
PROGETTO PER LA REALIZZAZIONE DI UN IMPIANTO PER LA
PRODUZIONE DI ENERGIA MEDIANTE LO SFRUTTAMENTO DEL VENTO
NEL TERRITORIO COMUNALE DI FIRENZUOLA (FI) LOC. LA BADIA - RAZZOPIANO
POTENZA NOMINALE 54 MW

PROGETTO DEFINITIVO - SIA

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**ES.6 Analisi dell'evoluzione dell'ombra indotta
dagli aereogeneratori - Shadow flickering**

REV.	DATA	DESCRIZIONE
00	04/24	1ª emissione



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1. INTRODUZIONE

Il presente elaborato ha lo scopo di valutare in maniera tecnica l'eventuale impatto generato dall'evoluzione dell'ombra derivante dalla futura installazione di un impianto di produzione di energia da fonte eolica in territorio extra urbano del comune di Firenzuola (FI). Il progetto è composto da n°12 aerogeneratori del tipo IEC 3B - 150, con potenza unitaria pari a 4.5 MW, altezza al mozzo pari a 150 e diametro rotorico pari a 163.

In particolare, la posizione degli aerogeneratori è la seguente:

WTG	COORDINATE UTM WGS 84-FUSO 32	
	EST	NORD
FRZ1	691555,34	4882469,61
FRZ2	692079,12	4882364,50
FRZ3	692069,89	4885287,65
FRZ4	693502,15	4884462,49
FRZ5	693488,85	4885387,84
FRZ6	688498,93	4889463,54
FRZ7	688998,48	4889510,35
FRZ8	689069,26	4890497,10
FRZ9	689563,87	4890479,62
FRZ10	689121,39	4891040,57
FRZ11	689005,39	4892286,00
FRZ12	689475,34	4892138,88

Tab. 1 – Coordinate aerogeneratori

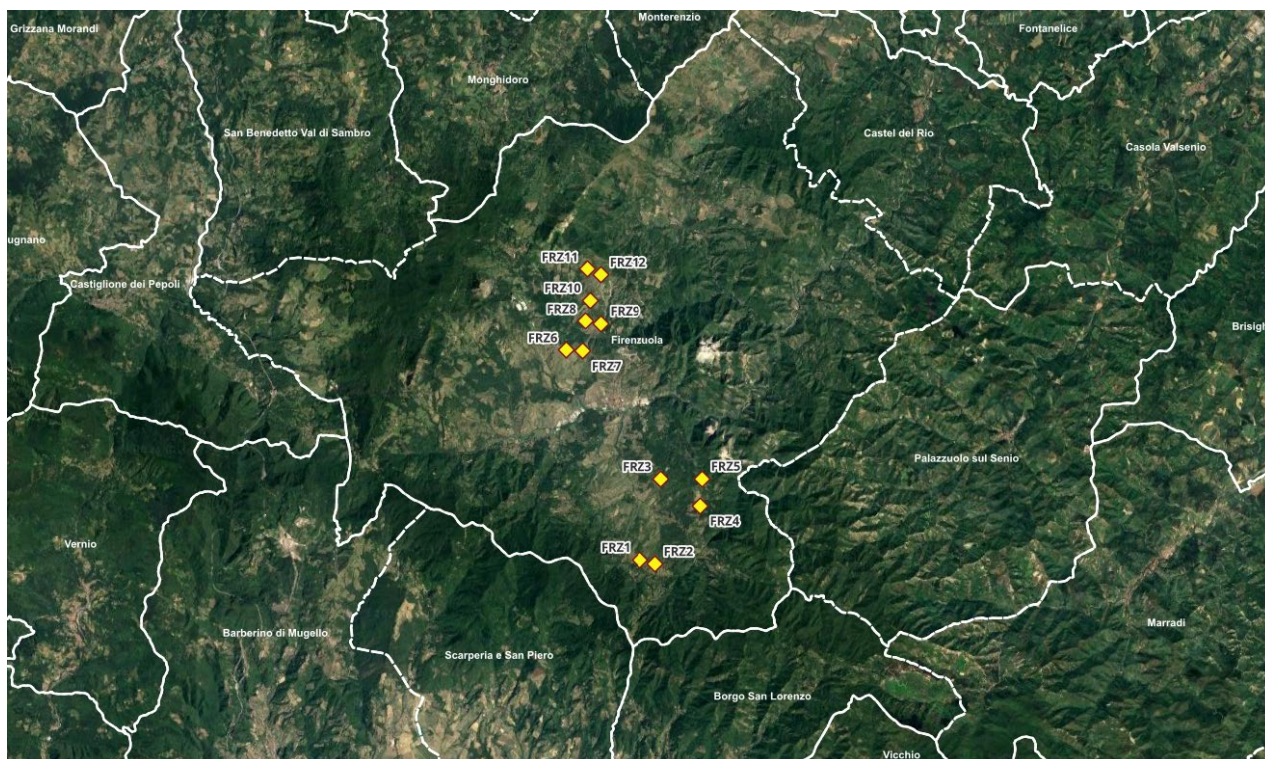


Figura 1: Planimetria dell'impianto

Lo Shadow-Flickering è l'espressione comunemente impiegata in ambito specialistico per descrivere l'effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori eolici quando sussistono le condizioni meteorologiche opportune; infatti la possibilità e la durata di tali effetti dipendono da una serie di



condizioni ambientali, tra cui: la posizione del sole, l'ora del giorno, il giorno dell'anno, le condizioni atmosferiche ambientali e la posizione della turbina eolica rispetto ad un recettore sensibile. La valutazione tecnica è eseguita con l'ausilio di un software di simulazione specifico per la progettazione degli impianti eolici WIND PRO®, costituito da un insieme di moduli di elaborazione orientati alla simulazione di una serie di aspetti che caratterizzano le diverse fasi progettuali. Il modulo SHADOW è quello specifico per la valutazione dell'evoluzione dell'ombra e del flickering. In tale report è riportata:

- *La descrizione del caso studio con le posizioni delle turbine e loro caratteristiche tecniche*
- *Una breve descrizione tecnica del fenomeno di shadow flickering*
- *La descrizione dei recettori soggetti al fenomeno per i quali è stata richiesta questa analisi*
- *Sintesi della metodologia di analisi seguita per lo studio*
- *Sintesi dei risultati ottenuti, con allegati grafici ed analitici di dettaglio che descrivono il fenomeno su ognuno dei recettori e da parte di ognuna delle turbine per tutto l'anno solare.*

2. STUDIO DELL'EVOLUZIONE DELL'OMBRA GIORNALIERA GENERATA DAGLI AEROGENERATORI

Le turbine eoliche, come altre strutture fortemente sviluppate in altezza, proiettano un'ombra sulle aree adiacenti in presenza della luce solare diretta. Per chi vive in tali zone prossime all'insediamento eolico può essere molto fastidioso il cosiddetto fenomeno del "flicker" che consiste in un effetto di lampeggiamento che si verifica quando le pale del rotore in movimento "tagliano" la luce solare in maniera intermittente. Una progettazione attenta a questa problematica permette di evitare questo spiacevole fenomeno semplicemente prevedendo il luogo di incidenza dell'ombra e disponendo le turbine in maniera tale che l'ombra sulle zone sensibili non superi un certo numero di ore all'anno. Il grafico in Figura 2 riporta l'evoluzione annuale dell'ombra di una turbina considerando il caso peggiore di pale sempre in rotazione intorno al mozzo, e orientate sempre ortogonalmente al sole durante la sua evoluzione giornaliera.

Come è evidente dal grafico e dalla legenda le ore annue di ombra sono sempre minori con l'aumentare della distanza dal pilone secondo una particolare geometria dettata dalla posizione geografica; da osservare che l'ombra arriva a proiettarsi anche sino ad una distanza di 1 km, anche se solo per pochi minuti all'anno.



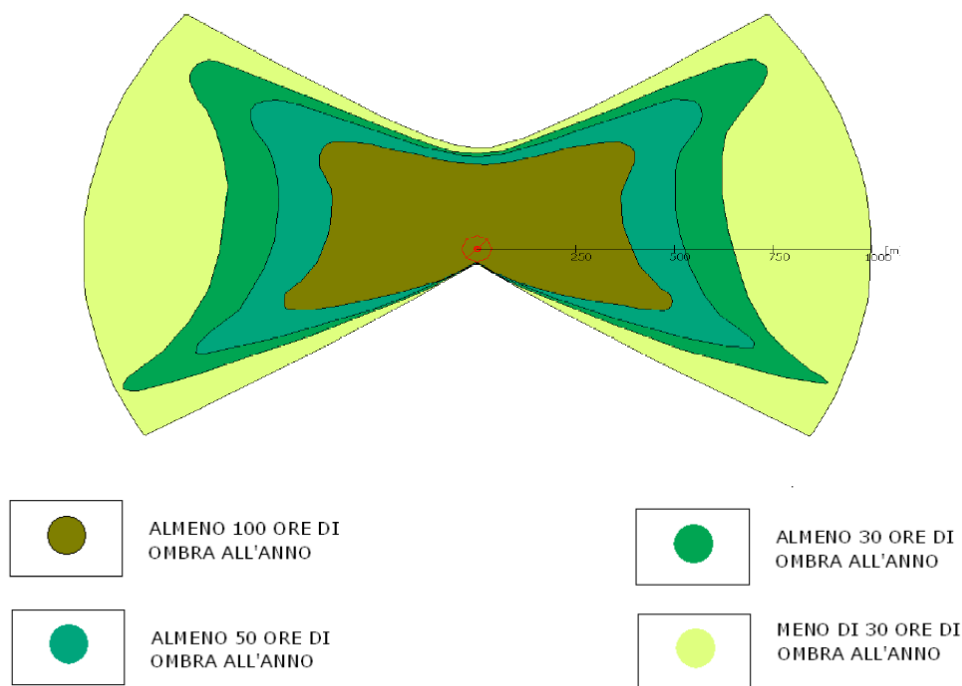


Figura 2: Evoluzione annuale tipo dell'ombra di una pala

Considerati i pochi precedenti esistenti (Germania) e le ipotesi così penalizzanti con cui è stato calcolato tale grafico si è ritenuto opportuno effettuare una sovrapposizione sull'impianto della parte più interna del grafico ovvero dell'area **che supera le 100 ore all'anno di ombra dei punti di installazione, intendendo questo come limite da non superarsi.**

In Italia, così come nella maggior parte dei paesi Europei ed extraeuropei non esiste una normativa specifica relativa al disturbo generato dal fenomeno di Shadow – Flickering. Esistono delle regolamentazioni locali ma quasi mai comprendono limiti numerici specifici, quanto piuttosto delle raccomandazioni tese a sottolineare che il fenomeno non sia “unreasonable” o “significant”.

3. INDIVIDUAZIONE DEI RECETTORI ED IPOTESI DI CALCOLO

3.1 Individuazione dei ricettori

Il progetto in esame nei comuni di Firenzuola (FI) prevede l'installazione di 12 aerogeneratori.

L'analisi di shadow-flickering di cui al presente studio è scaturita da una attività di censimento nell'area del parco eolico in progetto così come descritto nell'elaborato ES.8.1 Individuazione recettori.

Da tale studio ne è derivato che i recettori da considerare effettivamente sensibili sono esterni all'intorno di 500 m (distanza pari a 2,5 volte l'altezza complessiva) dall'asse di ciascun aerogeneratore. Ad ogni modo si è ritenuto opportuno procedere con l'analisi.

L'analisi è stata elaborata per specifici 36 recettori che circondano l'impianto per i quali è stata stabilita l'abitabilità.



