41 17:41	07:10 08:06-08:34/28 18:28 07:34-08:01/27	07:03 07:28-08:17/49 20:17	06:05 06:59-07:28/29 21:04	05:30 21:42
8	08:34 16:53	08:01 08:42-09:23/41 17:42	07:08 08:07-08:32/25 18:30 07:34-08:02/28	07:01 07:23-08:16/53 20:19	06:04 07:00-07:26/26 21:05	05:30 21:43
9	08:34 16:55	08:00 08:42-09:24/42 17:44	07:06 08:09-08:30/21 18:31 07:33-08:02/29	06:59 07:21-08:14/53 20:20	06:02 07:02-07:25/23 21:07	05:29 21:44
10	08:33 16:56	07:58 08:42-09:23/41 17:46	07:04 08:11-08:28/17 18:33 07:32-08:03/31	06:57 07:19-08:12/53 20:22	06:00 07:03-07:23/20 21:08	05:29 21:44
11	08:33 16:57	07:56 08:42-09:23/41 17:47	07:02 08:16-08:23/7 18:34 07:32-08:03/31	06:55 07:17-08:08/51 20:23	05:59 07:05-07:22/17 21:10	05:29 21:45
12	08:32 16:59	07:55 08:42-09:23/41 17:49	06:59 07:30-08:02/32 18:36	06:53 07:15-08:01/46 20:25	05:57 07:08-07:20/12 21:11	05:28 21:46
13	08:32 17:00	07:53 08:42-09:22/40 17:51	06:57 07:30-08:02/32 18:38	06:51 07:13-08:01/48 20:27	05:56 21:12	05:28 21:46
14	08:31 17:02	07:51 08:43-09:23/40 17:53	06:55 07:30-08:02/32 18:39 07:20-07:27/7	06:49 07:11-08:00/49 20:28	05:54 21:14	05:28 21:47
15	08:30 17:03	07:49 08:43-09:22/39 17:54 08:22-08:26/4	06:53 07:16-08:02/46 18:41	06:46 07:09-08:00/51 20:30	05:53 21:15	05:28 21:48
16	08:30 17:04	07:48 08:44-09:22/38 17:56 08:16-08:31/15	06:51 07:14-08:01/47 18:42	06:44 07:07-07:59/52 20:31	05:51 21:17	05:28 21:48
17	08:29 17:06	07:46 08:44-09:21/37 17:58 08:14-08:33/19	06:49 07:12-08:01/49 18:44	06:42 07:05-07:58/53 20:33	05:50 21:18	05:28 21:48
18	08:28 17:07	07:44 08:45-09:20/35 17:59 08:11-08:35/24	06:47 07:10-07:59/49 18:46	06:40 07:03-07:57/54 20:34	05:49 21:19	05:28 21:49
19	08:27 17:09	07:42 08:46-09:18/32 18:01 08:10-08:36/26	06:44 07:09-07:58/49 18:47	06:38 07:01-07:55/54 20:36	05:47 21:21	05:28 21:49
20	08:26 17:11	07:40 08:47-09:17/30 18:03 08:08-08:38/30	06:42 07:08-07:56/48 18:49	06:36 07:00-07:54/54 20:37	05:46 21:22	05:28 21:49
21	08:25 17:12	07:38 08:48-09:15/27 18:05 08:07-08:38/31	06:40 07:07-07:54/47 18:50	06:34 06:59-07:52/53 20:39	05:45 21:23	05:28 21:50
22	08:24 17:14	07:36 08:50-09:13/23 18:06 08:06-08:39/33	06:38 07:07-07:52/45 18:52	06:32 06:58-07:50/52 20:41	05:44 21:25	05:28 21:50
23	08:23 17:15	07:34 08:53-09:10/17 18:08 08:05-08:40/35	06:36 07:38-07:47/9 18:54 07:02-07:35/33	06:30 06:57-07:47/50 20:42	05:43 21:26	05:28 21:50
24	08:22 08:57-09:04/7 17:17	07:32 08:57-09:05/8 18:10 08:05-08:40/35	06:33 07:00-07:35/35 18:55	06:28 07:36-07:43/7 20:44 06:56-07:35/39	05:41 21:27	05:29 21:50
25	08:21 08:54-09:08/14 17:19	07:30 08:04-08:40/36 18:11	06:31 06:58-07:34/36 18:57	06:27 06:56-07:35/39 20:45	05:40 21:29	05:29 21:50
26	08:20 08:51-09:10/19 17:20	07:28 08:04-08:41/37 18:13	06:29 06:56-07:34/38 18:58	06:25 06:55-07:35/40 20:47	05:39 21:30	05:29 21:50
27	08:19 08:50-09:12/22 17:22	07:26 08:04-08:41/37 18:15 07:49-07:54/5	06:27 06:55-07:33/38 19:00	06:23 06:56-07:36/40 20:48	05:38 21:31	05:30 21:50
28	08:17 08:49-09:14/25 17:23	07:24 08:04-08:40/36 18:16 07:47-07:56/9	06:25 06:53-07:31/38 19:01	06:21 06:56-07:35/39 20:50	05:37 21:32	05:30 21:50
29	08:16 08:47-09:15/28 17:25		07:23 07:52-08:29/37 20:03	06:19 06:55-07:34/39 20:51	05:36 21:33	05:31 21:50
30	08:15 08:47-09:17/30 17:27		07:20 07:51-08:27/36 20:05	06:17 06:55-07:34/39 20:53	05:36 21:34	05:31 21:50
31	08:13 08:45-09:18/33 17:29		07:18 07:51-08:25/34 20:06 07:43-07:50/7		05:35 21:35	
Potential sun hours	267	282	368	412	477	488
Sum of minutes with flicker	178	1250	1385	1441	336	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: Scénario 1 : Worst + real case WTG: E1 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (6)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	July	August	September	October	November	December
1	05:32 21:50	06:05 07:17-07:31/14 21:21	06:51 07:16-08:07/51 20:23	07:36 08:10-08:42/32 19:18	07:25 08:12-08:53/41 17:16	08:13 16:39
2	05:32 21:49	06:07 07:15-07:33/18 21:19	06:52 07:17-08:10/53 20:21	07:37 08:09-08:41/32 19:16	07:27 08:11-08:52/41 17:14	08:14 16:39
3	05:33 21:49	06:08 07:12-07:34/22 21:18	06:54 07:19-08:12/53 20:19	07:39 08:51-09:04/13 19:13	07:29 08:11-08:52/41 17:12	08:15 16:38
4	05:34 21:49	06:10 07:12-07:36/24 21:16	06:55 07:20-08:13/53 20:17	07:40 08:47-09:06/19 19:11	07:30 08:12-08:52/40 17:11	08:17 16:38
5	05:35 21:48	06:11 07:10-07:37/27 21:15	06:57 07:24-08:14/50 20:15	07:42 08:45-09:08/23 19:09	07:32 08:12-08:52/40 17:09	08:18 16:37
6	05:35 21:48	06:12 07:09-07:38/29 21:13	06:58 07:25-08:14/49 20:12	07:43 08:44-09:10/26 19:07	07:34 08:13-08:52/39 17:08	08:19 16:37
7	05:36 21:47	06:14 07:08-07:40/32 21:11	07:00 07:25-08:14/49 20:10	07:45 08:41-09:11/30 19:05	07:35 08:13-08:51/38 17:06	08:20 16:36
8	05:37 21:47	06:15 07:07-07:40/33 21:10	07:01 07:26-08:15/49 20:08	07:47 08:41-09:12/31 19:03	07:37 08:14-08:51/37 17:04	08:21 16:36
9	05:38 21:46	06:17 07:06-07:40/34 21:08	07:03 07:27-08:15/48 20:06	07:48 08:39-09:12/33 19:01	07:39 08:15-08:50/35 17:03	08:22 16:36
10	05:39 21:46	06:18 07:06-07:41/35 21:06	07:04 07:29-08:15/46 20:04	07:50 08:38-09:13/35 18:58	07:40 08:16-08:50/34 17:01	08:24 16:36
11	05:40 21:45	06:20 07:05-07:42/37 21:04	07:06 07:31-08:15/44 20:02	07:51 08:38-09:14/36 18:56	07:42 08:17-08:50/33 17:00	08:25 16:36
12	05:41 21:44	06:21 07:05-07:42/37 21:03	07:07 07:35-08:17/42 19:59	07:53 08:37-09:13/36 18:54	07:44 08:18-08:48/30 16:59	08:26 16:36
13	05:42 21:43	06:23 07:04-07:42/38 21:01	07:09 07:43-08:18/35 19:57	07:54 08:37-09:13/36 18:52	07:45 08:19-08:47/28 16:57	08:26 16:36
14	05:43 21:43	06:24 07:03-07:42/39 20:59	07:10 07:42-08:19/37 19:55	07:56 08:37-09:14/37 18:50	07:47 08:21-08:46/25 16:56	08:27 16:36
15	05:44 21:42	06:26 07:03-07:43/40 20:57	07:12 07:43-08:21/38 19:53	07:58 08:36-09:13/37 18:48	07:48 08:23-08:45/22 16:55	08:28 16:36
16	05:45 21:41	06:27 07:03-07:42/39 20:55	07:13 07:43-08:21/38 19:51	07:59 08:36-09:13/37 18:46	07:50 08:24-08:43/19 16:53	08:29 16:36
17	05:46 21:40	06:29 07:03-07:43/40 20:53	07:15 07:44-08:22/38 19:48	08:01 08:37-09:13/36 18:44	07:52 08:27-08:41/14 16:52	08:30 16:36
18	05:47 21:39	06:30 07:03-07:42/39 20:51	07:16 07:45-08:22/37 19:46	08:02 09:26-09:39/13 18:42	07:53 08:31-08:38/7 16:51	08:31 16:36
19	05:48 21:38	06:32 07:02-07:49/47 20:50	07:18 07:47-08:22/35 19:44	08:04 09:23-09:42/19 18:40	07:55 16:50	08:31 16:37
20	05:50 21:37	06:33 07:03-07:53/50 20:48	07:19 08:26-08:32/6 19:42	08:06 09:21-09:45/24 18:38	07:56 16:49	08:32 16:37
21	05:51 21:36	06:34 07:03-07:55/52 20:46	07:21 07:52-08:37/45 19:40	08:07 09:18-09:46/28 18:36	07:58 16:47	08:33 16:37
22	05:52 21:34	06:36 07:03-07:57/54 20:44	07:22 07:52-08:38/46 19:37	08:09 09:17-09:48/31 18:34	08:00 16:46	08:33 16:38
23	05:53 21:33	06:37 07:03-07:58/55 20:42	07:24 07:52-08:40/48 19:35	08:10 09:16-09:49/33 18:32	08:01 16:45	08:34 16:38
24	05:55 21:32	06:39 07:04-07:58/54 20:40	07:25 07:52-08:41/49 19:33	08:12 09:15-09:50/35 18:30	08:03 16:44	08:34 16:39
25	05:56 21:31	06:40 07:06-08:00/54 20:38	07:27 07:53-08:42/49 19:31	07:14 08:14-08:50/36 17:28	08:04 16:44	08:34 16:40
26	05:57 21:29	06:42 07:07-08:00/53 20:36	07:28 07:53-08:42/49 19:29	07:15 08:13-08:51/38 17:27	08:06 16:43	08:35 16:40
27	05:59 21:28	06:43 07:09-08:01/52 20:34	07:30 07:55-08:43/48 19:26	07:17 08:13-08:52/39 17:25	08:07 16:42	08:35 16:41
28	06:00 21:27	06:45 07:10-08:01/51 20:31	07:31 07:56-08:43/47 19:24	07:19 08:13-08:53/40 17:23	08:08 16:41	08:35 16:42
29	06:01 21:25	06:46 07:12-08:01/49 20:29	07:33 08:11-08:43/32 19:22	07:20 08:12-08:52/40 17:21	08:10 16:40	08:35 16:43
30	06:03 21:24	06:48 07:13-08:01/48 20:27	07:34 08:10-08:42/32 19:20	07:22 08:12-08:53/41 17:19	08:11 16:40	08:36 16:43
31	06:04 07:20-07:27/7 21:22	06:49 07:14-08:00/46 20:25		07:24 08:12-08:53/41 17:18		08:36 16:44
Potential sun hours	492	448	380	334	273	253
Sum of minutes with flicker	7	1242	1340	1485	564	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: Scénario 1 : Worst + real case WTG: E2 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (7)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
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Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	5	171	0	0	0	0	0	0	177	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: Scénario 1 : Worst + real case WTG: E3 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (8)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 15:33-16:13/40 16:46	08:12 16:13-17:02/49 17:30	07:22 16:13-17:02/49 18:18	07:16 16:13-17:02/49 18:18	06:15 16:13-17:02/49 20:54	05:34 16:13-17:02/49 21:36	05:32 16:13-17:02/49 21:50	06:05 16:13-17:02/49 21:21	06:51 16:13-17:02/49 20:23	07:36 16:13-17:02/49 19:18	07:25 15:58-16:36/38 17:16	08:12 15:19-16:07/48 16:39
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26	08:20 15:55-16:50/55 17:20	07:28 16:49-16:54/56 18:13	06:29 16:49-16:54/56 18:58	06:25 16:49-16:54/56 18:58	05:39 16:49-16:54/56 21:30	05:29 16:49-16:54/56 21:50	05:57 16:49-16:54/56 21:29	06:42 16:49-16:54/56 20:31	07:28 16:49-16:54/56 19:26	08:05 16:49-16:54/56 17:26	08:05 15:19-16:12/53 16:43	08:35 15:29-16:07/38 16:40
27	08:18 16:06-16:52/46 17:22	07:26 16:50-16:54/56 18:15	06:23 16:50-16:54/56 19:00	06:23 16:50-16:54/56 19:00	05:38 16:50-16:54/56 21:31	05:30 16:50-16:54/56 21:50	05:58 16:50-16:54/56 21:28	06:43 16:50-16:54/56 20:33	07:30 16:50-16:54/56 19:26	08:07 16:50-16:54/56 17:25	08:07 15:19-16:10/51 16:42	08:35 15:31-16:09/38 16:41
28	08:17 16:06-16:54/48 17:23	07:24 16:51-16:54/56 18:16	06:25 16:51-16:54/56 19:01	06:21 16:51-16:54/56 19:01	05:37 16:51-16:54/56 20:50	05:30 16:51-16:54/56 21:50	06:00 16:51-16:54/56 21:27	06:45 16:51-16:54/56 20:31	07:19 16:51-16:54/56 19:24	08:08 16:51-16:54/56 17:23	08:08 15:19-16:10/51 16:41	08:35 15:31-16:09/38 16:42
29	08:16 16:08-16:56/48 17:25	07:22 16:52-16:54/56 18:16	06:23 16:52-16:54/56 19:01	06:19 16:52-16:54/56 19:01	05:36 16:52-16:54/56 20:51	05:31 16:52-16:54/56 21:50	06:01 16:52-16:54/56 21:25					

SHADOW - Calendar per WTG

Calculation: Scénario 1 : Worst + real case WTG: E4 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (9)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June
1	08:36 12:30-13:07/37 16:45	08:12 17:30 17:30	07:22 17:45-17:53/8 18:18	07:16 19:10-19:27/17 20:08	06:15 20:54 21:36	05:34 21:36
2	08:35 12:30-13:06/36 16:46	08:10 17:32 17:32	07:20 17:43-17:55/12 18:20	07:14 19:15-19:30/15 20:09	06:14 20:56 21:37	05:33 21:37
3	08:35 12:31-13:06/35 16:48	08:09 17:34 17:34	07:18 17:40-17:56/16 18:21	07:12 19:39-19:46/7 20:11 19:12-19:32/20	06:12 20:57 21:38	05:32 21:38
4	08:35 12:32-13:06/34 16:49	08:07 17:35 17:35	07:16 17:39-17:58/19 18:23	07:09 19:37-19:47/10 20:12 19:11-19:34/23	06:10 20:59 21:39	05:32 21:39
5	08:35 12:34-13:06/32 16:50	08:06 17:37 17:37	07:14 17:38-17:59/21 18:24	07:07 19:09-19:49/40 20:14	06:08 21:00 21:40	05:31 21:40
6	08:35 12:35-13:05/30 16:51	08:04 17:39 17:39	07:12 17:37-18:00/23 18:26	07:05 19:08-19:51/43 20:15	06:07 21:02 21:41	05:31 21:41
7	08:35 12:37-13:05/28 16:52	08:03 17:40 17:40	07:10 17:37-18:01/24 18:28	07:03 19:07-19:52/45 20:17	06:05 21:03 21:42	05:30 21:42
8	08:34 12:38-13:03/25 16:53	08:01 17:42 17:42	07:08 17:37-18:01/24 18:29	07:01 19:06-19:54/48 20:19	06:03 21:05 21:43	05:30 21:43
9	08:34 12:41-13:03/22 16:55	08:00 17:44 17:44	07:06 17:37-18:00/23 18:31	06:59 19:06-19:54/48 20:20	06:02 21:06 21:44	05:29 21:44
10	08:33 12:43-13:01/18 16:56	07:58 17:46 17:46	07:04 17:36-17:59/23 18:33	06:57 19:04-19:53/49 20:22	06:00 21:08 21:44	05:29 21:44
11	08:33 12:46-12:57/11 16:57	07:56 17:47 17:47	07:01 17:37-17:58/21 18:34	06:55 19:04-19:57/53 20:23	05:59 21:09 21:45	05:29 21:45
12	08:32 17:00 16:59	07:55 17:51 17:49	06:59 17:38-17:57/19 18:36	06:53 19:04-19:59/55 20:25	05:57 21:11 21:46	05:28 21:46
13	08:32 17:00 17:01	07:53 17:51 17:51	06:57 18:07-18:13/6 18:38 17:39-17:56/17	06:50 19:04-20:01/57 20:26	05:56 21:12 21:46	05:28 21:46
14	08:31 17:01 17:01	07:51 17:52 17:52	06:55 18:04-18:15/11 18:39 17:41-17:54/13	06:48 19:04-20:02/58 20:28	05:54 21:14 21:47	05:28 21:47
15	08:30 17:03 17:03	07:49 17:54 17:54	06:53 18:02-18:17/15 18:41 17:44-17:51/7	06:46 19:04-20:04/60 20:29	05:53 21:15 21:47	05:28 21:47
16	08:30 17:04 17:04	07:47 17:56 17:56	06:51 18:00-18:17/17 18:42	06:44 19:36-20:05/29 20:31 19:05-19:33/28	05:51 21:16 21:48	05:28 21:48
17	08:29 17:06 17:06	07:46 17:58 17:58	06:49 17:59-18:19/20 18:44	06:42 19:43-20:06/23 19:05-19:32/27 20:33 19:40-19:41/1	05:50 21:18 21:48	05:28 21:48
18	08:28 17:07 17:07	07:44 17:59 17:59	06:46 17:58-18:21/23 18:46	06:40 19:43-20:07/24 20:34 19:06-19:31/25	05:49 21:19 21:49	05:28 21:49
19	08:27 17:09 17:09	07:42 18:01 18:01	06:44 17:58-18:23/25 18:47	06:38 19:42-20:06/24 20:36 19:07-19:29/22	05:47 21:21 21:49	05:28 21:49
20	08:26 17:10 17:10	07:40 18:03 18:03	06:42 17:57-18:25/28 18:49	06:36 19:42-20:06/24 20:37 19:09-19:28/19	05:46 21:22 21:49	05:28 21:49
21	08:25 17:12 17:12	07:38 18:04 18:04	06:40 17:56-18:25/29 18:50	06:34 19:42-20:05/23 20:39 19:10-19:25/15	05:45 21:23 21:50	05:28 21:50
22	08:24 17:14 17:14	07:36 18:06 18:06	06:38 17:57-18:27/30 18:52	06:32 19:44-20:05/21 20:40 19:15-19:22/7	05:44 21:25 21:50	05:28 21:50
23	08:23 17:15 17:15	07:34 18:08 18:08	06:35 17:57-18:29/32 18:53	06:30 19:44-20:04/20 20:42	05:42 21:26 21:50	05:28 21:50
24	08:22 17:17 17:17	07:32 18:10 18:10	06:33 17:58-18:29/31 18:55	06:28 19:45-20:03/18 20:43	05:41 21:27 21:50	05:29 21:50
25	08:21 17:18 17:18	07:30 18:11 18:11	06:31 17:59-18:29/30 18:57	06:26 19:46-20:01/15 20:45	05:40 21:28 21:50	05:29 21:50
26	08:20 17:20 17:20	07:28 18:13 18:13	06:29 18:00-18:29/29 18:58	06:25 19:47-19:59/12 20:47	05:39 21:30 21:50	05:29 21:50
27	08:18 17:22 17:22	07:26 18:15 18:15	06:27 18:02-18:28/26 19:00	06:23 19:50-19:56/6 20:48	05:38 21:31 21:50	05:30 21:50
28	08:17 17:23 17:23	07:24 18:16 18:16	06:25 18:06-18:27/21 19:01	06:21 20:50 20:50	05:37 21:32 21:50	05:30 21:50
29	08:16 17:25 17:25		07:22 19:07-19:26/19 20:03	06:19 20:51 20:51	05:36 21:33 21:50	05:31 21:50
30	08:15 17:27 17:27		07:20 19:08-19:25/17 20:04	06:17 20:53 20:53	05:36 21:34 21:50	05:31 21:50
31	08:13 17:28 17:28		07:18 19:09-19:24/15 20:06		05:35 21:35 21:50	05:35 21:50
Potential sun hours	267	282	368	412	477	488
Sum of minutes with flicker	308	0	694	1031	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: Scénario 1 : Worst + real case WTG: E4 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (9)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	July	August	September	October	November	December
1	05:32 21:50	06:05 21:21	06:51 19:04-19:56/52	07:36 18:17-18:36/19	07:25 17:16	08:12 12:29-12:39/10
2	05:32 21:49	06:07 21:19	06:52 19:03-19:52/49	07:37 18:16-18:37/21	07:27 17:14	08:14 12:26-12:43/17
3	05:33 21:49	06:08 21:18	06:54 19:03-19:51/48	07:39 18:15-18:38/23	07:28 17:12	08:15 12:24-12:46/22
4	05:34 21:49	06:09 21:16	06:55 19:03-19:51/48	07:40 18:14-18:37/23	07:30 17:11	08:16 12:23-12:48/25
5	05:34 21:48	06:11 21:14	06:57 19:03-19:48/45	07:42 18:14-18:37/23	07:32 17:09	08:18 12:22-12:50/28
6	05:35 21:48	06:12 21:13	06:58 19:04-19:47/43	07:43 18:13-18:37/24	07:33 17:07	08:19 12:21-12:51/30
7	05:36 21:47	06:14 21:11	07:00 19:31-19:44/13	07:45 18:13-18:36/23	07:35 17:06	08:20 12:20-12:52/32
8	05:37 21:47	06:15 21:09	07:01 19:31-19:42/11	07:46 18:13-18:35/22	07:37 17:04	08:21 12:21-12:54/33
9	05:38 21:46	06:17 21:08	07:03 19:33-19:40/7	07:48 18:13-18:34/21	07:38 17:03	08:22 12:20-12:55/35
10	05:39 21:45	06:18 21:06	07:04 19:08-19:23/15	07:50 18:14-18:32/18	07:40 17:01	08:23 12:20-12:56/36
11	05:40 21:45	06:20 21:04	07:06 19:04-19:20/16	07:51 18:15-18:29/14	07:42 17:00	08:24 12:20-12:57/37
12	05:41 21:44	06:21 21:02	07:07 19:01-19:15/14	07:53 18:17-18:27/10	07:43 16:58	08:25 12:20-12:58/38
13	05:42 21:43	06:23 21:01	07:09 18:59-19:16/17	07:54 18:20-18:25/5	07:45 16:57	08:26 12:20-12:59/39
14	05:43 21:42	06:24 20:59	07:10 18:57-19:17/20	07:56 18:50	07:47 16:56	08:27 12:20-13:00/40
15	05:44 21:41	06:25 20:57	07:12 18:57-19:17/20	07:57 18:48	07:48 16:54	08:28 12:20-13:01/41
16	05:45 21:41	06:27 20:55	07:13 18:52-19:17/25	07:59 18:46	07:50 16:53	08:29 12:20-13:00/40
17	05:46 21:40	06:28 20:53	07:15 18:48-19:16/28	08:01 18:44	07:51 16:52	08:30 12:20-13:01/41
18	05:47 21:39	06:30 20:51	07:16 18:47-19:17/30	08:02 18:42	07:53 16:51	08:30 12:21-13:02/41
19	05:48 21:38	06:31 20:49	07:17 18:44-19:16/32	08:04 18:40	07:55 16:50	08:31 12:20-13:02/42
20	05:50 21:37	06:33 20:47	07:19 18:44-19:15/31	08:05 18:38	07:56 16:48	08:32 12:21-13:03/42
21	05:51 21:35	06:34 20:45	07:20 18:42-19:13/31	08:07 18:36	07:58 16:47	08:32 12:22-13:04/42
22	05:52 21:34	06:36 20:43	07:22 18:42-19:11/29	08:09 18:34	07:59 16:46	08:33 12:22-13:04/42
23	05:53 21:33	06:37 20:41	07:23 18:41-19:09/28	08:10 18:32	08:01 16:45	08:33 12:22-13:04/42
24	05:54 21:32	06:39 20:39	07:25 18:41-19:07/26	08:12 18:30	08:02 16:44	08:34 12:23-13:05/42
25	05:56 21:31	06:40 20:37	07:26 18:41-19:04/23	07:14 19:31	08:04 16:43	08:34 12:24-13:05/41
26	05:57 21:29	06:42 20:35	07:28 18:41-19:02/21	07:15 17:26	08:05 16:43	08:35 12:24-13:05/41
27	05:58 21:28	06:43 20:33	07:30 18:41-19:00/19	07:17 17:25	08:07 16:42	08:35 12:25-13:06/41
28	06:00 21:27	06:45 20:31	07:31 18:42-18:58/16	07:18 17:23	08:08 16:41	08:35 12:26-13:07/41
29	06:01 21:25	06:46 20:29	07:33 18:43-18:55/12	07:20 17:21	08:10 16:40	08:35 12:27-13:07/40
30	06:02 21:24	06:48 20:27	07:34 18:45-18:53/8	07:22 17:19	08:11 16:40	08:35 12:27-13:07/40
31	06:04 21:22	06:49 20:25	07:36 18:47-18:51/4	07:24 17:17	08:13 16:44	08:37 12:28-13:07/39
Potential sun hours	492	448	380	334	273	254
Sum of minutes with flicker	0	622	875	246	0	1120