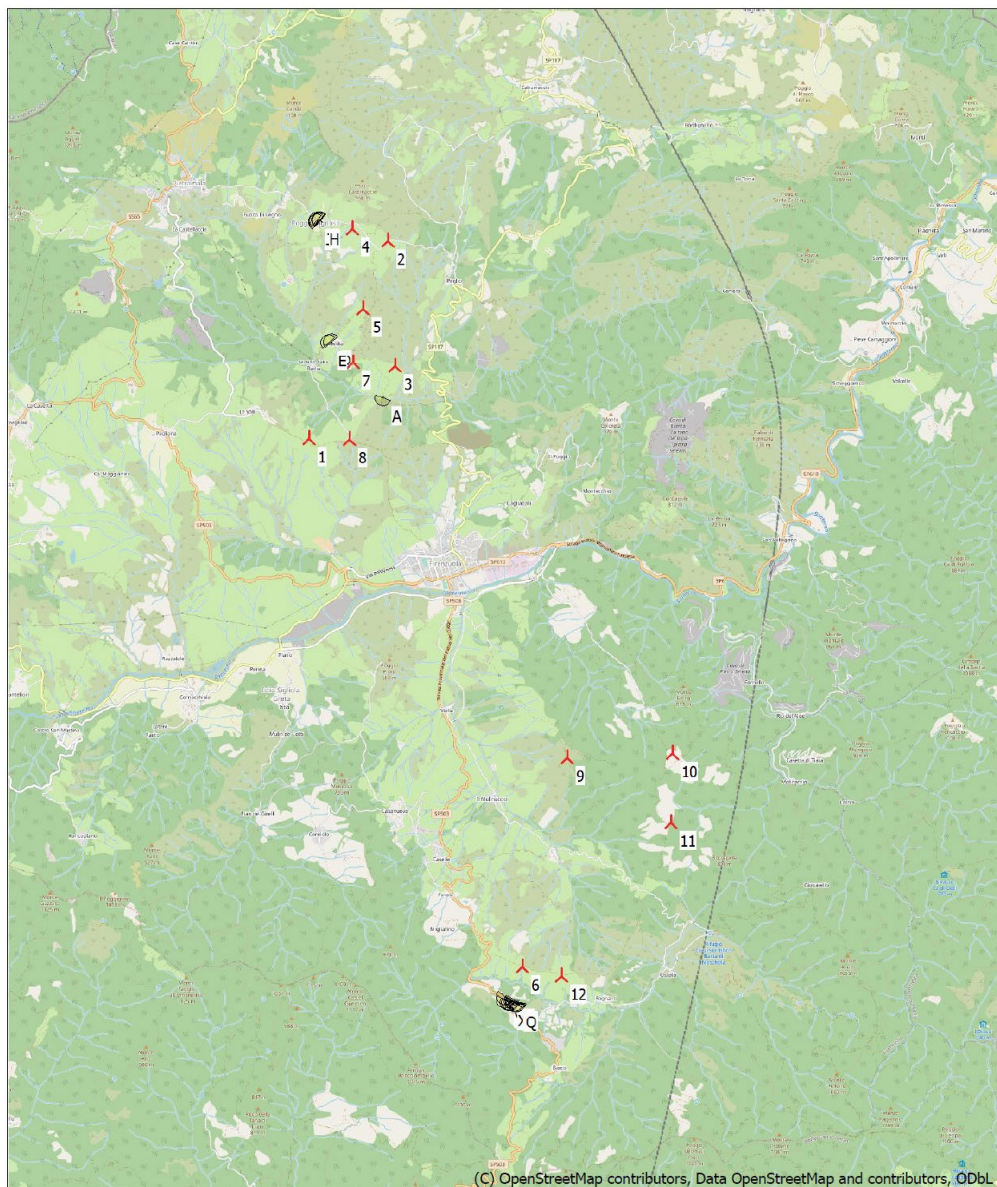
Codifica (WINDPRO)	Denominazio ne manufatto	Coordinate geografiche UTM WGS84 32N		z [m]
		Est	Nord	
A	6	209548.57	4893726.34	489.6
B	7	209541.18	4893725.62	489.7
C	9	209538.87	4893720.23	488.9
D	19	208899.99	4894507.65	571.3
E	22	208860.07	4894493.47	566.1
F	27	208816.56	4896139.73	779.8
G	28	208806.86	4896140.60	780.4
H	29	208813.61	4896129.26	778.0
I	31	208766.08	4896107.67	776.3
J	32	208770.36	4896126.34	778.4
K	33	208780.50	4896142.20	781.0
L	38	210986.02	4885552.90	700.2
M	39	210977.62	4885548.69	701.5
N	40	210967.55	4885554.25	701.3
O	41	210981.12	4885540.22	702.5
P	42	210976.53	4885534.73	703.5
Q	44	210973.48	4885529.80	704.4
R	45	210954.57	4885535.80	704.9
S	46	210950.30	4885546.07	703.6
T	47	210942.32	4885542.88	704.7
U	48	210938.82	4885574.83	699.6
V	49	210925.26	4885566.94	701.5
W	50	210884.97	4885555.38	704.6
X	51	210866.16	4885558.44	704.5
Y	52	210827.81	4885588.71	704.0
Z	53	210819.63	4885624.95	696.4

Tab. 2 – Coordinate recettori



SHADOW - Map

Calculation: WON038_ShadowFlickering



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL
 0 1 2 3 4 km
 Map: EMD OpenStreetMap , Print scale 1:75,000, Map center UTM (north)-WGS84 Zone: 32 East: 691,001 North: 4,887,184
 🚧 New WTG 📍 Shadow receptor

Figura 3 -Indicazione dei recettori

Nella tabella a seguire sono riportate le distanze minime intercorrenti tra recettori in oggetto e l'aerogeneratore più prossimo.



Codifica (WINDPRO)	Denominazione manufatto	z [m]	Distanza WTG più	WTG più vicina [m]	Codifica (WINDPRO)
A	6	489.6	449	FRZ9	3
B	7	489.7	453	FRZ9	3
C	9	488.9	459	FRZ9	3
D	19	571.3	404	FRZ8	7
E	22	566.1	422	FRZ8	7
F	27	779.8	447	FRZ11	4
G	28	780.4	456	FRZ11	4
H	29	778.0	447	FRZ11	4
I	31	776.3	487	FRZ11	4
J	32	778.4	487	FRZ11	4
K	33	781.0	482	FRZ11	4
L	38	700.2	473	FRZ1	6
M	39	701.5	479	FRZ1	6
N	40	701.3	476	FRZ1	6
O	41	702.5	487	FRZ1	6
P	42	703.5	493	FRZ1	6
Q	44	704.4	498	FRZ1	6
R	45	704.9	496	FRZ1	6
S	46	703.6	488	FRZ1	6
T	47	704.7	493	FRZ1	6
U	48	699.6	463	FRZ1	6
V	49	701.5	474	FRZ1	6
W	50	704.6	499	FRZ1	6
X	51	704.5	504	FRZ1	6
Y	52	704.0	494	FRZ1	6
Z	53	696.4	484	FRZ1	6

Tab. 3 –Distanze delle turbine dai recettori più prossimi

In relazione a ciò, si fa presente che già in fase di scelta delle aree sulle quali ubicare l'impianto si è cercato di allontanarsi il più possibile dall'area urbana e dalle abitazioni ed edifici ritenuti sensibili.

Tale fascia è stata definita in fase di progetto al fine di garantire il rispetto dei limiti in merito non solo all'ombreggiamento ma anche agli impatti acustici, elettromagnetici e in termini di calcolo della gittata.

Lo studio, i cui risultati in dettaglio sono riportati di seguito, è stato condotto con uno specifico software (WindPRO).

Nello studio ci si è posti nella condizione più sfavorevole possibile, in quanto si è considerato che:

- il sole risplende per tutta la giornata dall'alba al tramonto (cioè si è sempre in assenza di copertura nuvolosa);
- il piano di rotazione delle pale è sempre perpendicolare alla linea che passa per il sole e per l'aerogeneratore (l'aerogeneratore "insegue" il sole);
- l'aerogeneratore è sempre operativo.

Allo stesso tempo, si è trascurata la presenza degli alberi e di altri ostacoli che bordano le strade



“intercettando” l’ombra degli aerogeneratori riducendo il fastidio del flickering.

Ciò significa che i risultati ai quali si perverrà sono ampiamente cautelativi.

3.2 Base dati e parametri di calcolo

In base alla metodologia descritta nei paragrafi precedenti, sono stati utilizzati i seguenti dati di input per impostare il modello di simulazione per la valutazione del fenomeno di Shadow-Flickering degli aerogeneratori di progetto:

- a) **Il DTM o Modello del terreno digitale** per caratterizzare l’orografia è stato estrapolato dal grid disponibile in download dal SIT della Regione Puglia, georeferenziato, sovrapposto, confrontato e adeguato con le curve di livello presenti sulla cartografia ufficiale CTR 1:5.000 con uno step di 5 m. Il modello digitale ottenuto copre un’area sufficiente ad inglobare l’area del parco eolico di progetto e trova un buon riscontro con l’andamento orografico verificato in sito.
- b) **Posizioni geografiche di recettori con dettaglio dimensionale delle aree più esposte.** Sono i ricettori individuati dallo studio acustico e classificati secondo la loro abitabilità e destinazione d’uso. Per tutti i ricettori si è ritenuto opportuno usare l’ipotesi di cautela della modalità “green house mode”. Questa scelta è stata operata poiché in talune circostanze anche lo spazio antistante le strutture può essere considerato o adibito a luogo di riposo e relax. La scelta di una singola finestra o di una facciata in alcune condizioni potrebbe risultare riduttiva allo scopo di una vera valutazione d’impatto.
- c) **Posizioni geografiche delle turbine eoliche e loro caratteristiche dimensionali**
Gli aerogeneratori di progetto con le loro caratteristiche dimensionali e tecnologiche
- d) **Nessun ostacolo naturale o artificiale è stato modellato.**

4. I RISULTATI DEL CALCOLO DELL’EVOLUZIONE DELL’OMBRA

Nella procedura “Worst case” il fenomeno di shadow/flickering viene calcolato non tenendo conto delle condizioni di soleggiamento del sito e del vento, dati che allo stato dell’arte per il sito in questione non sono disponibili. Invece se avessimo di dati di cui sopra potremmo calcolare il fenomeno di shadow/flickering con la metodologia (“real case”), che secondo altri casi simili comporterebbe la riduzione del fenomeno ad 1/3 dei valori, il quale seppur più realistico, è comunque sovrastimato poiché non tiene conto della presenza di nubi e di vegetazione ad alto fusto. Dalle simulazioni effettuate, si evince che gli aerogeneratori di progetto generano maggiormente il fenomeno di shadow/flickering sul recettore “k” individuato nell’analisi che, nelle ipotesi di “Worst case”, subisce il fenomeno per un periodo che si avvicina o supera di poco le 100 ore/anno, per tutti gli altri rimanenti recettori considerati invece, l’effetto calcolato è più modesto e/o comunque meno rilevante fino a divenire irrilevante e in alcuni casi nullo.

Con le considerazioni di cui sopra, ovvero prevedendo la riduzione ad 1/3 si avranno valori sicuramente più ridotti per i ricettori con k= 33 ore/anno e comunque sono abitati meno di 4 ore giorno e quindi la probabilità di accadimento si riduce quasi al nulla.

È stato elaborato un calendario dell’ombra riportato in appendice (rif. Appendice Calendar), che riporta in maniera grafica giorno per giorno, per tutto l’anno, la durata giornaliera del fenomeno, l’orario di inizio e di fine del fenomeno, nelle condizioni di caso reale. Dalla lettura del “Calendar” si legge che il fenomeno dell’ombreggiamento, si esplica sui recettori con intensità maggiore nel periodo compreso tra Gennaio, Marzo,



Aprile, Settembre, Novembre e Dicembre nelle prime ore della giornata, oppure al primo pomeriggio. Nella figura che segue è riportato a titolo di esempio il grafico "calendar" di un recettore: le macchie individuano i momenti di shadow, la posizione nel grafico individua tempo e durata del fenomeno, il colore della macchia individua la turbina che causa il fenomeno.

L'allegato 2 riporta il dettaglio analitico di quanto espresso dal grafico precedente con gli specifici orari di inizio e di fine del fenomeno. A seguire è altresì riportata la sintesi grafica annuale (come mostra l'immagine precedente) dell'apporto di ombreggiamento a carico di ogni recettore ed il/gli aerogeneratore/i responsabile/i del fenomeno.

È stata inoltre elaborata una mappa (report Map, Allegato 3) in cui vengono riportate, con diverse gradazioni di colore, le zone soggette ad una determinata durata del fenomeno dell'ombreggiamento oltre all'estensione areale nella quale il fenomeno risulta significativo.