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: Scénario 1 : Worst + real case
Assumptions for shadow calculations

WTG: E5 - NORDEX N175/6.X 6800 175.0 !-! moyeu: 179,0 m (TOT: 266,5 m) (10)

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,58	3,05	3,17	4,85	6,15	5,19	6,45	6,12	4,77	3,14	2,23	1,13

Operational time

N	NNE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum	
315	397	595	550	415	406	433	424	559	874	1.217	937	559	442	322	315	8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45 18:18	08:12 17:30 19:17	07:22 07:47-08:30/43 18:18	07:16 07:39-08:38/59 20:07	06:15 05:34 20:54 21:36	05:32 21:49 21:21	06:05 21:21 21:21	06:05 21:21 21:21	06:51 07:15-07:36/21 20:23 07:39-08:01/22	07:35 08:23-08:57/34 19:17	07:25 07:51-08:15/24 17:15	08:12 16:39
2	08:35 16:46 18:19	08:10 17:32 19:19	07:20 07:46-08:29/43 18:19	07:14 07:38-08:37/59 20:09	06:13 05:33 20:56 21:37	05:32 21:49 21:19	06:06 21:19 21:19	06:06 21:19 21:19	06:52 07:17-07:34/17 20:21 07:38-08:03/25	07:37 08:22-08:58/36 19:15	07:27 07:53-08:14/21 17:14	08:14 16:38
3	08:35 16:47 18:21	08:09 17:33 19:21	07:18 07:44-08:26/42 18:21	07:11 07:38-08:10/32 20:11 08:11-08:35/24	06:12 05:32 20:57 21:38	05:33 21:49 21:19	06:08 21:19 21:19	06:08 21:19 21:19	06:54 07:18-07:31/13 20:19 07:36-08:03/27	07:38 08:21-08:58/37 19:13	07:28 07:55-08:13/18 17:12	08:15 16:38
4	08:35 16:48 18:23	08:07 17:35 19:26	07:16 07:43-08:24/41 18:23	07:09 07:38-08:09/31 20:12 08:13-08:32/19	06:10 05:32 20:59 21:39	05:34 21:48 21:16	06:09 21:16 21:16	06:09 21:16 21:16	06:55 07:21-07:28/7 20:16 07:35-08:04/29	07:40 08:20-08:58/38 19:11	07:30 07:57-08:12/15 17:10	08:16 16:37
5	08:35 16:50 18:26	08:06 08:30-08:38/8 17:37 19:30	07:14 07:43-08:21/38 18:24	07:07 07:38-08:09/31 20:14 08:16-08:29/13	06:08 05:31 21:00 21:40	05:34 21:48 21:14	06:11 21:14 21:14	06:11 21:14 21:14	06:56 07:34-08:05/31 20:14	07:42 08:19-08:58/39 19:09	07:32 07:59-08:11/12 17:09	08:17 16:37
6	08:35 16:51 18:27	08:04 08:28-08:40/12 17:39 19:32	07:12 07:42-08:21/39 18:26	07:05 07:38-08:09/31 20:15	06:06 05:30 21:02 21:41	05:35 21:48 21:13	06:12 21:13 21:13	06:12 21:13 21:13	06:58 07:34-08:05/31 20:12	07:43 08:18-08:57/39 19:07	07:33 08:00-08:08/8 17:07	08:19 16:36
7	08:34 16:52 18:28	08:03 08:27-08:43/16 17:40 19:34	07:10 07:42-08:21/39 18:28	07:03 07:38-08:08/30 20:17	06:05 05:30 21:03 21:42	05:36 21:49 21:19	06:14 21:19 21:19	06:14 21:19 21:19	06:59 07:33-08:04/31 20:10 08:12-08:24/12	07:45 08:18-08:57/39 19:04	07:35 07:59-08:11/12 17:07	08:20 16:36
8	08:34 16:53 18:29	08:01 08:25-08:44/19 17:42 19:36	07:08 07:42-08:21/39 18:29	07:01 07:24-07:31/7 20:18 07:38-08:07/29	06:03 05:29 21:05 21:43	05:37 21:46 21:19	06:15 21:09 21:09	06:15 21:09 21:09	07:01 07:32-08:03/31 20:08 08:08-08:26/18	07:46 08:17-08:56/39 19:02	07:37 07:59-08:11/12 17:04	08:21 16:36
9	08:34 16:54 18:30	07:59 08:23-08:45/22 17:44 19:38	07:05 07:42-08:21/39 18:31	06:59 07:21-07:34/13 20:20 07:38-08:05/27	06:02 05:29 21:06 21:43	05:38 21:46 21:19	06:16 21:08 21:08	06:16 21:08 21:08	07:02 07:32-08:04/32 20:06 08:06-08:29/23	07:48 08:18-08:58/40 19:00	07:38 17:03	08:22 16:36
10	08:33 16:56 18:33	07:58 08:22-08:46/24 17:45 19:40	07:03 07:42-08:19/37 18:32	06:57 07:18-07:35/17 20:21 07:39-08:04/25	06:00 05:29 21:08 21:44	05:39 21:45 21:19	06:18 21:06 21:06	06:18 21:06 21:06	07:04 07:32-08:30/58 20:03	07:49 08:19-09:00/41 18:58	07:40 17:01	08:23 16:35
11	08:33 16:57 18:34	07:56 08:20-08:47/27 17:47 19:42	07:01 07:43-08:19/36 18:34	06:54 07:16-07:37/21 20:23 07:40-08:02/22	06:01 05:28 21:09 21:45	05:40 21:45 21:19	06:19 21:04 21:04	06:19 21:04 21:04	07:05 07:32-08:31/59 20:01	07:51 08:18-09:01/43 18:56	07:41 17:00	08:24 16:35
12	08:32 16:58 18:35	07:54 08:18-08:47/29 17:49 19:44	06:59 07:44-08:18/34 18:36	06:52 07:14-07:38/24 20:25 07:41-08:00/19	05:57 05:28 21:11 21:45	05:41 21:44 21:19	06:21 21:02 21:02	06:21 21:02 21:02	07:07 07:32-08:32/60 19:59	07:52 08:20-09:03/43 18:54	07:43 16:58	08:25 16:35
13	08:31 17:00 18:37	07:53 08:16-08:47/31 17:51 19:46	06:57 07:28-07:34/6 18:37 07:45-08:17/32	06:50 07:12-07:39/27 20:26 07:43-07:58/15	05:55 05:28 21:12 21:46	05:42 21:43 21:19	06:22 21:00 21:00	06:22 21:00 21:00	07:08 07:33-08:33/60 19:57	07:54 08:21-09:04/43 18:52	07:45 16:57	08:26 16:35
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15	08:30 17:03 18:41	07:49 08:12-08:47/35 17:54 19:49	06:53 07:20-07:41/21 18:41 07:47-08:15/28	06:46 07:10-07:39/29 20:29	05:53 05:27 21:15 21:47	05:44 21:41 21:19	06:25 20:57 20:57	06:25 20:57 20:57	07:11 07:36-08:34/58 19:52	07:57 08:22-09:05/43 18:48	07:48 16:54	08:28 16:35
16	08:29 17:04 18:42	07:47 08:11-08:47/36 17:56 19:51	06:51 07:14-07:42/28 18:42 07:48-08:12/24	06:44 07:09-07:39/30 20:31	05:51 05:27 21:16 21:48	05:45 21:40 21:19	06:27 20:55 20:55	06:27 20:55 20:55	07:13 07:37-08:33/56 19:50	07:59 08:24-09:05/41 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06 18:44	07:45 08:09-08:47/38 17:57 19:52	06:48 07:11-07:43/32 18:44 07:49-08:10/21	06:42 07:08-07:39/31 20:32	05:50 05:27 21:18 21:48	05:46 21:39 21:19	06:28 20:53 20:53	06:28 20:53 20:53	07:14 07:38-08:33/55 19:48	08:00 08:25-09:05/40 18:44	07:51 16:52	08:29 16:36
18	08:28 17:07 18:45	07:44 08:07-08:46/39 17:59 19:54	06:46 07:09-07:44/35 18:45 07:51-08:08/17	06:40 07:08-07:39/31 20:34	05:48 05:27 21:19 21:48	05:47 21:38 21:19	06:30 20:51 20:51	06:30 20:51 20:51	07:16 07:40-08:33/53 19:46	08:02 08:27-09:06/39 18:42	07:53 16:51	08:30 16:36
19	08:27 17:09 18:47	07:42 08:06-08:45/39 18:01 19:56	06:44 07:07-07:45/38 18:47 07:55-08:04/9	06:38 07:08-07:39/31 20:36	05:47 05:27 21:20 21:49	05:48 21:37 21:19	06:31 20:49 20:49	06:31 20:49 20:49	07:17 07:41-08:32/51 19:44	08:04 08:29-09:10/41 18:40	07:54 16:49	08:31 16:36
20	08:26 17:10 18:50	07:40 08:05-08:44/39 18:03 19:58	06:42 07:06-07:46/40 18:48	06:36 07:08-07:38/30 20:37	05:46 05:28 21:22 21:49	05:49 21:36 21:19	06:33 20:47 20:47	06:33 20:47 20:47	07:19 07:49-08:32/43 19:41 07:43-07:47/4	08:05 08:34-09:12/38 18:38	07:56 16:48	08:32 16:37
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23	08:23 17:15 18:55	07:34 07:57-08:38/41 18:08 19:59	06:35 07:02-07:46/44 18:53	06:30 07:09-07:37/28 20:42	05:42 05:28 21:26 21:50	05:53 21:33 21:19	06:37 20:41 20:41	06:37 20:41 20:41	07:23 07:49-08:30/41 19:35	08:10 08:35-09:15/40 18:32	08:01 16:45	08:33 16:38
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28	08:17 17:23 19:00	07:24 07:49-08:31/42 18:16 19:59	06:24 06:46-07:43/57 19:01	06:21 07:14-07:30/16 20:49	05:37 05:30 21:32 21:50	06:00 21:26 21:19	06:45 20:31 20:31	06:45 20:31 20:31	07:31 08:00-08:23/23 19:24 08:28-08:55/27	07:18 07:44-08:16/32 17:23	08:08 16:41	08:35 16:41