Il fenomeno dell'ombreggiamento interessa marginalmente tratti di strade comunali e/o private per un numero di ore all'anno del tutto irrilevanti e cioè pari ad un massimo di 30 ore/anno, ma solo in alcuni tratti. Preme tuttavia evidenziare che nelle simulazioni non si è tenuto conto della possibile presenza di vegetazione capace di offrire un effetto "barriera" ai recettori e/o alle strade limitrofe. Inoltre, la percezione dell'impianto dalla strada risulterebbe essere "in movimento" e quindi legata alla breve permanenza delle automobili in transito, per cui il fastidio indotto sarebbe temporalmente limitato. A questo si aggiunge che le simulazioni sono state effettuate assumendo le "condizioni peggiori", sovrastimando pertanto l'effetto di flickering.

5. CONCLUSIONI E RACCOMANDAZIONI

In conclusione, si può affermare che i risultati ottenuti dell'elaborazione evidenziano, pur considerando le condizioni più sfavorevoli, che le turbine di progetto generano effetti di shadow flickering **i cui impatti risultano essere nulli per molte strutture, e piuttosto modesti (o non particolarmente problematici) per altre.**

In ogni caso è comunque da rimarcare l'effetto di sovrastima dovuto al grado di cautela utilizzato per la simulazione che non tiene in conto di tutte le possibili fonti di attenuazione dell'effetto cui ogni recettore è (o può essere) soggetto quali presenza di alberi, ostacoli, siepi e quant'altro possa attenuare il fenomeno dell'evoluzione giornaliera dell'ombra.

6. ELENCO ALLEGATI

1. Main result: quadro sintetico dei risultati di calcolo;
2. Calendar: analisi giornaliera dell'effetto "flickering" ricevuto da ogni recettore;
3. Calendar, graphical: grafico dell'analisi giornaliera dell'effetto "flickering" ricevuto da ogni recettore;
4. Calendar per WTG: analisi giornaliera dell'effetto "flickering" indotto da ogni aerogeneratore sui recettori;
5. Calendar per WTG, graphical: grafico dell'analisi giornaliera dell'effetto "flickering" indotto da ogni aerogeneratore sui recettori;
6. Map: mappa dei recettori.



SHADOW - Main Result

Calculation: WON038_ShadowFlickering
Assumptions for shadow calculations

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

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

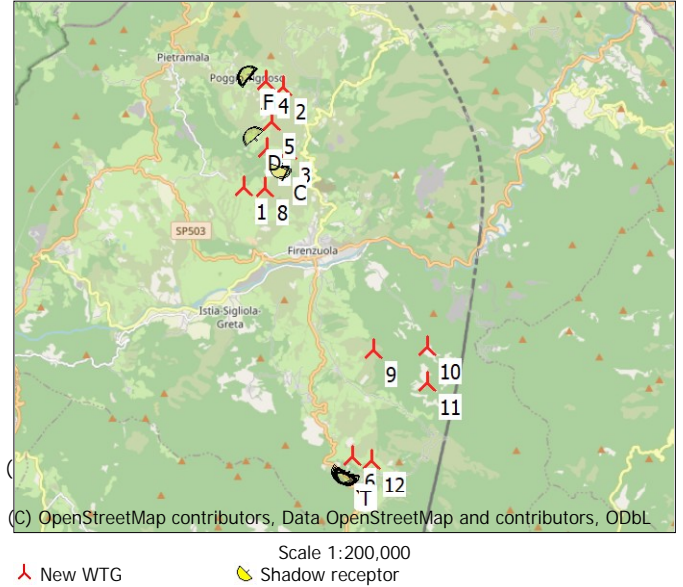
The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: WON038_EMDGrid_0.wpg (Receptor grid resolution: 1.0 m

All coordinates are in
UTM (north)-WGS84 Zone: 32

WTGs

Easting	Northing	Z	Row data/Description	WTG type			Shadow data				
				Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	688,499	4,889,464	632.8 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
2	689,475	4,892,139	783.5 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
3	689,622	4,890,466	523.4 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
4	689,005	4,892,286	777.4 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
5	689,176	4,891,230	669.4 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
6	691,555	4,882,470	700.2 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
7	689,069	4,890,497	566.6 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
8	689,047	4,889,471	605.0 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
9	692,070	4,885,288	624.0 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
10	693,489	4,885,388	731.2 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
11	693,502	4,884,462	700.9 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-
12	692,079	4,882,365	680.9 VESTAS V163-4.5_h150 4500...	Yes	VESTAS	V163-4.5_h150-4,500	4,500	163.0	150.0	2,500	-



Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
	[m]	[m]	[m]	[m]	[m]	[m]	[°]	[°]		[m]
A	689,476	4,890,041	489.6	1.0	1.0	1.0	-160.0	90.0	Fixed direction	2.0
B	689,469	4,890,040	489.7	1.0	1.0	1.0	-160.0	90.0	Fixed direction	2.0
C	689,467	4,890,034	488.9	1.0	1.0	1.0	-160.0	90.0	Fixed direction	2.0
D	688,773	4,890,772	571.3	1.0	1.0	1.0	-40.0	90.0	Fixed direction	2.0
E	688,734	4,890,755	566.1	1.0	1.0	1.0	-40.0	90.0	Fixed direction	2.0
F	688,571	4,892,393	779.8	1.0	1.0	1.0	-50.0	90.0	Fixed direction	2.0
G	688,561	4,892,393	780.4	1.0	1.0	1.0	-50.0	90.0	Fixed direction	2.0
H	688,569	4,892,382	778.0	1.0	1.0	1.0	-50.0	90.0	Fixed direction	2.0
I	688,523	4,892,357	776.3	1.0	1.0	1.0	-60.0	90.0	Fixed direction	2.0
J	688,526	4,892,376	778.4	1.0	1.0	1.0	-50.0	90.0	Fixed direction	2.0
K	688,535	4,892,393	781.0	1.0	1.0	1.0	-50.0	90.0	Fixed direction	2.0
L	691,504	4,881,999	700.2	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
M	691,496	4,881,994	701.5	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
N	691,486	4,881,999	701.3	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
O	691,500	4,881,986	702.5	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
P	691,496	4,881,980	703.5	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
Q	691,494	4,881,975	704.4	1.0	1.0	1.0	-170.0	90.0	Fixed direction	2.0
R	691,474	4,881,979	704.9	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
S	691,469	4,881,989	703.6	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
T	691,462	4,881,985	704.7	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
U	691,456	4,882,017	699.6	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0

To be continued on next page...

SHADOW - Main Result

Calculation: WON038_ShadowFlickering

...continued from previous page

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]	[°]		[m]
V	691,443	4,882,008	701.5	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
W	691,403	4,881,994	704.6	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
X	691,384	4,881,995	704.5	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
Y	691,344	4,882,023	704.0	1.0	1.0	1.0	-150.0	90.0	Fixed direction	2.0
Z	691,333	4,882,058	696.4	1.0	1.0	1.0	-140.0	90.0	Fixed direction	2.0

Calculation Results

Shadow receptor

Shadow, worst case

No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
A	0:00	0	0:00
B	0:00	0	0:00
C	0:00	0	0:00
D	212:28	159	2:04
E	164:19	129	2:03
F	116:53	118	1:19
G	112:19	116	1:17
H	118:13	121	1:19
I	104:57	120	1:13
J	101:54	114	1:13
K	102:03	111	1:14
L	11:24	31	0:28
M	12:50	33	0:30
N	20:12	41	0:37
O	6:17	23	0:21
P	5:09	21	0:19
Q	3:43	17	0:16
R	15:22	36	0:32
S	22:28	44	0:39
T	23:48	46	0:39
U	40:43	61	0:49
V	40:43	62	0:49
W	44:57	67	0:49
X	49:26	72	0:50
Y	64:46	89	0:50
Z	72:16	100	0:50

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

No.	Name	Worst case [h/year]
1	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (1)	0:00
2	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (2)	34:54
3	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (3)	32:33
4	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4)	135:34
5	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (5)	0:00
6	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (6)	0:00
7	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (7)	216:41
8	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (8)	0:00
9	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (9)	0:00
10	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (10)	0:00
11	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (11)	0:00
12	VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)	92:44

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.

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: A - Shadow Receptor: 1.0 × 1.0 Azimuth: -160.0° Slope: 90.0° (1)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:32 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:31 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	05:59 20:25	05:33 20:55	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:37
9	07:50 16:54	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	07:50 16:55	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 20:29	06:47 19:37	07:22 18:41	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:31 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:36
13	07:48 16:59	07:19 17:40	06:33 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:51	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:25	07:30 18:31	07:10 16:48	07:43 16:37
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18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:24	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 17:51	06:18 18:28	06:23 20:05	05:43 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:48 16:40
24	07:42 17:13	07:02 17:55	06:13 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:04 19:09	06:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	06:43 17:15	07:23 16:41	07:49 16:42
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28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:03	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20	07:04 19:37	06:04 19:37	06:11 20:15	05:37 20:48	05:34 21:03	05:58 20:44	06:33 19:58	07:09 19:01	06:47 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	07:02 19:39	06:03 19:39	06:09 20:16	05:36 20:49	05:34 21:02	05:59 20:43	06:35 19:56	07:10 19:00	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:02 19:40	06:08 20:16	05:36 20:50	05:34 21:02	06:01 20:42	06:36 19:55	07:11 17:08	06:49 17:08	07:29 16:39	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
Total, worst case												

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: B - Shadow Receptor: 1.0 × 1.0 Azimuth: -160.0° Slope: 90.0° (2)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

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

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SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: C - Shadow Receptor: 1.0 × 1.0 Azimuth: -160.0° Slope: 90.0° (3)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:32 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:31 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	05:59 20:25	05:33 20:55	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:37
9	07:50 16:54	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	07:50 16:55	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 20:29	06:47 19:37	07:22 18:41	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:31 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:36
13	07:48 16:59	07:19 17:40	06:33 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:25	07:30 18:31	07:10 16:48	07:43 16:37
17	07:47 17:04	07:13 17:46	06:26 18:23	06:30 20:01	05:47 20:36	05:31 21:01	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:12 16:48	07:44 16:37
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:24	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 17:51	06:18 18:28	06:23 20:05	05:43 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:48 16:40
24	07:42 17:13	07:02 17:55	06:13 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:04 19:09	06:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	06:43 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:13	05:38 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 19:05	06:44 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:03	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20	07:04 19:37	06:04 19:37	06:11 20:15	05:37 20:48	05:34 21:03	05:58 20:44	06:33 19:58	07:09 19:01	06:47 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	07:02 19:39	06:03 19:39	06:09 20:16	05:36 20:49	05:34 21:02	05:59 20:43	06:35 19:56	07:10 19:00	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:02 19:40	06:09 20:16	05:36 20:50	05:34 21:02	06:01 20:42	06:36 19:55	07:11 17:08	06:49 16:57	07:29 16:38	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
Total, worst case												

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: D - Shadow Receptor: 1.0 × 1.0 Azimuth: -40.0° Slope: 90.0° (4)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50	08:57 (7) 07:34	08:48 (7) 06:54	07:29 (3) 06:58	06:08	05:35
	16:46	51 09:48 (7) 17:24	88 10:16 (7) 18:02	101 10:02 (7) 19:41	20:18	20:51
2	07:50	08:57 (7) 07:33	08:48 (7) 06:52	07:30 (3) 06:56	06:06	05:35
	16:47	52 09:49 (7) 17:25	88 10:16 (7) 18:03	95 10:00 (7) 19:42	20:19	20:52
3	07:51	08:57 (7) 07:32	08:48 (7) 06:50	07:31 (3) 06:55	06:05	05:34
	16:48	53 09:50 (7) 17:27	89 10:17 (7) 18:05	89 09:58 (7) 19:44	20:20	20:52
4	07:51	08:55 (7) 07:31	08:49 (7) 06:49	07:33 (3) 06:53	06:04	05:34
	16:49	55 09:50 (7) 17:28	88 10:17 (7) 18:06	82 09:56 (7) 19:45	20:21	20:53
5	07:50	08:55 (7) 07:29	08:48 (7) 06:47	07:35 (3) 06:51	06:02	05:33
	16:50	57 09:52 (7) 17:29	89 10:17 (7) 18:07	74 09:54 (7) 19:46	20:22	20:54
6	07:50	08:55 (7) 07:28	07:49 (3) 06:45	07:39 (3) 06:49	06:01	05:33
	16:51	58 09:53 (7) 17:31	92 10:17 (7) 18:09	62 09:51 (7) 19:47	20:23	20:55
7	07:50	08:55 (7) 07:27	07:48 (3) 06:44	09:03 (7) 06:47	05:59	05:33
	16:52	59 09:54 (7) 17:32	98 10:18 (7) 18:10	44 09:47 (7) 19:48	20:25	20:55
8	07:50	08:56 (7) 07:26	07:47 (3) 06:42	09:06 (7) 06:46	05:58	05:32
	16:53	59 09:55 (7) 17:34	101 10:18 (7) 18:11	39 09:45 (7) 19:50	20:26	20:56
9	07:50	08:55 (7) 07:24	07:45 (3) 06:40	09:09 (7) 06:44	05:57	05:32
	16:54	61 09:56 (7) 17:35	105 10:18 (7) 18:13	31 09:40 (7) 19:51	20:27	20:57
10	07:50	08:55 (7) 07:23	07:44 (3) 06:38	09:13 (7) 06:42	05:56	05:32
	16:55	62 09:57 (7) 17:36	108 10:18 (7) 18:14	22 09:35 (7) 19:52	20:28	20:57
11	07:49	08:55 (7) 07:22	07:42 (3) 06:36	06:40	05:54	05:31
	16:57	64 09:59 (7) 17:38	110 10:17 (7) 18:15	19:53	20:29	20:58
12	07:49	08:54 (7) 07:20	07:41 (3) 06:35	06:39	05:53	05:31
	16:58	65 09:59 (7) 17:39	114 10:18 (7) 18:16	19:54	20:30	20:58
13	07:49	08:54 (7) 07:19	07:39 (3) 06:33	06:37	05:52	05:31
	16:59	67 10:01 (7) 17:41	115 10:17 (7) 18:18	19:56	20:32	20:59
14	07:48	08:53 (7) 07:17	07:38 (3) 06:31	06:35	05:51	05:31
	17:00	68 10:01 (7) 17:42	117 10:17 (7) 18:19	19:57	20:33	20:59
15	07:48	08:54 (7) 07:16	07:37 (3) 06:29	06:33	05:50	05:31
	17:01	69 10:03 (7) 17:43	118 10:17 (7) 18:20	19:58	20:34	21:00
16	07:47	08:53 (7) 07:15	07:35 (3) 06:27	06:32	05:49	05:31
	17:03	71 10:04 (7) 17:45	119 10:16 (7) 18:21	19:59	20:35	21:00
17	07:47	08:52 (7) 07:13	07:33 (3) 06:26	06:30	05:47	05:31
	17:04	72 10:04 (7) 17:46	121 10:15 (7) 18:23	20:01	20:36	21:01
18	07:46	08:53 (7) 07:12	07:32 (3) 06:24	06:28	05:46	05:31
	17:05	73 10:06 (7) 17:47	122 10:15 (7) 18:24	20:02	20:37	21:01
19	07:45	08:52 (7) 07:10	07:30 (3) 06:22	06:27	05:45	05:31
	17:06	75 10:07 (7) 17:49	123 10:14 (7) 18:25	20:03	20:38	21:01
20	07:45	08:52 (7) 07:08	07:29 (3) 06:20	06:25	05:44	05:31
	17:08	75 10:07 (7) 17:50	123 10:14 (7) 18:26	20:04	20:39	21:02
21	07:44	08:51 (7) 07:07	07:27 (3) 06:18	06:23	05:44	05:31
	17:09	77 10:08 (7) 17:51	124 10:13 (7) 18:28	20:05	20:40	21:02
22	07:43	08:51 (7) 07:05	07:27 (3) 06:16	06:22	05:43	05:32
	17:10	78 10:09 (7) 17:53	122 10:12 (7) 18:29	20:07	20:41	21:02
23	07:42	08:51 (7) 07:04	07:26 (3) 06:15	06:20	05:42	05:32
	17:12	79 10:10 (7) 17:54	122 10:11 (7) 18:30	20:08	20:42	21:02
24	07:42	08:51 (7) 07:02	07:26 (3) 06:13	06:19	05:41	05:32
	17:13	80 10:11 (7) 17:55	119 10:09 (7) 18:31	20:09	20:43	21:02
25	07:41	08:50 (7) 07:00	07:27 (3) 06:11	06:17	05:40	05:32
	17:14	82 10:12 (7) 17:57	117 10:09 (7) 18:33	20:10	20:44	21:03
26	07:40	08:50 (7) 06:59	07:27 (3) 06:09	06:15	05:39	05:33
	17:16	82 10:12 (7) 17:58	113 10:07 (7) 18:34	20:11	20:45	21:03
27	07:39	08:50 (7) 06:57	07:27 (3) 06:07	06:14	05:38	05:33
	17:17	83 10:13 (7) 17:59	110 10:05 (7) 18:35	20:13	20:46	21:03
28	07:38	08:50 (7) 06:56	07:29 (3) 06:05	06:12	05:38	05:34
	17:18	84 10:14 (7) 18:01	104 10:04 (7) 18:36	20:14	20:47	21:03
29	07:37	08:50 (7)	07:04	06:11	05:37	05:34
	17:20	85 10:15 (7)	19:37	20:15	20:48	21:03
30	07:36	08:49 (7)	07:02	06:09	05:36	05:34
	17:21	86 10:15 (7)	19:39	20:16	20:49	21:02
31	07:35	08:48 (7)	07:00		05:36	
	17:22	87 10:15 (7)	19:40		20:50	
Potential sun hours	288	292	369	403	457	463
Total, worst case	2169	3059	639			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: D - Shadow Receptor: 1.0 × 1.0 Azimuth: -40.0° Slope: 90.0° (4)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	05:35 21:02	06:02 20:41	06:37 19:53	07:12 18:58	06:51 17:06	07:13 (3) 16:38	08:37 (7) 09:41 (7)	
2	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:15 (3) 16:38	08:38 (7) 09:40 (7)	
3	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	09:53 (7) 10:10 (7)	06:53 17:04	07:16 (3) 16:38	08:39 (7) 09:40 (7)
4	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	09:47 (7) 10:15 (7)	06:55 17:02	07:18 (3) 16:37	08:40 (7) 09:40 (7)
5	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	09:44 (7) 10:20 (7)	06:56 17:01	07:19 (3) 16:37	08:40 (7) 09:39 (7)
6	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	09:41 (7) 10:23 (7)	06:57 17:00	08:19 (7) 16:37	08:41 (7) 09:39 (7)
7	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	08:18 (3) 10:25 (7)	06:59 16:58	08:18 (7) 16:37	08:42 (7) 09:39 (7)
8	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	08:12 (3) 10:27 (7)	07:00 16:57	08:18 (7) 16:37	08:43 (7) 09:38 (7)
9	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	08:09 (3) 10:30 (7)	07:01 16:56	08:19 (7) 16:36	08:45 (7) 09:38 (7)
10	05:41 21:00	06:12 20:29	06:47 19:37	07:22 18:42	08:07 (3) 10:32 (7)	07:03 16:55	08:19 (7) 16:36	08:46 (7) 09:38 (7)
11	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	08:05 (3) 10:33 (7)	07:04 16:54	08:20 (7) 16:36	08:47 (7) 09:38 (7)
12	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	08:03 (3) 10:34 (7)	07:05 16:53	08:20 (7) 16:36	08:48 (7) 09:38 (7)
13	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	08:02 (3) 10:36 (7)	07:07 16:52	08:22 (7) 16:37	08:49 (7) 09:38 (7)
14	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	08:01 (3) 10:37 (7)	07:08 16:50	08:22 (7) 16:37	08:49 (7) 09:38 (7)
15	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:59 (3) 10:38 (7)	07:09 16:49	08:22 (7) 16:37	08:50 (7) 09:38 (7)
16	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:59 (3) 10:40 (7)	07:11 16:48	08:23 (7) 16:37	08:51 (7) 09:38 (7)
17	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:58 (3) 10:41 (7)	07:12 16:48	08:23 (7) 16:37	08:52 (7) 09:39 (7)
18	05:47 20:54	06:21 20:17	06:56 19:22	07:32 18:28	07:57 (3) 10:41 (7)	07:13 16:47	08:25 (7) 16:38	08:52 (7) 09:38 (7)
19	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:58 (3) 10:43 (7)	07:14 16:46	08:25 (7) 16:38	08:53 (7) 09:39 (7)
20	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:25	07:57 (3) 10:43 (7)	07:16 16:45	08:26 (7) 16:38	08:53 (7) 09:39 (7)
21	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:58 (3) 10:43 (7)	07:17 16:44	08:27 (7) 16:39	08:54 (7) 09:40 (7)
22	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	08:00 (3) 10:45 (7)	07:18 16:43	08:28 (7) 16:39	08:54 (7) 09:40 (7)
23	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	08:01 (3) 10:45 (7)	07:20 16:43	08:28 (7) 16:40	08:55 (7) 09:41 (7)
24	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	08:02 (3) 10:45 (7)	07:21 16:42	08:30 (7) 16:40	08:55 (7) 09:41 (7)
25	05:54 20:48	06:29 20:05	07:05 19:09	06:41 17:17	07:04 (3) 09:46 (7)	07:22 16:41	08:30 (7) 16:41	08:55 (7) 09:41 (7)
26	05:55 20:47	06:30 20:03	07:06 19:07	06:43 17:15	07:05 (3) 09:46 (7)	07:23 16:41	08:31 (7) 16:42	08:56 (7) 09:43 (7)
27	05:56 20:46	06:31 20:02	07:07 19:05	06:44 17:14	07:06 (3) 09:46 (7)	07:24 16:40	08:33 (7) 16:42	08:56 (7) 09:43 (7)
28	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:08 (3) 09:47 (7)	07:26 16:40	08:33 (7) 16:43	08:56 (7) 09:44 (7)
29	05:58 20:44	06:33 19:58	07:09 19:01	06:47 17:11	07:09 (3) 09:47 (7)	07:27 16:39	08:34 (7) 16:44	08:56 (7) 09:44 (7)
30	05:59 20:43	06:35 19:56	07:10 19:00	06:48 17:09	07:11 (3) 09:47 (7)	07:28 16:39	08:35 (7) 16:45	08:57 (7) 09:46 (7)
31	06:01 20:42	06:36 19:55	07:11 17:08	06:49 17:08	07:12 (3) 09:47 (7)	07:29 16:39	08:36 (7) 16:45	08:57 (7) 09:47 (7)
Potential sun hours	469	434	376	342	290	277	50	
Total, worst case				2820	2482		1579	