29	08:16 17:25 19:02	07:22 07:44-08:33/59 18:17 19:59	07:22 07:44-08:33/59 18:17 19:59	06:19 07:16-07:27/11 20:03	05:36 05:30 21:33 21:50	06:01 21:25 21:19	06:46 20:29 20:29	06:46 20:29 20:29	07:32 08:01-08:19/18 19:22 08:26-08:56/30	07:20 07:46-08:16/30 17:21	08:09 16:40	08:35 16:42
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31	08:13 17:28 19:05	07:18 07:41-08:41/60 18:18 19:59	07:18 07:41-08:41/60 18:18 19:59	06:16 20:06	05:35 21:35	06:04 21:22 21:19	06:49 20:25 20:25	06:49 20:25 20:25	07:23 07:50-08:16/26 17:17	07:22 07:48-08:16/28 17:19	08:11 16:39	08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	774	1424	1002	0	0	0	523	1447	1176	98	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

SHADOW - Calendar per WTG

Calculation: Scénario 1 : Worst + real case WTG: TAR1 - ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (16)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:05 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:21 18:20	07:14 20:09	06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:20	06:52 20:21	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:19 18:21	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:14	07:29 17:13	08:15 16:38
4	08:36 16:49	08:08 17:35	07:16 18:23	07:10 20:13	06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:55 20:17	07:41 19:11	07:30 17:11	08:17 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	06:09 21:01	05:31 21:41	05:35 21:49	06:11 21:15	06:57 20:15	07:42 19:09	07:32 17:09	08:18 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	07:05 20:16	06:07 21:02	05:31 21:41	05:35 21:48	06:13 21:13	06:58 20:13	07:44 19:07	07:34 17:08	08:19 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17	06:05 21:04	05:30 21:42	05:36 21:48	06:14 21:12	07:00 20:10	07:45 19:05	07:35 17:06	08:20 16:36
8	08:35 16:54	08:02 17:42	07:08 18:30	07:01 20:19	06:04 21:05	05:30 21:43	05:37 21:47	06:15 21:10	07:01 20:08	07:47 19:03	07:37 17:05	08:22 16:36
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11	08:33 16:57	07:57 17:48	07:02 18:35	06:55 20:24	05:59 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02	07:51 18:56	07:42 17:00	08:25 16:36
12	08:33 16:59	07:55 17:49	07:00 18:36	06:53 20:25	05:57 21:11	05:28 21:46	05:41 21:44	06:21 21:03	07:07 20:00	07:53 18:54	07:44 16:59	08:26 16:36
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17	08:29 17:06	07:46 17:58	06:49 18:44	06:42 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:54	07:15 19:49	08:01 18:44	07:52 16:52	08:30 16:36
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20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	08:06 18:38	07:57 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:51	06:34 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	08:07 18:36	07:58 16:48	08:33 16:37
22	08:24 17:14	07:37 18:06	06:38 18:52	06:32 20:41	05:44 21:25	05:28 21:50	05:52 21:35	06:36 20:44	07:22 19:38	08:09 18:34	08:00 16:47	08:33 16:38
23	08:23 17:15	07:35 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42	07:24 19:35	08:11 18:32	08:01 16:46	08:34 16:38
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	08:12 18:30	08:03 16:45	08:34 16:39
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28	08:18 17:24	07:25 18:16	06:25 19:02	06:21 20:50	05:37 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:24	08:19 17:23	08:09 16:41	08:35 16:42
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31	08:14 17:29		07:18 20:06		05:35 21:36		06:04 21:23	06:49 20:25		07:24 17:18		08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	253
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

Calculation: Scénario 1 : Worst + real case WTG: TAR2 - ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (17)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:06 21:21	20:12-20:29/17	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:21 18:20	07:14 20:09	06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:20	20:12-20:29/17	06:53 20:21	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:19 18:21	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	20:11-20:29/18	06:54 20:19	07:39 19:14	07:29 17:13	08:15 16:38
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15	08:31 17:03	07:50 17:54	06:53 18:41	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57		07:12 19:53	07:58 18:48	07:49 16:55	08:28 16:36
16	08:30 17:05	07:48 17:56	06:51 18:43	06:45 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55		07:13 19:51	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:43 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:54		07:15 19:49	08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:08	07:44 18:00	06:47 18:46	06:40 20:34	05:49 21:20	05:28 21:49	05:47 21:39	06:30 20:52		07:16 19:46	08:03 18:42	07:53 16:51	08:31 16:36
19	08:27 17:09	07:42 18:01	06:45 18:47	06:38 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50		07:18 19:44	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:36 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48		07:19 19:42	08:06 18:38	07:57 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:51	06:34 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46		07:21 19:40	08:07 18:36	07:58 16:48	08:33 16:38
22	08:24 17:14	07:37 18:06	06:38 18:52	06:33 20:41	05:44 21:25	05:28 21:50	05:52 21:35	06:36 20:44		07:22 19:38	08:09 18:34	08:00 16:47	08:33 16:38
23	08:23 17:15	07:35 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:28 21:50	05:53 21:33	06:38 20:42		07:24 19:35	08:11 18:32	08:01 16:46	08:34 16:39
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40		07:25 19:33	08:12 18:30	08:03 16:45	08:34 16:39
25	08:21 17:19	07:31 18:11	06:31 18:57	06:27 20:45	05:41 21:29	05:29 21:51	05:56 21:31	06:41 20:38		07:27 19:31	07:14 17:29	08:04 16:44	08:35 16:40
26	08:20 17:20	07:29 18:13	06:29 18:58	06:25 20:47	05:39 21:30	05:29 21:51	05:57 21:30	06:42 20:36	20:17-20:24/7	07:28 19:29	07:16 17:27	08:06 16:43	08:35 16:40
27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	05:39 21:31	05:30 21:51	05:59 21:28	06:44 20:34	20:15-20:25/10	07:30 19:27	07:17 17:25	08:07 16:42	08:35 16:41
28	08:18 17:24	07:25 18:17	06:25 19:02	06:21 20:50	05:38 21:32	05:30 21:50	06:00 21:27	06:45 20:32	20:14-20:26/12	07:31 19:24	07:19 17:23	08:09 16:41	08:35 16:42
29	08:16 17:25		07:23 20:03	06:19 20:52	05:37 21:33	05:31 21:50	06:01 21:26	06:47 20:30	20:14-20:28/14	07:33 19:22	07:21 17:21	08:10 16:41	08:36 16:43
30	08:15 17:27		07:21 20:05	06:17 20:53	05:36 21:35	05:31 21:50	06:03 21:24	06:48 20:27	20:13-20:28/15	07:34 19:20	07:22 17:19	08:11 16:40	08:36 16:44
31	08:14 17:29		07:18 20:06		05:35 21:36		06:04 21:23	06:50 20:25	20:12-20:28/16		07:24 17:18		08:36 16:44
Potential sun hours	267	282	368	412	477	488	492	448		380	334	273	253
Sum of minutes with flicker	0	0	0	0	214	0	74	143		0	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

Calculation: Scénario 1 : Worst + real case WTG: TAR3 - ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (18)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:06 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:21 18:20	07:14 20:09	06:14 20:56	05:33 21:38	05:33 21:50	06:07 21:20	06:53 20:21	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:19 18:22	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:14	07:29 17:13	08:15 16:38
4	08:36 16:49	08:08 17:36	07:16 18:23	07:10 20:13	06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:56 20:17	07:41 19:11	07:30 17:11	08:17 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	06:09 21:01	05:31 21:41	05:35 21:49	06:11 21:15	06:57 20:15	07:42 19:09	07:32 17:09	08:18 16:37
6	08:35 16:51	08:05 17:39	07:12 18:26	07:06 20:16	06:07 21:02	05:31 21:41	05:36 21:48	06:13 21:13	06:58 20:13	07:44 19:07	07:34 17:08	08:19 16:37
7	08:35 16:52	08:03 17:41	07:10 18:28	07:03 20:17	06:05 21:04	05:30 21:42	05:36 21:48	06:14 21:12	07:00 20:10	07:45 19:05	07:35 17:06	08:20 16:37
8	08:35 16:54	08:02 17:42	07:08 18:30	07:01 20:19	06:04 21:05	05:30 21:43	05:37 21:47	06:16 21:10	07:01 20:08	07:47 19:03	07:37 17:05	08:21 16:36
9	08:34 16:55	08:00 17:44	07:06 18:31	06:59 20:20	06:02 21:07	05:30 21:44	05:38 21:46	06:17 21:08	07:03 20:06	07:48 19:01	07:39 17:03	08:23 16:36
10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22	06:00 21:08	05:29 21:45	05:39 21:46	06:18 21:06	07:04 20:04	07:50 18:59	07:40 17:02	08:24 16:36
11	08:33 16:58	07:57 17:48	07:02 18:35	06:55 20:24	05:59 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02	07:51 18:57	07:42 17:00	08:25 16:36
12	08:33 16:59	07:55 17:49	07:00 18:36	06:53 20:25	05:57 21:11	05:29 21:46	05:41 21:44	06:21 21:03	07:07 20:00	07:53 18:54	07:44 16:59	08:26 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	05:56 21:13	05:28 21:47	05:42 21:44	06:23 21:01	07:09 19:57	07:55 18:52	07:45 16:57	08:27 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	05:54 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:56 18:50	07:47 16:56	08:28 16:36
15	08:31 17:03	07:50 17:55	06:53 18:41	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:58 18:48	07:49 16:55	08:28 16:36
16	08:30 17:05	07:48 17:56	06:51 18:43	06:45 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:43 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:54	07:15 19:49	08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:08	07:44 18:00	06:47 18:46	06:41 20:34	05:49 21:20	05:28 21:49	05:47 21:39	06:30 20:52	07:16 19:46	08:03 18:42	07:53 16:51	08:31 16:36
19	08:27 17:09	07:42 18:01	06:45 18:47	06:39 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:44	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:37 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	08:06 18:38	07:57 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:51	06:35 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	08:07 18:36	07:58 16:48	08:33 16:38
22	08:24 17:14	07:37 18:06	06:38 18:52	06:33 20:41	05:44 21:25	05:28 21:50	05:52 21:35	06:36 20:44	07:22 19:38	08:09 18:34	08:00 16:47	08:33 16:38
23	08:23 17:15	07:35 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:29 21:50	05:54 21:33	06:38 20:42	07:24 19:35	08:11 18:32	08:01 16:46	08:34 16:39
24	08:22 17:17	07:33 18:10	06:34 18:55	06:29 20:44	05:42 21:27	05:29 21:50	05:55 21:32	06:39 20:40	07:25 19:33	08:12 18:30	08:03 16:45	08:34 16:39
25	08:21 17:19	07:31 18:12	06:31 18:57	06:27 20:45	05:41 21:29	05:29 21:50	05:56 21:31	06:41 20:38	07:27 19:31	08:14 17:29	08:04 16:44	08:35 16:40
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27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	05:39 21:31	05:30 21:50	05:59 21:28	06:44 20:34	07:30 19:27	08:17 17:25	08:07 16:42	08:35 16:41
28	08:18 17:24	07:25 18:17	06:25 19:02	06:21 20:50	05:38 21:32	05:30 21:50	06:00 21:27	06:45 20:32	07:31 19:24	08:19 17:23	08:09 16:41	08:35 16:42
29	08:16 17:25		07:23 20:03	06:19 20:52	05:37 21:33	05:31 21:50	06:01 21:26	06:47 20:30	07:33 19:22	08:20 17:21	08:10 16:41	08:36 16:43
30	08:15 17:27		07:21 20:05	06:17 20:53	05:36 21:35	05:31 21:50	06:03 21:24	06:48 20:27	07:34 19:20	08:22 17:19	08:11 16:40	08:36 16:44
31	08:14 17:29		07:18 20:06		05:35 21:36		06:04 21:23	06:50 20:25		07:24 17:18		08:36 16:45
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	0	0	158	0	0	0	160	0	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

Calculation: Scénario 1 : Worst + real case WTG: TAR4 - ENERCON E-92 2,3 MW 2350 92.0 I-I moyeu: 138,4 m (TOT: 184,4 m) (20)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:36 16:46	08:12 17:30	07:23 18:18	07:16 20:08	06:16 20:55	05:34 21:37	05:32 21:50	06:06 21:21	06:51 20:23	07:36 19:18	07:25 17:16	08:13 16:39
2	08:36 16:47	08:11 17:32	07:21 18:20	07:14 20:09	06:14 20:56	05:34 21:38	05:33 21:50	06:07 21:20	06:53 20:21	07:37 19:16	07:27 17:14	08:14 16:39
3	08:36 16:48	08:09 17:34	07:19 18:22	07:12 20:11	06:12 20:58	05:33 21:39	05:33 21:49	06:08 21:18	06:54 20:19	07:39 19:14	07:29 17:13	08:15 16:38
4	08:36 16:49	08:08 17:36	07:16 18:23	07:10 20:13	06:10 20:59	05:32 21:40	05:34 21:49	06:10 21:16	06:56 20:17	07:41 19:11	07:30 17:11	08:17 16:38
5	08:35 16:50	08:06 17:37	07:14 18:25	07:08 20:14	06:09 21:01	05:32 21:40	05:35 21:48	06:11 21:15	06:57 20:15	07:42 19:09	07:32 17:09	08:18 16:37
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10	08:34 16:56	07:58 17:46	07:04 18:33	06:57 20:22	06:01 21:08	05:29 21:45	05:39 21:46	06:19 21:06	07:04 20:04	07:50 18:59	07:40 17:02	08:24 16:36
11	08:33 16:58	07:57 17:48	07:02 18:35	06:55 20:24	05:59 21:10	05:29 21:45	05:40 21:45	06:20 21:05	07:06 20:02	07:51 18:57	07:42 17:00	08:25 16:36
12	08:33 16:59	07:55 17:49	07:00 18:36	06:53 20:25	05:57 21:11	05:29 21:46	05:41 21:44	06:21 21:03	07:07 20:00	07:53 18:54	07:44 16:59	08:26 16:36
13	08:32 17:00	07:53 17:51	06:57 18:38	06:51 20:27	05:56 21:13	05:28 21:47	05:42 21:43	06:23 21:01	07:09 19:57	07:55 18:52	07:45 16:57	08:27 16:36
14	08:31 17:02	07:51 17:53	06:55 18:39	06:49 20:28	05:55 21:14	05:28 21:47	05:43 21:43	06:24 20:59	07:10 19:55	07:56 18:50	07:47 16:56	08:27 16:36
15	08:31 17:03	07:50 17:55	06:53 18:41	06:47 20:30	05:53 21:15	05:28 21:48	05:44 21:42	06:26 20:57	07:12 19:53	07:58 18:48	07:49 16:55	08:28 16:36
16	08:30 17:05	07:48 17:56	06:51 18:43	06:45 20:31	05:52 21:17	05:28 21:48	05:45 21:41	06:27 20:55	07:13 19:51	07:59 18:46	07:50 16:53	08:29 16:36
17	08:29 17:06	07:46 17:58	06:49 18:44	06:43 20:33	05:50 21:18	05:28 21:49	05:46 21:40	06:29 20:54	07:15 19:49	08:01 18:44	07:52 16:52	08:30 16:36
18	08:28 17:08	07:44 18:00	06:47 18:46	06:41 20:34	05:49 21:20	05:28 21:49	05:48 21:39	06:30 20:52	07:16 19:46	08:03 18:42	07:53 16:51	08:31 16:37
19	08:27 17:09	07:42 18:01	06:45 18:47	06:39 20:36	05:48 21:21	05:28 21:49	05:49 21:38	06:32 20:50	07:18 19:44	08:04 18:40	07:55 16:50	08:31 16:37
20	08:26 17:11	07:40 18:03	06:42 18:49	06:37 20:38	05:46 21:22	05:28 21:50	05:50 21:37	06:33 20:48	07:19 19:42	08:06 18:38	07:57 16:49	08:32 16:37
21	08:25 17:12	07:38 18:05	06:40 18:51	06:35 20:39	05:45 21:24	05:28 21:50	05:51 21:36	06:35 20:46	07:21 19:40	08:07 18:36	07:58 16:48	08:33 16:38
22	08:24 17:14	07:37 18:07	06:38 18:52	06:33 20:41	05:44 21:25	05:28 21:50	05:52 21:35	06:36 20:44	07:22 19:38	08:09 18:34	08:00 16:47	08:33 16:38
23	08:23 17:16	07:35 18:08	06:36 18:54	06:31 20:42	05:43 21:26	05:29 21:50	05:54 21:33	06:38 20:42	07:24 19:35	08:11 18:32	08:01 16:46	08:34 16:39
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27	08:19 17:22	07:27 18:15	06:27 19:00	06:23 20:48	05:39 21:31	05:30 21:50	05:59 21:28	06:44 20:34	07:30 19:27	08:17 17:25	08:07 16:42	08:35 16:41
28	08:17 17:24	07:25 18:17	06:25 19:02	06:21 20:50	05:38 21:32	05:31 21:50	06:00 21:27	06:45 20:32	07:31 19:24	08:19 17:23	08:09 16:41	08:35 16:42
29	08:16 17:25		07:23 20:03	06:19 20:52	05:37 21:33	05:31 21:50	06:01 21:25	06:47 20:30	07:33 19:22	08:20 17:21	08:10 16:41	08:36 16:43
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31	08:14 17:29		07:18 20:06		05:35 21:36		06:04 21:23	06:50 20:25		07:24 17:18		08:36 16:45
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