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: E - Shadow Receptor: 1.0 × 1.0 Azimuth: -40.0° Slope: 90.0° (5)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 16:46	07:34 17:24	08:38 (7) 09:51 (7)	06:54 18:02	07:22 (3) 09:51 (7)	06:58 20:18
2	07:50 16:47	07:33 17:25	08:38 (7) 09:52 (7)	06:52 18:03	07:22 (3) 09:50 (7)	06:56 20:19
3	07:51 16:48	07:32 17:27	08:38 (7) 09:53 (7)	06:50 18:05	07:23 (3) 09:48 (7)	06:55 20:20
4	07:51 16:49	07:31 17:28	08:37 (7) 09:54 (7)	06:49 18:06	07:24 (3) 09:47 (7)	06:53 20:21
5	07:50 16:50	07:29 17:29	08:36 (7) 09:54 (7)	06:47 18:07	07:25 (3) 09:46 (7)	06:51 20:22
6	07:50 16:51	07:28 17:31	08:36 (7) 09:55 (7)	06:45 18:09	07:26 (3) 09:44 (7)	06:49 20:23
7	07:50 16:52	07:27 17:32	08:36 (7) 09:56 (7)	06:44 18:10	07:28 (3) 09:42 (7)	06:47 20:25
8	07:50 16:53	07:26 17:34	08:36 (7) 09:57 (7)	06:42 18:11	07:31 (3) 09:41 (7)	06:46 20:26
9	07:50 16:54	07:24 17:35	08:35 (7) 09:56 (7)	06:40 18:13	07:34 (3) 09:38 (7)	06:44 20:27
10	07:50 16:55	07:23 17:36	08:35 (7) 09:57 (7)	06:38 18:14	08:42 (7) 09:36 (7)	06:42 20:28
11	07:49 16:57	07:22 17:38	07:42 (3) 09:57 (7)	06:36 18:15	08:43 (7) 09:33 (7)	06:40 20:29
12	07:49 16:58	09:02 (7) 09:16 (7)	07:20 17:39	07:41 (3) 09:58 (7)	06:35 18:16	08:44 (7) 09:30 (7)
13	07:49 16:59	14 09:00 (7) 09:20 (7)	07:19 17:41	07:39 (3) 09:57 (7)	06:33 18:18	08:46 (7) 09:27 (7)
14	07:48 17:00	20 08:57 (7) 09:23 (7)	07:17 17:42	07:38 (3) 09:58 (7)	06:31 18:19	08:49 (7) 09:24 (7)
15	07:48 17:01	26 08:56 (7) 09:26 (7)	07:16 17:43	07:37 (3) 09:58 (7)	06:29 18:20	08:52 (7) 09:20 (7)
16	07:47 17:03	30 08:54 (7) 09:28 (7)	07:15 17:45	07:35 (3) 09:58 (7)	06:27 18:21	08:56 (7) 09:14 (7)
17	07:47 17:04	34 08:52 (7) 09:30 (7)	07:13 17:46	07:33 (3) 09:57 (7)	06:26 18:23	06:30 20:01
18	07:46 17:05	38 08:51 (7) 09:33 (7)	07:12 17:47	07:32 (3) 09:58 (7)	06:24 18:24	06:28 20:02
19	07:45 17:06	42 08:50 (7) 09:34 (7)	07:10 17:49	07:30 (3) 09:57 (7)	06:22 18:25	06:27 20:03
20	07:45 17:08	44 08:48 (7) 09:36 (7)	07:08 17:50	07:29 (3) 09:57 (7)	06:20 18:26	06:25 20:04
21	07:44 17:09	48 08:47 (7) 09:37 (7)	07:07 17:51	07:27 (3) 09:57 (7)	06:18 18:28	06:23 20:05
22	07:43 17:10	50 08:46 (7) 09:39 (7)	07:05 17:53	07:26 (3) 09:57 (7)	06:16 18:29	06:22 20:07
23	07:42 17:12	53 08:46 (7) 09:41 (7)	07:04 17:54	07:24 (3) 09:56 (7)	06:15 18:30	06:20 20:08
24	07:42 17:13	55 08:45 (7) 09:42 (7)	07:02 17:55	07:22 (3) 09:55 (7)	06:13 18:31	06:19 20:09
25	07:41 17:14	57 08:44 (7) 09:44 (7)	07:00 17:57	07:22 (3) 09:55 (7)	06:11 18:33	06:17 20:10
26	07:40 17:16	60 08:43 (7) 09:45 (7)	06:59 17:58	07:22 (3) 09:54 (7)	06:09 18:34	06:15 20:11
27	07:39 17:17	62 08:42 (7) 09:46 (7)	06:57 17:59	07:21 (3) 09:53 (7)	06:07 18:35	06:14 20:13
28	07:38 17:18	64 08:42 (7) 09:47 (7)	06:56 18:01	07:22 (3) 09:52 (7)	06:05 18:36	06:12 20:14
29	07:37 17:20	65 08:41 (7) 09:48 (7)	116 18:01	07:04 19:37	06:04 18:37	06:11 20:15
30	07:36 17:21	67 08:40 (7) 09:50 (7)		07:02 19:39	06:03 18:38	06:09 20:16
31	07:35 17:22	70 08:39 (7) 09:50 (7)		07:00 19:40		05:36 20:50
Potential sun hours	288	292	369	403	457	463
Total, worst case	970	2794	1136			

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

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

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: E - Shadow Receptor: 1.0 × 1.0 Azimuth: -40.0° Slope: 90.0° (5)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	05:35 21:02	06:02 20:41	06:37 19:53	07:12 18:58	09:25 (7) 10:09 (7)	06:51 17:06	08:04 (7) 09:26 (7)	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	09:22 (7) 10:11 (7)	06:52 17:05	08:05 (7) 09:26 (7)	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	09:20 (7) 10:13 (7)	06:53 17:04	08:05 (7) 09:25 (7)	07:31 16:38
4	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	08:15 (3) 10:14 (7)	06:55 17:02	08:06 (7) 09:25 (7)	07:32 16:37
5	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	08:09 (3) 10:16 (7)	06:56 17:01	08:06 (7) 09:25 (7)	07:34 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	08:05 (3) 10:18 (7)	06:57 17:00	08:07 (7) 09:25 (7)	07:35 16:37
7	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	08:03 (3) 10:19 (7)	06:59 16:58	08:07 (7) 09:24 (7)	07:36 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	08:01 (3) 10:20 (7)	07:00 16:57	08:08 (7) 09:23 (7)	07:37 16:37
9	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	08:00 (3) 10:22 (7)	07:01 16:56	08:09 (7) 09:23 (7)	07:38 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	07:22 18:42	07:58 (3) 10:22 (7)	07:03 16:55	08:09 (7) 09:22 (7)	07:38 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:57 (3) 10:23 (7)	07:04 16:54	08:11 (7) 09:22 (7)	07:39 16:36
12	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:56 (3) 10:23 (7)	07:05 16:53	08:11 (7) 09:20 (7)	07:40 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:55 (3) 10:25 (7)	07:07 16:52	08:13 (7) 09:20 (7)	07:41 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:54 (3) 10:25 (7)	07:08 16:50	08:14 (7) 09:19 (7)	07:42 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:54 (3) 10:25 (7)	07:09 16:49	08:14 (7) 09:18 (7)	07:43 16:37
16	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:54 (3) 10:27 (7)	07:11 16:48	08:16 (7) 09:18 (7)	07:43 16:37
17	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:53 (3) 10:27 (7)	07:12 16:48	08:17 (7) 09:17 (7)	07:44 16:37
18	05:47 20:54	06:21 20:17	06:56 19:22	07:32 18:28	07:53 (3) 10:27 (7)	07:13 16:47	08:19 (7) 09:16 (7)	07:45 16:38
19	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:53 (3) 10:28 (7)	07:14 16:46	08:20 (7) 09:15 (7)	07:45 16:38
20	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:25	07:53 (3) 10:28 (7)	07:16 16:45	08:21 (7) 09:14 (7)	07:46 16:38
21	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:53 (3) 10:27 (7)	07:17 16:44	08:23 (7) 09:13 (7)	07:47 16:39
22	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	08:00 (3) 10:28 (7)	07:18 16:43	08:24 (7) 09:12 (7)	07:47 16:39
23	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	08:01 (3) 10:28 (7)	07:20 16:43	08:26 (7) 09:10 (7)	07:48 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	08:02 (3) 10:27 (7)	07:21 16:42	08:28 (7) 09:10 (7)	07:48 16:40
25	05:54 20:48	06:29 20:05	07:05 19:09	06:41 17:17	07:04 (3) 09:28 (7)	07:22 16:41	08:30 (7) 09:08 (7)	07:49 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	06:43 17:15	07:05 (3) 09:28 (7)	07:23 16:41	08:32 (7) 09:06 (7)	07:49 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	06:44 17:14	07:06 (3) 09:27 (7)	07:24 16:40	08:35 (7) 09:05 (7)	07:49 16:42
28	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:08 (3) 09:28 (7)	07:26 16:40	08:37 (7) 09:03 (7)	07:50 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	06:47 10:02 (7)	07:09 (3) 17:11	07:27 16:39	08:39 (7) 09:01 (7)	07:50 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	06:48 10:06 (7)	07:11 (3) 17:09	07:28 16:39	08:43 (7) 08:58 (7)	07:50 16:45
31	06:01 20:42	06:36 19:55		06:49 17:08	07:12 (3) 09:27 (7)			07:50 16:45
Potential sun hours	469	434	376	342	290	277		
Total, worst case			106	3103	1750			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: F - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (6)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 16:46	07:34 17:24	06:54 18:02	07:24 (2) 08:13 (4)	06:58 19:41	08:14 (4) 20:18
2	07:51 16:47	07:33 17:25	06:52 18:03	07:23 (2) 08:17 (4)	06:56 19:42	08:14 (4) 20:19
3	07:51 16:48	07:32 17:27	06:50 18:05	07:22 (2) 08:20 (4)	06:55 19:44	08:14 (4) 20:20
4	07:51 16:49	07:31 17:28	06:49 18:06	07:22 (2) 08:23 (4)	06:53 19:45	08:14 (4) 20:21
5	07:50 16:50	07:29 17:29	06:47 18:07	07:21 (2) 08:25 (4)	06:51 19:46	08:14 (4) 20:22
6	07:50 16:51	07:28 17:31	06:45 18:09	07:21 (2) 08:26 (4)	06:49 19:47	08:16 (4) 20:24
7	07:50 16:52	07:27 17:32	06:44 18:10	07:21 (2) 08:27 (4)	06:47 19:48	08:16 (4) 20:25
8	07:50 16:53	07:26 17:34	06:42 18:11	07:21 (2) 08:30 (4)	06:46 19:50	08:16 (4) 20:26
9	07:50 16:54	07:24 17:35	06:40 18:13	07:21 (2) 08:30 (4)	06:44 19:51	08:17 (4) 20:27
10	07:50 16:55	07:23 17:36	06:38 18:14	07:21 (2) 08:31 (4)	06:42 19:52	08:18 (4) 20:28
11	07:49 16:57	07:22 17:38	06:36 18:15	07:21 (2) 08:32 (4)	06:40 19:53	08:19 (4) 20:29
12	07:49 16:58	07:20 17:39	06:35 18:16	07:22 (2) 08:33 (4)	06:39 19:55	08:19 (4) 20:31
13	07:49 16:59	07:19 17:41	06:33 18:18	07:23 (2) 08:34 (4)	06:37 19:56	08:20 (4) 20:32
14	07:48 17:00	07:17 17:42	06:31 18:19	07:23 (4) 08:34 (4)	06:35 19:57	08:22 (4) 20:33
15	07:48 17:01	07:16 17:43	06:29 18:20	07:22 (4) 08:35 (4)	06:33 19:58	08:23 (4) 20:34
16	07:47 17:03	07:15 17:45	06:27 18:21	07:21 (4) 08:35 (4)	06:32 19:59	08:25 (4) 20:35
17	07:47 17:04	07:13 17:46	06:26 18:23	07:20 (4) 08:35 (4)	06:30 20:01	08:27 (4) 20:36
18	07:46 17:05	07:12 17:47	06:24 18:24	07:19 (4) 08:35 (4)	06:28 20:02	08:29 (4) 20:37
19	07:45 17:06	07:10 17:49	06:22 18:25	07:19 (4) 08:36 (4)	06:27 20:03	08:32 (4) 20:38
20	07:45 17:08	07:09 17:50	06:20 18:26	07:18 (4) 08:35 (4)	06:25 20:04	08:38 (4) 20:39
21	07:44 17:09	07:07 17:51	06:18 18:28	07:17 (4) 08:35 (4)	06:23 20:05	08:48 (4) 20:40
22	07:43 17:10	07:05 17:53	8 07:47 (2) 07:35 (2)	18:28 06:16	78 08:35 (4) 07:16 (4)	20:05 06:22
23	07:43 17:12	07:04 17:54	17 07:52 (2) 07:32 (2)	18:29 06:15	79 08:35 (4) 07:16 (4)	20:07 06:20
24	07:42 17:13	07:02 17:55	22 07:54 (2) 07:29 (2)	06:13 06:13	78 08:34 (4) 07:15 (4)	20:08 06:18
25	07:41 17:14	07:01 17:57	26 07:55 (2) 07:28 (2)	18:31 06:11	79 08:34 (4) 07:15 (4)	20:09 06:17
26	07:40 17:16	06:59 17:58	29 07:57 (2) 07:27 (2)	18:33 06:09	78 08:33 (4) 07:15 (4)	20:10 06:15
27	07:39 17:17	06:57 17:59	31 07:58 (2) 07:25 (2)	18:34 06:07	78 08:33 (4) 07:15 (4)	20:12 06:14
28	07:38 17:18	06:56 18:01	34 07:59 (2) 07:25 (2)	18:35 06:05	78 08:33 (4) 07:14 (4)	20:13 06:12
29	07:37 17:20		40 08:05 (4) 07:04	18:36 07:04	78 08:32 (4) 08:14 (4)	20:14 06:11
30	07:36 17:21			19:37 07:02	77 09:31 (4) 08:14 (4)	20:15 06:09
31	07:35 17:22			19:39 07:00	76 09:30 (4) 08:14 (4)	20:16 06:09
Potential sun hours	288	292	369	403	457	463
Total, worst case		207	2215	1066		