Calculation: Scénario 1 : Worst + real case WTG: WIL1 - ENERCON E-115 EP3 4000 115.7 IO! moyeu: 135,0 m (TOT: 192,9 m) (2)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	06:15 20:54	05:34 21:36	05:31 21:49	06:05 21:21	06:50 20:23	07:35 19:17	07:25 17:15	08:12 16:39
2	08:35 16:46	08:10 17:32	07:20 18:19	07:14 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:06 21:19	06:52 20:21	07:37 19:15	07:27 17:14	08:14 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:11 20:10	06:12 20:57	05:32 21:38	05:33 21:49	06:08 21:17	06:53 20:18	07:38 19:13	07:28 17:12	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:23	07:09 20:12	06:10 20:59	05:32 21:39	05:33 21:48	06:09 21:16	06:55 20:16	07:40 19:11	07:30 17:10	08:16 16:37
5	08:35 16:49	08:06 17:37	07:14 18:24	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:56 20:14	07:42 19:09	07:32 17:09	08:17 16:37
6	08:35 16:51	08:04 17:38	07:12 18:26	07:05 20:15	06:06 21:02	05:30 21:41	05:35 21:47	06:12 21:13	06:58 20:12	07:43 19:07	07:33 17:07	08:19 16:36
7	08:34 16:52	08:03 17:40	07:10 18:28	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:13 21:11	06:59 20:10	07:45 19:04	07:35 17:06	08:20 16:36
8	08:34 16:53	08:01 17:42	07:08 18:29	07:01 20:18	06:03 21:05	05:29 21:43	05:37 21:46	06:15 21:09	07:01 20:08	07:46 19:02	07:37 17:04	08:21 16:36
9	08:34 16:54	07:59 17:44	07:05 18:31	06:59 20:20	06:01 21:06	05:29 21:43	05:38 21:46	06:16 21:08	07:02 20:06	07:48 19:00	07:38 17:03	08:22 16:36
10	08:33 16:56	07:58 17:45	07:03 18:32	06:56 20:21	06:00 21:08	05:29 21:44	05:38 21:45	06:18 21:06	07:04 20:03	07:49 18:58	07:40 17:01	08:23 16:35
11	08:33 16:57	07:56 17:47	07:01 18:34	06:54 20:23	05:58 21:09	05:28 21:45	05:39 21:44	06:19 21:04	07:05 20:01	07:51 18:56	07:41 17:00	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:25	05:57 21:11	05:28 21:45	05:40 21:44	06:21 21:02	07:07 19:59	07:52 18:54	07:43 16:58	08:25 16:35
13	08:31 17:00	07:53 17:51	06:57 18:37	06:50 20:26	05:55 21:12	05:28 21:46	05:41 21:43	06:22 21:00	07:08 19:57	07:54 18:52	07:45 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	05:54 21:13	05:28 21:47	05:42 21:42	06:24 20:59	07:10 19:55	07:56 18:50	07:46 16:55	08:27 16:35
15	08:30 17:03	07:49 17:54	06:53 18:40	06:46 20:29	05:52 21:15	05:27 21:47	05:44 21:41	06:25 20:57	07:11 19:52	07:57 18:48	07:48 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:50 18:42	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:59 18:46	07:50 16:53	08:29 16:35
17	08:29 17:06	07:45 17:57	06:48 18:44	06:42 20:32	05:50 21:18	05:27 21:48	05:46 21:39	06:28 20:53	07:14 19:48	08:00 18:44	07:51 16:52	08:29 16:36
18	08:28 17:07	07:44 17:59	06:46 18:45	06:40 20:34	05:48 21:19	05:27 21:48	05:47 21:38	06:30 20:51	07:16 19:46	08:02 18:42	07:53 16:50	08:30 16:36
19	08:27 17:09	07:42 18:01	06:44 18:47	06:38 20:35	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:04 18:40	07:54 16:49	08:31 16:36
20	08:26 17:10	07:40 18:02	06:42 18:48	06:36 20:37	05:46 21:22	05:27 21:49	05:49 21:36	06:33 20:47	07:19 19:41	08:05 18:38	07:56 16:48	08:32 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:39	05:45 21:23	05:28 21:49	05:50 21:35	06:34 20:45	07:20 19:39	08:07 18:36	07:58 16:47	08:32 16:37
22	08:24 17:13	07:36 18:06	06:37 18:52	06:32 20:40	05:43 21:24	05:28 21:50	05:52 21:34	06:36 20:43	07:22 19:37	08:08 18:34	07:59 16:46	08:33 16:37
23	08:23 17:15	07:34 18:08	06:35 18:53	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:10 18:32	08:01 16:45	08:33 16:38
24	08:22 17:16	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:39 20:39	07:25 19:33	08:12 18:30	08:02 16:44	08:34 16:39
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:29 21:50	05:56 21:30	06:40 20:37	07:26 19:30	07:13 17:28	08:04 16:43	08:34 16:39
26	08:19 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:42 20:35	07:28 19:28	07:15 17:26	08:05 16:42	08:34 16:40
27	08:18 17:21	07:26 18:14	06:27 18:59	06:22 20:48	05:38 21:31	05:29 21:50	05:58 21:28	06:43 20:33	07:29 19:26	07:17 17:24	08:07 16:41	08:35 16:41
28	08:17 17:23	07:24 18:16	06:24 19:01	06:21 20:49	05:37 21:32	05:30 21:50	05:59 21:26	06:45 20:31	07:31 19:24	07:18 17:22	08:08 16:41	08:35 16:41
29	08:16 17:25		07:22 20:03	06:19 20:51	05:36 21:33	05:30 21:50	06:01 21:25	06:46 20:29	07:32 19:22	07:20 17:21	08:09 16:40	08:35 16:42
30	08:14 17:26		07:20 20:04	06:17 20:53	05:35 21:34	05:31 21:50	06:02 21:23	06:47 20:27	07:34 19:19	07:22 17:19	08:11 16:39	08:35 16:43
31	08:13 17:28		07:18 20:06		05:34 21:35		06:04 21:22	06:49 20:25		07:23 17:17		08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

Calculation: Scénario 1 : Worst + real case WTG: WIL2 - ENERCON E-115 EP3 4000 115.7 IO! moyeu: 135,0 m (TOT: 192,9 m) (3)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [ST-HUBERT]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,58 3,05 3,17 4,85 6,15 5,19 6,45 6,12 4,77 3,14 2,23 1,13