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: F - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (6)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:35 21:02	06:02 20:41	06:37 19:53	08:18 (4) 09:14 (4)	07:12 18:58	08:02 (2) 09:13 (4)	07:29 17:06
2	05:35 21:02	06:03 20:39	06:38 19:51	08:16 (4) 09:15 (4)	07:13 18:56	08:00 (2) 09:11 (4)	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	08:15 (4) 09:16 (4)	07:14 18:54	07:59 (2) 09:09 (4)	06:53 16:37
4	05:37 21:02	06:05 20:37	06:40 19:48	08:13 (4) 09:17 (4)	07:15 18:52	07:58 (2) 09:08 (4)	06:55 17:02
5	05:37 21:02	06:06 20:36	06:42 19:46	08:12 (4) 09:18 (4)	07:16 18:50	07:58 (2) 09:07 (4)	06:56 17:01
6	05:38 21:01	06:07 20:34	06:43 19:44	08:11 (4) 09:18 (4)	07:18 18:49	07:57 (2) 09:05 (4)	06:57 17:00
7	05:38 21:01	06:08 20:33	06:44 19:42	08:11 (4) 09:20 (4)	07:19 18:47	07:57 (2) 09:03 (4)	06:59 16:58
8	05:39 21:00	06:09 20:31	06:45 19:40	08:10 (4) 09:20 (4)	07:20 18:45	07:56 (2) 09:00 (4)	07:00 16:57
9	05:40 21:00	06:11 20:30	06:46 19:38	08:09 (4) 09:20 (4)	07:21 18:43	07:57 (2) 08:59 (4)	07:01 16:56
10	05:41 21:00	06:12 20:29	06:47 19:37	08:08 (4) 09:21 (4)	07:22 18:42	07:56 (2) 08:56 (4)	07:03 16:55
11	05:41 20:59	06:13 20:27	06:48 19:35	08:07 (4) 09:21 (4)	07:24 18:40	07:56 (2) 08:53 (4)	07:04 16:54
12	05:42 20:59	06:14 20:26	06:50 19:33	08:06 (4) 09:21 (4)	07:25 18:38	07:56 (2) 08:48 (4)	07:05 16:53
13	05:43 20:58	06:15 20:24	06:51 19:31	08:05 (4) 09:21 (4)	07:26 18:36	07:57 (2) 08:44 (4)	07:07 16:51
14	05:44 20:57	06:16 20:23	06:52 19:29	08:04 (4) 09:21 (4)	07:27 18:35	07:58 (2) 08:32 (2)	07:08 16:50
15	05:45 20:57	06:17 20:21	06:53 19:27	08:04 (4) 09:21 (4)	07:29 18:33	07:58 (2) 08:31 (2)	07:09 16:49
16	05:46 20:56	06:19 20:20	06:54 19:26	08:04 (4) 09:22 (4)	07:30 18:31	08:00 (2) 08:30 (2)	07:11 16:48
17	05:46 20:55	06:20 20:18	06:55 19:24	08:03 (4) 09:22 (4)	07:31 18:29	08:00 (2) 08:28 (2)	07:12 16:48
18	05:47 20:55	06:21 20:17	06:56 19:22	08:03 (4) 09:21 (4)	07:32 18:28	08:02 (2) 08:26 (2)	07:13 16:47
19	05:48 20:54	06:22 20:15	06:58 19:20	08:03 (4) 09:21 (4)	07:34 18:26	08:04 (2) 08:25 (2)	07:14 16:46
20	05:49 20:53	06:23 20:13	06:59 19:18	08:02 (4) 09:21 (4)	07:35 18:24	08:07 (2) 08:21 (2)	07:16 16:45
21	05:50 20:52	06:24 20:12	07:00 19:16	08:02 (4) 09:20 (4)	07:36 18:23		07:17 16:44
22	05:51 20:51	06:25 20:10	07:01 19:14	08:02 (4) 09:20 (4)	07:37 18:21		07:18 16:43
23	05:52 20:50	06:27 20:08	07:02 19:13	08:01 (4) 09:19 (4)	07:39 18:20		07:20 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	08:02 (4) 09:19 (4)	07:40 18:18		07:21 16:42
25	05:54 20:48	06:29 20:05	07:05 19:09	08:02 (4) 09:18 (4)	06:41 17:17		07:22 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	08:02 (4) 09:17 (4)	06:43 17:15		07:23 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	08:02 (4) 09:16 (4)	06:44 17:14		07:25 16:40
28	05:57 20:45	06:32 20:00	07:08 19:03	08:02 (4) 09:15 (4)	06:45 17:12		07:26 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	08:02 (4) 09:14 (4)	06:47 17:11		07:27 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	08:03 (2) 09:14 (4)	06:48 17:09		07:28 16:45
31	06:01 20:42	06:36 19:55	07:11 19:00		06:49 17:08		07:50 16:45
Potential sun hours	469	434	376		342	290	277
Total, worst case		335	2179		1011		

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: G - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (7)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 16:46	07:34 17:24	06:54 18:02	07:23 (2) 08:10 (4)	06:58 19:41	08:13 (4) 20:18
2	07:51 16:47	07:33 17:25	06:52 18:03	07:22 (2) 08:14 (4)	06:56 19:42	08:13 (4) 20:19
3	07:51 16:48	07:32 17:27	06:50 18:05	07:21 (2) 08:17 (4)	06:55 19:44	08:13 (4) 20:20
4	07:51 16:49	07:31 17:28	06:49 18:06	07:21 (2) 08:20 (4)	06:53 19:45	08:13 (4) 20:21
5	07:50 16:50	07:29 17:29	06:47 18:07	07:21 (2) 08:22 (4)	06:51 19:46	08:14 (4) 20:22
6	07:50 16:51	07:28 17:31	06:45 18:09	07:20 (2) 08:24 (4)	06:49 19:47	08:15 (4) 20:24
7	07:50 16:52	07:27 17:32	06:44 18:10	07:20 (2) 08:25 (4)	06:47 19:48	08:15 (4) 20:25
8	07:50 16:53	07:26 17:34	06:42 18:11	07:21 (2) 08:27 (4)	06:46 19:50	08:15 (4) 20:26
9	07:50 16:54	07:24 17:35	06:40 18:13	07:21 (2) 08:28 (4)	06:44 19:51	08:16 (4) 20:27
10	07:50 16:55	07:23 17:36	06:38 18:14	07:21 (2) 08:29 (4)	06:42 19:52	08:17 (4) 20:28
11	07:49 16:57	07:22 17:38	06:36 18:15	07:21 (2) 08:30 (4)	06:40 19:53	08:18 (4) 20:29
12	07:49 16:58	07:20 17:39	06:35 18:16	07:21 (2) 08:30 (4)	06:39 19:55	08:19 (4) 20:31
13	07:49 16:59	07:19 17:41	06:33 18:18	07:23 (4) 08:31 (4)	06:37 19:56	08:20 (4) 20:32
14	07:48 17:00	07:17 17:42	06:31 18:19	07:22 (4) 08:32 (4)	06:35 19:57	08:22 (4) 20:33
15	07:48 17:01	07:16 17:43	06:29 18:20	07:21 (4) 08:32 (4)	06:33 19:58	08:23 (4) 20:34
16	07:47 17:03	07:15 17:45	06:27 18:21	07:19 (4) 08:32 (4)	06:32 19:59	08:25 (4) 20:35
17	07:47 17:04	07:13 17:46	06:26 18:23	07:18 (4) 08:32 (4)	06:30 20:01	08:28 (4) 20:36
18	07:46 17:05	07:12 17:47	06:24 18:24	07:17 (4) 08:32 (4)	06:28 20:02	08:30 (4) 20:37
19	07:45 17:06	07:10 17:49	06:22 18:25	07:17 (4) 08:33 (4)	06:27 20:03	08:35 (4) 20:38
20	07:45 17:08	07:09 17:50	06:20 18:26	07:17 (4) 08:33 (4)	06:25 20:04	08:47 (4) 20:39
21	07:44 17:09	07:07 17:51	06:18 18:28	07:16 (4) 08:32 (4)	06:23 20:05	05:44 20:40
22	07:43 17:10	07:05 17:53	4 07:44 (2) 07:35 (2)	18:28 06:16	76 08:32 (4) 07:15 (4)	20:05 06:22
23	07:43 17:12	07:04 17:54	15 07:50 (2) 07:32 (2)	18:29 06:15	77 08:32 (4) 07:15 (4)	20:07 06:20
24	07:42 17:13	07:02 17:55	21 07:53 (2) 07:29 (2)	18:30 06:13	77 08:32 (4) 07:14 (4)	20:08 06:18
25	07:41 17:14	07:01 17:57	25 07:54 (2) 07:28 (2)	18:31 06:11	77 08:31 (4) 07:13 (4)	20:09 06:17
26	07:40 17:16	06:59 17:58	28 07:56 (2) 07:26 (2)	18:33 06:09	77 08:30 (4) 07:14 (4)	20:10 06:15
27	07:39 17:17	06:57 17:59	31 07:57 (2) 07:25 (2)	18:34 06:07	77 08:31 (4) 07:14 (4)	20:12 06:14
28	07:38 17:18	06:56 18:01	33 07:58 (2) 07:24 (2)	18:35 06:05	76 08:30 (4) 07:13 (4)	20:13 06:12
29	07:37 17:20		35 07:59 (2)	18:36 07:04	76 08:29 (4) 08:13 (4)	20:14 06:11
30	07:36 17:21			19:37 07:02	75 09:28 (4) 08:13 (4)	20:15 06:09
31	07:35 17:22			19:39 07:00	74 09:27 (4) 08:13 (4)	20:16 06:09
Potential sun hours	288	292	369	403	457	463
Total, worst case		192	2161	995		

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: G - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (7)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:35 21:02	06:02 20:41	06:37 19:53	08:17 (4) 09:11 (4)	07:12 18:58	08:01 (2) 09:10 (4)	07:29 17:06
2	05:35 21:02	06:03 20:39	06:38 19:51	08:15 (4) 09:12 (4)	07:13 18:56	08:00 (2) 09:09 (4)	06:52 17:05
3	05:36 21:02	06:04 20:38	06:39 19:49	08:14 (4) 09:13 (4)	07:14 18:54	07:59 (2) 09:07 (4)	06:53 17:04
4	05:37 21:02	06:05 20:37	06:40 19:48	08:13 (4) 09:14 (4)	07:15 18:52	07:58 (2) 09:05 (4)	06:55 17:02
5	05:37 21:02	06:06 20:36	06:42 19:46	08:11 (4) 09:15 (4)	07:16 18:50	07:58 (2) 09:04 (4)	06:56 17:01
6	05:38 21:01	06:07 20:34	06:43 19:44	08:10 (4) 09:15 (4)	07:18 18:49	07:57 (2) 09:02 (4)	06:57 17:00
7	05:38 21:01	06:08 20:33	06:44 19:42	08:10 (4) 09:17 (4)	07:19 18:47	07:56 (2) 09:00 (4)	06:59 16:58
8	05:39 21:00	06:09 20:31	06:45 19:40	08:09 (4) 09:17 (4)	07:20 18:45	07:56 (2) 08:58 (4)	07:00 16:57
9	05:40 21:00	06:11 20:30	06:46 19:38	08:08 (4) 09:18 (4)	07:21 18:43	07:56 (2) 08:56 (4)	07:01 16:56
10	05:41 21:00	06:12 20:29	06:47 19:37	08:07 (4) 09:18 (4)	07:22 18:42	07:56 (2) 08:53 (4)	07:03 16:55
11	05:41 20:59	06:13 20:27	06:48 19:35	08:06 (4) 09:18 (4)	07:24 18:40	07:56 (2) 08:50 (4)	07:04 16:54
12	05:42 20:59	06:14 20:26	06:50 19:33	08:05 (4) 09:18 (4)	07:25 18:38	07:56 (2) 08:46 (4)	07:05 16:53
13	05:43 20:58	06:15 20:24	06:51 19:31	08:04 (4) 09:18 (4)	07:26 18:36	07:57 (2) 08:41 (4)	07:07 16:51
14	05:44 20:57	06:16 20:23	06:52 19:29	08:03 (4) 09:18 (4)	07:27 18:35	07:57 (2) 08:31 (2)	07:08 16:50
15	05:45 20:57	06:17 20:21	06:53 19:27	08:03 (4) 09:18 (4)	07:29 18:33	07:57 (2) 08:30 (2)	07:09 16:49
16	05:46 20:56	06:19 20:20	06:54 19:26	08:03 (4) 09:19 (4)	07:30 18:31	07:59 (2) 08:29 (2)	07:11 16:48
17	05:46 20:55	06:20 20:18	06:55 19:24	08:02 (4) 09:19 (4)	07:31 18:29	08:00 (2) 08:27 (2)	07:12 16:48
18	05:47 20:55	06:21 20:17	06:56 19:22	08:02 (4) 09:19 (4)	07:32 18:28	08:01 (2) 08:25 (2)	07:13 16:47
19	05:48 20:54	06:22 20:15	06:58 19:20	08:01 (4) 09:18 (4)	07:34 18:26	08:04 (2) 08:23 (2)	07:14 16:46
20	05:49 20:53	06:23 20:13	06:59 19:18	08:01 (4) 09:18 (4)	07:35 18:24	08:07 (2) 08:20 (2)	07:16 16:45
21	05:50 20:52	06:24 20:12	07:00 19:16	08:01 (4) 09:18 (4)	07:36 18:23		07:17 16:44
22	05:51 20:51	06:25 20:10	07:01 19:14	08:00 (4) 09:17 (4)	07:37 18:21		07:18 16:43
23	05:52 20:50	06:27 20:08	07:02 19:13	08:00 (4) 09:16 (4)	07:39 18:20		07:20 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	08:01 (4) 09:17 (4)	07:40 18:18		07:21 16:42
25	05:54 20:48	06:29 20:05	07:05 19:09	08:01 (4) 09:16 (4)	06:41 17:17		07:22 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	08:01 (4) 09:15 (4)	06:43 17:15		07:23 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	08:01 (4) 09:14 (4)	06:44 17:14		07:25 16:40
28	05:57 20:45	06:32 20:00	07:08 19:03	08:01 (4) 09:13 (4)	06:45 17:12		07:26 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	08:01 (4) 09:12 (4)	06:47 17:11		07:27 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	08:02 (4) 09:11 (4)	06:48 17:09		07:28 16:45
31	06:01 20:42	06:36 19:55	07:11 19:00	08:19 (4) 09:10 (4)	06:49 17:08		07:50 16:45
Potential sun hours	469	434	376	342	290	277	
Total, worst case		287	2129	975			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: H - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (8)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:50 16:46	07:34 17:24	06:54 18:02	07:23 (2) 07:58 (2)	06:58 19:41	08:10 (4) 09:27 (4)	06:08 20:18	05:35 20:51
2	07:51 16:47	07:33 17:25	06:52 18:03	07:22 (2) 07:58 (2)	06:56 19:42	08:10 (4) 09:26 (4)	06:06 20:19	05:35 20:52
3	07:51 16:48	07:32 17:27	06:50 18:05	07:21 (2) 08:02 (4)	06:55 19:44	08:10 (4) 09:25 (4)	06:05 20:20	05:34 20:52
4	07:51 16:49	07:31 17:28	06:49 18:06	07:21 (2) 08:10 (4)	06:53 19:45	08:10 (4) 09:24 (4)	06:04 20:21	05:34 20:53
5	07:50 16:50	07:29 17:29	06:47 18:07	07:20 (2) 08:14 (4)	06:51 19:46	08:10 (4) 09:23 (4)	06:02 20:22	05:33 20:54
6	07:50 16:51	07:28 17:31	06:45 18:09	07:20 (2) 08:17 (4)	06:49 19:47	08:11 (4) 09:22 (4)	06:01 20:24	05:33 20:55
7	07:50 16:52	07:27 17:32	06:44 18:10	07:19 (2) 08:19 (4)	06:47 19:48	08:11 (4) 09:21 (4)	05:59 20:25	05:32 20:55
8	07:50 16:53	07:26 17:34	06:42 18:11	07:20 (2) 08:22 (4)	06:46 19:50	08:11 (4) 09:20 (4)	05:58 20:26	05:32 20:56
9	07:50 16:54	07:24 17:35	06:40 18:13	07:19 (2) 08:23 (4)	06:44 19:51	08:11 (4) 09:18 (4)	05:57 20:27	05:32 20:57
10	07:50 16:55	07:23 17:36	06:38 18:14	07:19 (2) 08:24 (4)	06:42 19:52	08:12 (4) 09:18 (4)	05:56 20:28	05:32 20:57
11	07:49 16:57	07:22 17:38	06:36 18:15	07:19 (2) 08:25 (4)	06:40 19:53	08:12 (4) 09:16 (4)	05:54 20:29	05:31 20:58
12	07:49 16:58	07:20 17:39	06:35 18:16	07:19 (2) 08:26 (4)	06:39 19:55	08:13 (4) 09:14 (4)	05:53 20:31	05:31 20:58
13	07:49 16:59	07:19 17:41	06:33 18:18	07:20 (2) 08:28 (4)	06:37 19:56	08:13 (4) 09:12 (4)	05:52 20:32	05:31 20:59
14	07:48 17:00	07:17 17:42	06:31 18:19	07:21 (2) 08:29 (4)	06:35 19:57	08:15 (4) 09:11 (4)	05:51 20:33	05:31 20:59
15	07:48 17:01	07:16 17:43	06:29 18:20	07:21 (4) 08:29 (4)	06:33 19:58	08:15 (4) 09:09 (4)	05:50 20:34	05:31 21:00
16	07:47 17:03	07:15 17:45	06:27 18:21	07:20 (4) 08:30 (4)	06:32 19:59	08:16 (4) 09:07 (4)	05:49 20:35	05:31 21:00
17	07:47 17:04	07:13 17:46	06:26 18:23	07:18 (4) 08:30 (4)	06:30 20:01	08:18 (4) 09:05 (4)	05:47 20:36	05:31 21:01
18	07:46 17:05	07:12 17:47	06:24 18:24	07:17 (4) 08:30 (4)	06:28 20:02	08:19 (4) 09:03 (4)	05:46 20:37	05:31 21:01
19	07:45 17:06	07:10 17:49	06:22 18:25	07:17 (4) 08:31 (4)	06:27 20:03	08:20 (4) 09:00 (4)	05:45 20:38	05:31 21:01
20	07:45 17:08	07:09 17:50	06:20 18:26	07:16 (4) 08:31 (4)	06:25 20:04	08:23 (4) 08:58 (4)	05:44 20:39	05:31 21:02
21	07:44 17:09	07:07 17:51	06:18 18:28	07:15 (4) 08:31 (4)	06:23 20:05	08:25 (4) 08:54 (4)	05:43 20:40	05:31 21:02
22	07:43 17:10	07:05 17:53	06:16 18:29	07:14 (4) 08:31 (4)	06:22 20:07	08:28 (4) 08:51 (4)	05:43 20:41	05:32 21:02
23	07:43 17:12	07:04 17:54	07:35 (2) 07:48 (2)	06:15 18:30	07:13 (4) 08:31 (4)	06:20 20:08	05:42 20:42	05:32 21:02
24	07:42 17:13	07:02 17:55	07:31 (2) 07:51 (2)	06:13 18:31	07:13 (4) 08:30 (4)	06:18 20:09	05:41 20:43	05:32 21:02
25	07:41 17:14	07:01 17:57	07:29 (2) 07:53 (2)	06:11 18:33	07:12 (4) 08:30 (4)	06:17 20:10	05:40 20:44	05:32 21:03
26	07:40 17:16	06:59 17:58	07:27 (2) 07:55 (2)	06:09 18:34	07:12 (4) 08:31 (4)	06:15 20:12	05:39 20:45	05:33 21:03
27	07:39 17:17	06:57 17:59	07:25 (2) 07:56 (2)	06:07 18:35	07:12 (4) 08:30 (4)	06:14 20:13	05:38 20:46	05:33 21:03
28	07:38 17:18	06:56 18:01	07:25 (2) 07:57 (2)	06:05 18:36	07:11 (4) 08:29 (4)	06:12 20:14	05:38 20:47	05:33 21:03
29	07:37 17:20		07:04	07:04 19:37	08:11 (4) 09:29 (4)	06:11 20:15	05:37 20:48	05:34 21:03
30	07:36 17:21		07:02	07:02 19:39	08:10 (4) 09:28 (4)	06:09 20:16	05:36 20:49	05:34 21:03
31	07:35 17:22		07:00	07:00 19:40	08:10 (4) 09:27 (4)		05:36 20:50	
Potential sun hours	288	292	369	403	457	463		
Total, worst case		148	2078	1293				