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
315 397 595 550 415 406 433 424 559 874 1.217 937 559 442 322 315 8.760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:35 16:45	08:12 17:30	07:22 18:18	07:16 20:07	06:15 20:54	05:34 21:36	05:31 21:49	06:05 21:20	06:50 20:23	07:35 19:17	07:25 17:15	08:12 16:39
2	08:35 16:46	08:10 17:31	07:20 18:19	07:13 20:09	06:13 20:56	05:33 21:37	05:32 21:49	06:06 21:19	06:52 20:21	07:37 19:15	07:26 17:14	08:13 16:38
3	08:35 16:47	08:09 17:33	07:18 18:21	07:11 20:10	06:11 20:57	05:32 21:38	05:33 21:49	06:08 21:17	06:53 20:18	07:38 19:13	07:28 17:12	08:15 16:38
4	08:35 16:48	08:07 17:35	07:16 18:22	07:09 20:12	06:10 20:59	05:31 21:39	05:33 21:48	06:09 21:16	06:55 20:16	07:40 19:11	07:30 17:10	08:16 16:37
5	08:35 16:49	08:06 17:37	07:14 18:24	07:07 20:14	06:08 21:00	05:31 21:40	05:34 21:48	06:11 21:14	06:56 20:14	07:41 19:09	07:31 17:09	08:17 16:37
6	08:34 16:51	08:04 17:38	07:12 18:26	07:05 20:15	06:06 21:02	05:30 21:41	05:35 21:47	06:12 21:13	06:58 20:12	07:43 19:06	07:33 17:07	08:19 16:36
7	08:34 16:52	08:02 17:40	07:10 18:27	07:03 20:17	06:05 21:03	05:30 21:42	05:36 21:47	06:13 21:11	06:59 20:10	07:45 19:04	07:35 17:05	08:20 16:36
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9	08:33 16:54	07:59 17:44	07:05 18:31	06:58 20:20	06:01 21:06	05:29 21:43	05:37 21:46	06:16 21:07	07:02 20:05	07:48 19:00	07:38 17:02	08:22 16:35
10	08:33 16:56	07:58 17:45	07:03 18:32	06:56 20:21	06:00 21:08	05:28 21:44	05:38 21:45	06:18 21:06	07:04 20:03	07:49 18:58	07:40 17:01	08:23 16:35
11	08:32 16:57	07:56 17:47	07:01 18:34	06:54 20:23	05:58 21:09	05:28 21:45	05:39 21:44	06:19 21:04	07:05 20:01	07:51 18:56	07:41 16:59	08:24 16:35
12	08:32 16:58	07:54 17:49	06:59 18:36	06:52 20:24	05:57 21:10	05:28 21:45	05:40 21:44	06:21 21:02	07:07 19:59	07:52 18:54	07:43 16:58	08:25 16:35
13	08:31 17:00	07:52 17:50	06:57 18:37	06:50 20:26	05:55 21:12	05:28 21:46	05:41 21:43	06:22 21:00	07:08 19:57	07:54 18:52	07:45 16:57	08:26 16:35
14	08:31 17:01	07:51 17:52	06:55 18:39	06:48 20:28	05:54 21:13	05:27 21:47	05:42 21:42	06:24 20:59	07:10 19:55	07:55 18:50	07:46 16:55	08:27 16:35
15	08:30 17:02	07:49 17:54	06:53 18:40	06:46 20:29	05:52 21:15	05:27 21:47	05:43 21:41	06:25 20:57	07:11 19:52	07:57 18:48	07:48 16:54	08:28 16:35
16	08:29 17:04	07:47 17:56	06:50 18:42	06:44 20:31	05:51 21:16	05:27 21:48	05:45 21:40	06:27 20:55	07:13 19:50	07:59 18:46	07:50 16:53	08:29 16:35
17	08:28 17:05	07:45 17:57	06:48 18:44	06:42 20:32	05:50 21:18	05:27 21:48	05:46 21:39	06:28 20:53	07:14 19:48	08:00 18:44	07:51 16:52	08:29 16:36
18	08:28 17:07	07:43 17:59	06:46 18:45	06:40 20:34	05:48 21:19	05:27 21:48	05:47 21:38	06:30 20:51	07:16 19:46	08:02 18:42	07:53 16:50	08:30 16:36
19	08:27 17:08	07:42 18:01	06:44 18:47	06:38 20:35	05:47 21:20	05:27 21:49	05:48 21:37	06:31 20:49	07:17 19:44	08:03 18:40	07:54 16:49	08:31 16:36
20	08:26 17:10	07:40 18:02	06:42 18:48	06:36 20:37	05:46 21:22	05:27 21:49	05:49 21:36	06:33 20:47	07:19 19:41	08:05 18:38	07:56 16:48	08:31 16:37
21	08:25 17:12	07:38 18:04	06:40 18:50	06:34 20:38	05:44 21:23	05:27 21:49	05:50 21:35	06:34 20:45	07:20 19:39	08:07 18:36	07:57 16:47	08:32 16:37
22	08:24 17:13	07:36 18:06	06:37 18:52	06:32 20:40	05:43 21:24	05:28 21:49	05:52 21:34	06:35 20:43	07:22 19:37	08:08 18:34	07:59 16:46	08:33 16:37
23	08:23 17:15	07:34 18:07	06:35 18:53	06:30 20:42	05:42 21:26	05:28 21:50	05:53 21:33	06:37 20:41	07:23 19:35	08:10 18:32	08:01 16:45	08:33 16:38
24	08:22 17:16	07:32 18:09	06:33 18:55	06:28 20:43	05:41 21:27	05:28 21:50	05:54 21:32	06:38 20:39	07:25 19:33	08:12 18:30	08:02 16:44	08:33 16:38
25	08:21 17:18	07:30 18:11	06:31 18:56	06:26 20:45	05:40 21:28	05:28 21:50	05:55 21:30	06:40 20:37	07:26 19:30	08:13 17:28	08:04 16:43	08:34 16:39
26	08:19 17:20	07:28 18:13	06:29 18:58	06:24 20:46	05:39 21:29	05:29 21:50	05:57 21:29	06:41 20:35	07:28 19:28	08:15 17:26	08:05 16:42	08:34 16:40
27	08:18 17:21	07:26 18:14	06:26 18:59	06:22 20:48	05:38 21:30	05:29 21:50	05:58 21:28	06:43 20:33	07:29 19:26	08:17 17:24	08:07 16:41	08:35 16:41
28	08:17 17:23	07:24 18:16	06:24 19:01	06:20 20:49	05:37 21:32	05:30 21:50	05:59 21:26	06:44 20:31	07:31 19:24	08:18 17:22	08:08 16:41	08:35 16:41
29	08:16 17:25		07:22 20:03	06:19 20:51	05:36 21:33	05:30 21:50	06:01 21:25	06:46 20:29	07:32 19:22	08:19 17:21	08:09 16:40	08:35 16:42
30	08:14 17:26		07:20 20:04	06:17 20:52	05:35 21:34	05:31 21:49	06:02 21:23	06:47 20:27	07:34 19:19	08:21 17:19	08:11 16:39	08:35 16:43
31	08:13 17:28		07:18 20:06		05:34 21:35		06:03 21:22	06:49 20:25		07:23 17:17		08:35 16:44
Potential sun hours	267	282	368	412	477	488	492	448	380	334	273	254
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

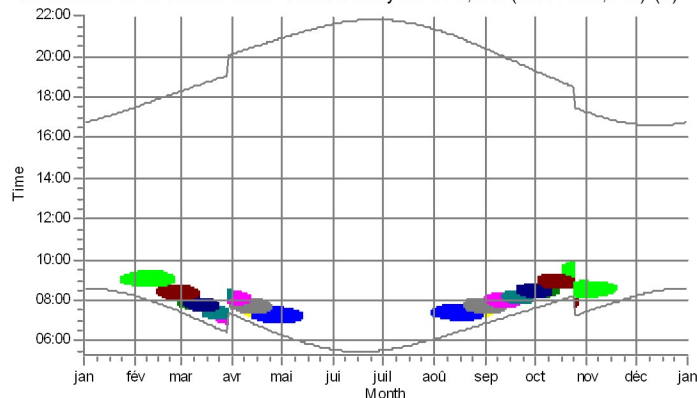
Table layout: For each day in each month the following matrix apply

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

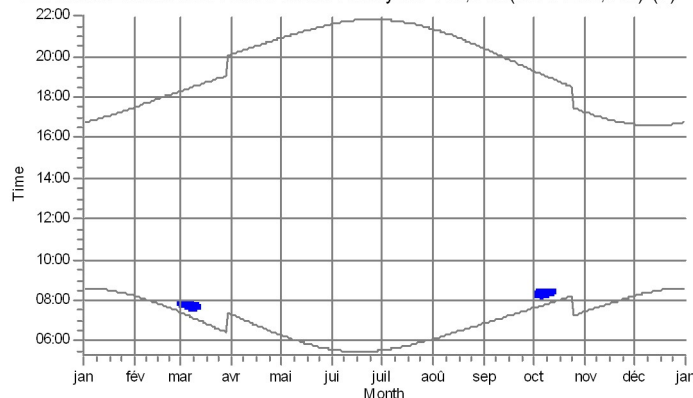
SHADOW - Calendar per WTG, graphical

Calculation: Scénario 1 : Worst + real case

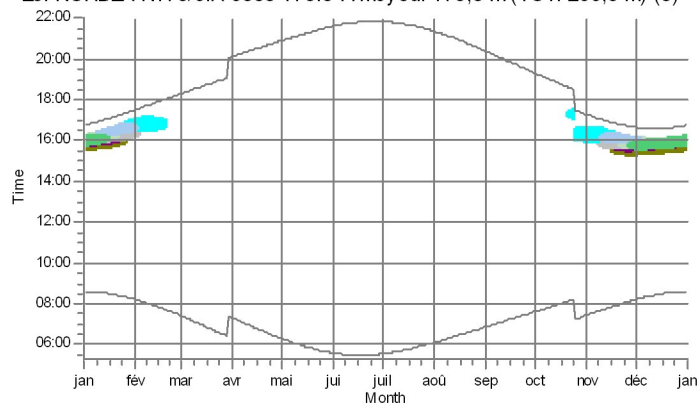
E1: NORDEX N175/6.X 6800 175.0 ! moyeu: 179,0 m (TOT: 266,5 m) (6)



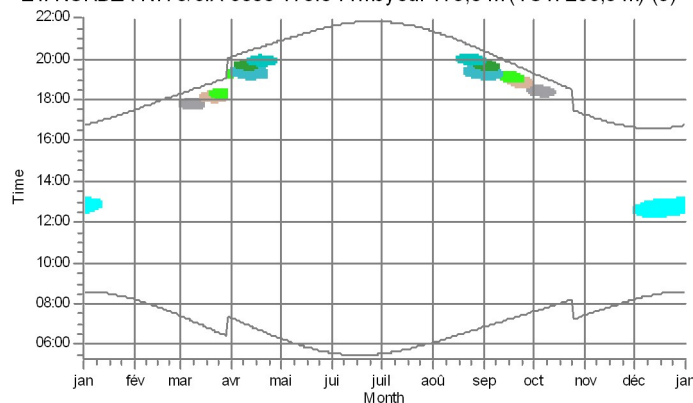
E2: NORDEX N175/6.X 6800 175.0 ! moyeu: 179,0 m (TOT: 266,5 m) (7)



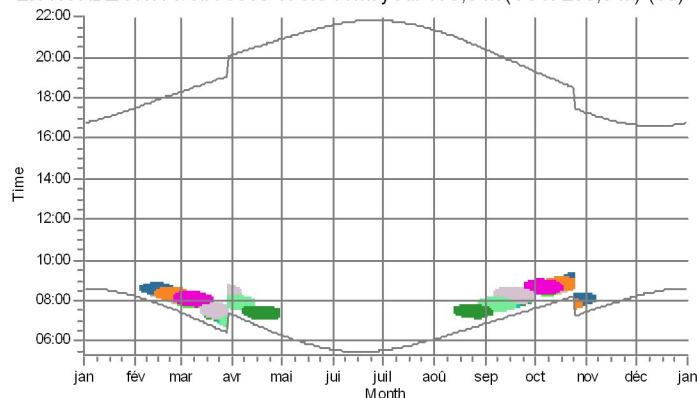
E3: NORDEX N175/6.X 6800 175.0 ! moyeu: 179,0 m (TOT: 266,5 m) (8)



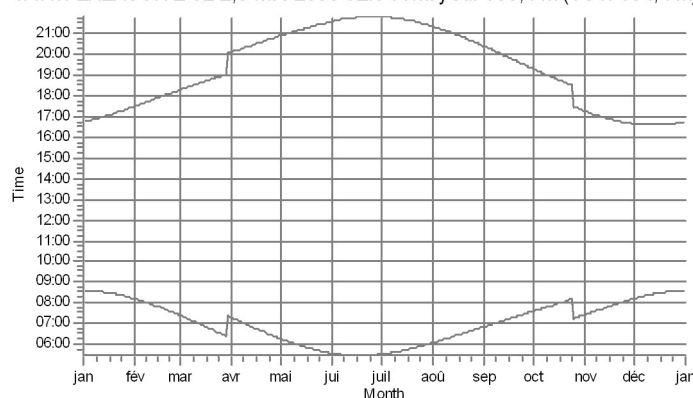
E4: NORDEX N175/6.X 6800 175.0 ! moyeu: 179,0 m (TOT: 266,5 m) (9)



E5: NORDEX N175/6.X 6800 175.0 ! moyeu: 179,0 m (TOT: 266,5 m) (10)



TAR1: ENERCON E-92 2,3 MW 2350 92.0 ! moyeu: 138,4 m (TOT: 184,4 m) (1)



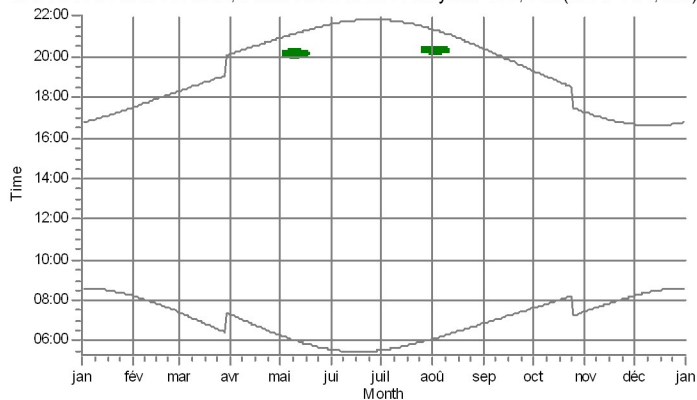
Shadow receptors

R0: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (53)	R10: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (36)	R20: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (46)
R01: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (27)	R11: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (37)	R21: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (47)
R02: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (28)	R12: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (38)	R22: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (48)
R03: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (29)	R13: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (39)	R23: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (49)
R04: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (30)	R14: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (40)	R24: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (50)
R05: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (31)	R15: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (41)	R25: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (51)
R06: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (32)	R16: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (42)	R26: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (52)
R07: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (33)	R17: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (43)	R27: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (54)
R08: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (34)	R18: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (44)	
R09: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (35)	R19: Récepteur-d'ombres: 5,0 x 2,0 Azim.: 0,0° Incl.: 90,0° (45)	

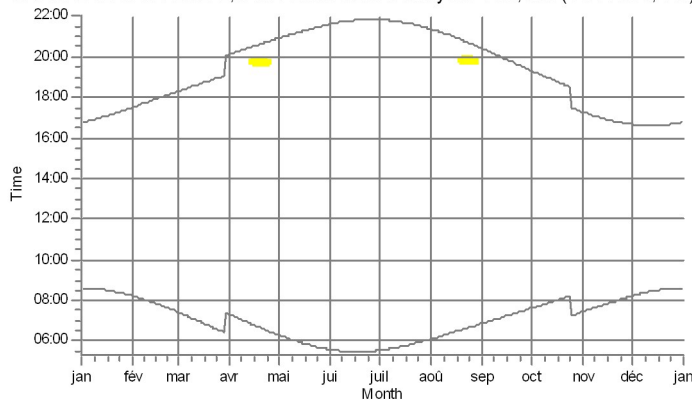
SHADOW - Calendar per WTG, graphical

Calculation: Scénario 1 : Worst + real case

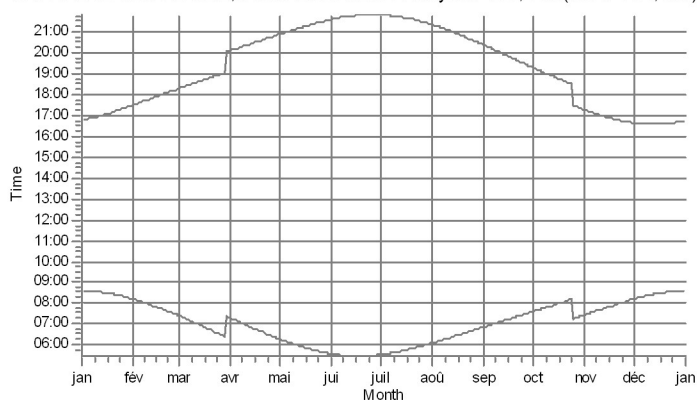
TAR2: ENERCON E-92 2,3 MW 2350 92.0 ! moyeu: 138,4 m (TOT: 184,4 m)



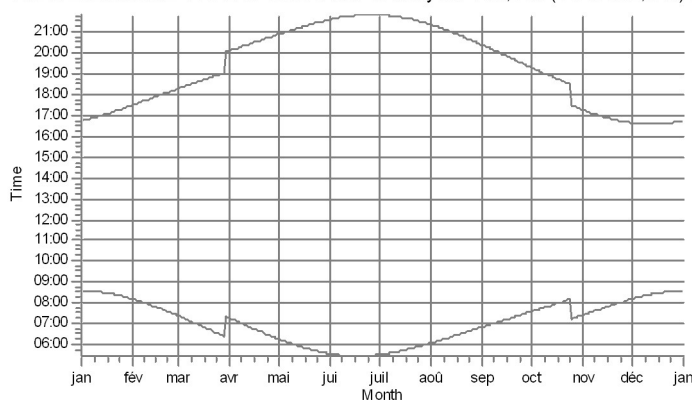
TAR3: ENERCON E-92 2,3 MW 2350 92.0 ! moyeu: 138,4 m (TOT: 184,4 m)



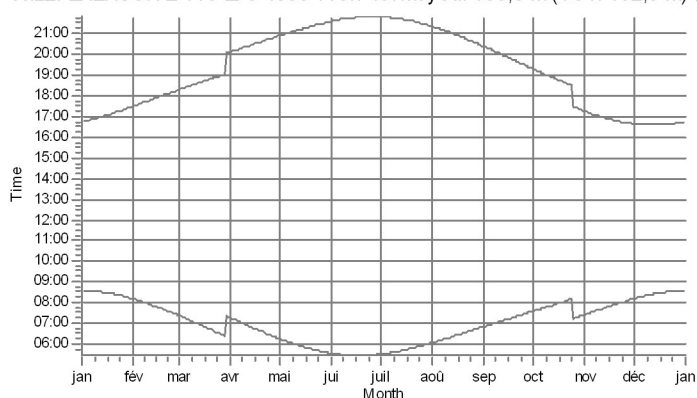
TAR4: ENERCON E-92 2,3 MW 2350 92.0 ! moyeu: 138,4 m (TOT: 184,4 m)



WL1: ENERCON E-115 EP3 4000 115.7 ! moyeu: 135,0 m (TOT: 192,9 m)



WL2: ENERCON E-115 EP3 4000 115.7 ! moyeu: 135,0 m (TOT: 192,9 m)



Shadow receptors



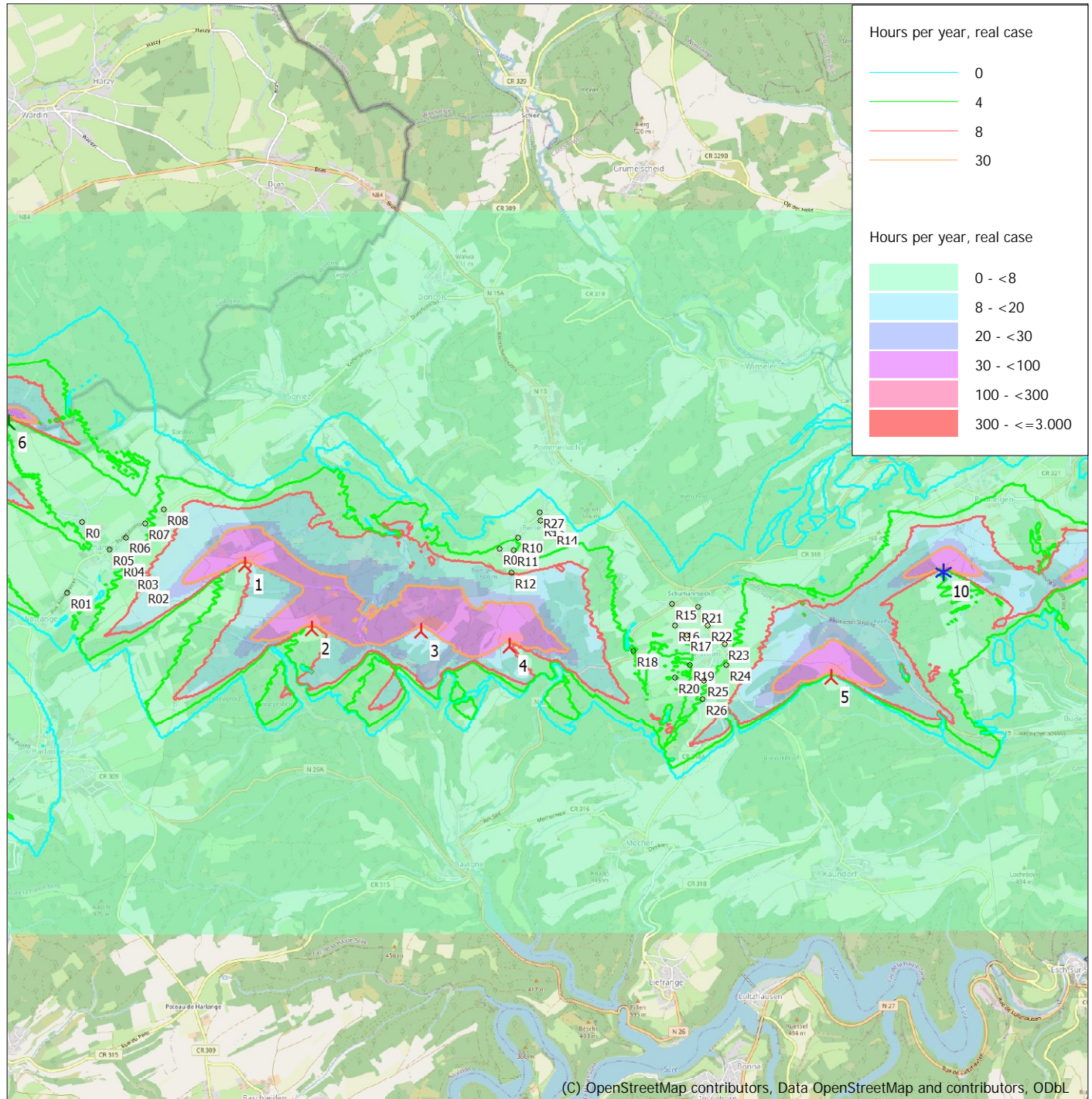
R0: Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (53)



R01: Récepteur-d'ombres: 5,0 × 2,0 Azim.: 0,0° Incl.: 90,0° (27)

SHADOW - Map

Calculation: Scénario 1 : Worst + real case



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60.000, Map center Luxemburgian TM-LUREF (LU) East: 57.600 North: 112.680

📍 New WTG

🌟 Existing WTG

📶 Shadow receptor

Flicker map level: Maille-alti Assistant création projet (Luxembourgish Elevation Model - 5m)

Time step: 3 minutes, Day step: 7 days, Map resolution: 20 m, Visibility resolution: 10 m, Eye height: 1,5 m