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: H - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (8)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	05:35 21:02	06:02 20:41	06:37 19:53	08:11 (4) 09:15 (4)	07:12 18:58	07:59 (2) 09:06 (4)	06:51 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	08:10 (4) 09:16 (4)	07:13 18:56	07:58 (2) 09:05 (4)	06:52 17:05	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	08:09 (4) 09:16 (4)	07:14 18:54	07:57 (2) 09:03 (4)	06:53 17:04	07:31 16:37
4	05:37 21:02	06:05 20:37	06:40 19:48	08:08 (4) 09:17 (4)	07:15 18:52	07:56 (2) 09:01 (4)	06:55 17:02	07:33 16:37
5	05:37 21:02	06:06 20:36	06:42 19:46	08:07 (4) 09:17 (4)	07:16 18:50	07:56 (2) 08:59 (4)	06:56 17:01	07:34 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	08:06 (4) 09:17 (4)	07:18 18:49	07:56 (2) 08:57 (4)	06:57 17:00	07:35 16:37
7	05:38 21:01	06:08 20:33	06:44 19:42	08:06 (4) 09:19 (4)	07:19 18:47	07:55 (2) 08:54 (4)	06:59 16:58	07:36 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	08:05 (4) 09:19 (4)	07:20 18:45	07:55 (2) 08:50 (4)	07:00 16:57	07:37 16:36
9	05:40 21:00	06:11 20:30	06:46 19:38	08:04 (4) 09:19 (4)	07:21 18:43	07:56 (2) 08:47 (4)	07:01 16:56	07:38 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	08:03 (4) 09:19 (4)	07:22 18:42	07:55 (2) 08:42 (4)	07:03 16:55	07:39 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	08:03 (4) 09:19 (4)	07:24 18:40	07:55 (2) 08:32 (2)	07:04 16:54	07:39 16:36
12	05:42 20:59	06:14 20:26	06:50 19:33	08:02 (4) 09:19 (4)	07:25 18:38	07:56 (2) 08:31 (2)	07:05 16:53	07:40 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	08:01 (4) 09:19 (4)	07:26 18:36	07:57 (2) 08:31 (2)	07:07 16:51	07:41 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	08:01 (4) 09:19 (4)	07:27 18:35	07:57 (2) 08:29 (2)	07:08 16:50	07:42 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	08:00 (4) 09:19 (4)	07:29 18:33	07:58 (2) 08:28 (2)	07:09 16:49	07:43 16:37
16	05:46 20:56	06:19 20:20	06:54 19:26	08:01 (4) 09:19 (4)	07:30 18:31	08:00 (2) 08:27 (2)	07:11 16:48	07:44 16:37
17	05:46 20:55	06:20 20:18	06:55 19:24	08:00 (4) 09:19 (4)	07:31 18:29	08:01 (2) 08:24 (2)	07:12 16:48	07:44 16:37
18	05:47 20:55	06:21 20:17	06:56 19:22	08:00 (4) 09:18 (4)	07:32 18:28	08:03 (2) 08:21 (2)	07:13 16:47	07:45 16:38
19	05:48 20:54	06:22 20:15	06:58 19:20	08:00 (4) 09:18 (4)	07:34 18:26	08:08 (2) 08:18 (2)	07:14 16:46	07:46 16:38
20	05:49 20:53	06:23 20:13	06:59 19:18	08:00 (4) 09:17 (4)	07:35 18:24	07:16 16:45	07:46 16:38	07:46 16:38
21	05:50 20:52	06:24 20:12	06:59 19:16	08:00 (4) 09:16 (4)	07:36 18:23	07:17 16:44	07:47 16:39	07:47 16:39
22	05:51 20:51	06:25 20:10	07:00 19:14	08:00 (4) 09:16 (4)	07:37 18:21	07:18 16:43	07:47 16:39	07:47 16:39
23	05:52 20:50	06:27 20:08	07:02 19:13	08:00 (4) 09:15 (4)	07:39 18:20	07:20 16:43	07:48 16:40	07:48 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	08:00 (4) 09:15 (4)	07:40 18:18	07:21 16:42	07:48 16:40	07:48 16:40
25	05:54 20:48	06:29 20:05	07:05 19:09	08:00 (4) 09:14 (4)	06:41 17:17	07:22 16:41	07:49 16:41	07:49 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	08:00 (4) 09:13 (4)	06:43 17:15	07:23 16:41	07:49 16:42	07:49 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	08:01 (4) 09:11 (4)	06:44 17:14	07:25 16:40	07:49 16:42	07:49 16:42
28	05:57 20:45	06:32 20:00	07:08 19:03	08:01 (4) 09:10 (4)	06:45 17:12	07:26 16:40	07:50 16:43	07:50 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	08:01 (2) 09:09 (4)	06:47 17:11	07:27 16:39	07:50 16:44	07:50 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	08:00 (2) 09:08 (4)	06:48 17:09	07:28 16:39	07:50 16:45	07:50 16:45
31	06:01 20:42	06:36 19:55	07:11 19:00	08:00 (2) 09:08 (4)	06:49 17:08	07:29 16:39	07:50 16:45	07:50 16:45
Potential sun hours	469	434	376	342	290	277		
Total, worst case			518	2209	847			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: I - Shadow Receptor: 1.0 × 1.0 Azimuth: -60.0° Slope: 90.0° (9)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:50 16:46	07:34 17:24	06:54 18:02	07:22 (2) 07:46 (2)	06:58 19:41	07:59 (4) 09:11 (4)	06:08 20:18	05:35 20:51
2	07:51 16:47	07:33 17:25	06:52 18:03	07:20 (2) 07:47 (2)	06:56 19:42	07:58 (4) 09:11 (4)	06:06 20:19	05:35 20:52
3	07:51 16:48	07:32 17:27	06:50 18:05	07:18 (2) 07:48 (2)	06:55 19:44	07:58 (4) 09:10 (4)	06:05 20:20	05:34 20:52
4	07:51 16:49	07:31 17:28	06:49 18:06	07:17 (2) 07:50 (2)	06:53 19:45	07:57 (4) 09:09 (4)	06:04 20:21	05:34 20:53
5	07:50 16:50	07:29 17:29	06:47 18:07	07:16 (2) 07:50 (2)	06:51 19:46	07:57 (4) 09:08 (4)	06:02 20:22	05:33 20:54
6	07:50 16:51	07:28 17:31	06:45 18:09	07:15 (2) 07:50 (2)	06:49 19:47	07:57 (4) 09:08 (4)	06:01 20:24	05:33 20:55
7	07:50 16:52	07:27 17:32	06:44 18:10	07:14 (2) 07:50 (2)	06:47 19:48	07:57 (4) 09:07 (4)	05:59 20:25	05:32 20:55
8	07:50 16:53	07:26 17:34	06:42 18:11	07:14 (2) 07:51 (2)	06:46 19:50	07:57 (4) 09:06 (4)	05:58 20:26	05:32 20:56
9	07:50 16:54	07:24 17:35	06:40 18:13	07:13 (2) 07:51 (2)	06:44 19:51	07:57 (4) 09:05 (4)	05:57 20:27	05:32 20:57
10	07:50 16:55	07:23 17:36	06:38 18:14	07:13 (2) 07:51 (2)	06:42 19:52	07:58 (4) 09:05 (4)	05:56 20:28	05:32 20:57
11	07:49 16:57	07:22 17:38	06:36 18:15	07:12 (2) 07:55 (4)	06:40 19:53	07:58 (4) 09:03 (4)	05:54 20:29	05:31 20:58
12	07:49 16:58	07:20 17:39	06:35 18:16	07:12 (2) 07:58 (4)	06:39 19:55	07:58 (4) 09:02 (4)	05:53 20:31	05:31 20:58
13	07:49 16:59	07:19 17:41	06:33 18:18	07:13 (2) 08:01 (4)	06:37 19:56	07:58 (4) 09:01 (4)	05:52 20:32	05:31 20:59
14	07:48 17:00	07:17 17:42	06:31 18:19	07:13 (2) 08:03 (4)	06:35 19:57	07:59 (4) 09:00 (4)	05:51 20:33	05:31 20:59
15	07:48 17:01	07:16 17:43	06:29 18:20	07:13 (2) 08:05 (4)	06:33 19:58	07:59 (4) 08:58 (4)	05:50 20:34	05:31 21:00
16	07:47 17:03	07:15 17:45	06:27 18:21	07:13 (2) 08:06 (4)	06:32 19:59	08:00 (4) 08:57 (4)	05:49 20:35	05:31 21:00
17	07:47 17:04	07:13 17:46	06:26 18:23	07:13 (4) 08:07 (4)	06:30 20:01	08:01 (4) 08:56 (4)	05:47 20:36	05:31 21:01
18	07:46 17:05	07:12 17:47	06:24 18:24	07:11 (4) 08:08 (4)	06:28 20:02	08:02 (4) 08:54 (4)	05:46 20:37	05:31 21:01
19	07:45 17:06	07:10 17:49	06:22 18:25	07:10 (4) 08:10 (4)	06:27 20:03	08:02 (4) 08:52 (4)	05:45 20:38	05:31 21:01
20	07:45 17:08	07:09 17:50	06:20 18:26	07:08 (4) 08:10 (4)	06:25 20:04	08:04 (4) 08:50 (4)	05:44 20:39	05:31 21:02
21	07:44 17:09	07:07 17:51	06:18 18:28	07:07 (4) 08:11 (4)	06:23 20:05	08:05 (4) 08:48 (4)	05:43 20:40	05:31 21:02
22	07:43 17:10	07:05 17:53	06:16 18:29	07:06 (4) 08:11 (4)	06:22 20:07	08:07 (4) 08:46 (4)	05:43 20:41	05:32 21:02
23	07:43 17:12	07:04 17:54	06:15 18:30	07:04 (4) 08:11 (4)	06:20 20:08	08:08 (4) 08:44 (4)	05:42 20:42	05:32 21:02
24	07:42 17:13	07:02 17:55	06:13 18:31	07:03 (4) 08:11 (4)	06:18 20:09	08:10 (4) 08:41 (4)	05:41 20:43	05:32 21:02
25	07:41 17:14	07:01 17:57	06:11 18:33	07:02 (4) 08:11 (4)	06:17 20:10	08:13 (4) 08:38 (4)	05:40 20:44	05:32 21:03
26	07:40 17:16	06:59 17:58	06:09 18:34	07:02 (4) 08:12 (4)	06:15 20:12	08:16 (4) 08:33 (4)	05:39 20:45	05:33 21:03
27	07:39 17:17	06:57 17:59	07:27 (2) 07:41 (2)	06:07 18:35	07:01 (4) 08:12 (4)	06:14 20:13	05:38 20:46	05:33 21:03
28	07:38 17:18	06:56 18:01	07:24 (2) 07:44 (2)	06:06 18:36	07:00 (4) 08:12 (4)	06:12 20:14	05:38 20:47	05:33 21:03
29	07:37 17:20			07:04 19:37	06:11 20:15	08:00 (4) 09:12 (4)	05:37 20:48	05:34 21:03
30	07:36 17:21			07:02 19:39	06:09 20:16	07:59 (4) 09:11 (4)	05:36 20:49	05:34 21:03
31	07:35 17:22			07:00 19:40	06:09 20:16	07:58 (4) 09:11 (4)	05:36 20:50	
Potential sun hours	288	292	369	403	457	463		
Total, worst case		34	1620	1468				

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: I - Shadow Receptor: 1.0 × 1.0 Azimuth: -60.0° Slope: 90.0° (9)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:35 21:02	06:02 20:41	06:37 19:53	07:57 (4) 09:02 (4)	07:12 18:58	07:52 (2) 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	07:56 (4) 09:03 (4)	07:13 18:56	07:51 (2) 17:05	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	07:55 (4) 09:03 (4)	07:14 18:54	07:50 (2) 17:04	07:31 16:37
4	05:37 21:02	06:05 20:37	06:40 19:48	07:54 (4) 09:03 (4)	07:15 18:52	07:50 (2) 17:02	06:55 16:37
5	05:37 21:02	06:06 20:36	06:42 19:46	07:53 (4) 09:03 (4)	07:16 18:50	07:51 (2) 17:01	06:56 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	07:53 (4) 09:03 (4)	07:18 18:49	07:50 (2) 17:00	06:57 16:37
7	05:38 21:01	06:08 20:33	06:44 19:42	07:53 (4) 09:04 (4)	07:19 18:47	07:50 (2) 16:58	06:59 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	07:52 (4) 09:04 (4)	07:20 18:45	07:50 (2) 16:57	07:00 16:36
9	05:40 21:00	06:11 20:30	06:46 19:38	07:52 (4) 09:04 (4)	07:21 18:43	07:52 (2) 16:56	07:01 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	07:51 (4) 09:04 (4)	07:22 18:42	07:52 (2) 16:55	07:03 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	07:51 (4) 09:03 (4)	07:24 18:40	07:53 (2) 16:54	07:04 16:36
12	05:42 20:59	06:14 20:26	06:50 19:33	07:50 (4) 09:03 (4)	07:25 18:38	07:54 (2) 16:53	07:05 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	07:50 (4) 09:03 (4)	07:26 18:36	07:56 (2) 16:51	07:07 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	07:50 (4) 09:02 (4)	07:27 18:35	07:58 (2) 16:50	07:08 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	07:50 (4) 09:01 (4)	07:29 18:33	08:01 (2) 16:49	07:09 16:37
16	05:46 20:56	06:19 20:20	06:54 08:28 (4) 19:26	07:50 (4) 09:02 (4)	07:30 18:31	07:11 16:48	07:44 16:37
17	05:46 20:55	06:20 20:18	06:55 08:22 (4) 19:24	07:50 (4) 09:01 (4)	07:31 18:29	07:12 16:48	07:44 16:37
18	05:47 20:55	06:21 20:17	06:56 08:19 (4) 19:22	07:50 (4) 09:00 (4)	07:32 18:28	07:13 16:47	07:45 16:38
19	05:48 20:54	06:22 20:15	06:58 08:16 (4) 19:20	07:50 (4) 08:59 (4)	07:34 18:26	07:14 16:46	07:46 16:38
20	05:49 20:53	06:23 20:13	06:59 08:14 (4) 19:18	07:51 (4) 08:50 (4)	07:35 18:24	07:16 16:45	07:46 16:38
21	05:50 20:52	06:24 20:12	07:00 08:11 (4) 19:16	07:51 (4) 08:57 (4)	07:36 18:23	07:17 16:44	07:47 16:39
22	05:51 20:51	06:25 20:10	07:01 08:09 (4) 19:14	07:51 (4) 08:55 (4)	07:37 18:21	07:18 16:43	07:47 16:39
23	05:52 20:50	06:27 20:08	07:02 08:08 (4) 19:13	07:52 (4) 08:54 (4)	07:39 18:20	07:20 16:43	07:48 16:40
24	05:53 20:49	06:28 20:07	07:03 08:06 (4) 19:11	07:53 (4) 08:53 (4)	07:40 18:18	07:21 16:42	07:48 16:40
25	05:54 20:48	06:29 20:05	07:05 08:04 (4) 19:09	07:54 (4) 08:52 (4)	06:41 17:17	07:22 16:41	07:49 16:41
26	05:55 20:47	06:30 20:03	07:06 08:03 (4) 19:07	07:55 (4) 08:50 (4)	06:43 17:15	07:23 16:41	07:49 16:42
27	05:56 20:46	06:31 20:02	07:07 08:01 (4) 19:05	07:55 (2) 08:48 (4)	06:44 17:14	07:25 16:40	07:49 16:42
28	05:57 20:45	06:32 20:00	07:08 08:01 (4) 19:03	07:54 (2) 08:46 (4)	06:45 17:12	07:26 16:40	07:50 16:43
29	05:58 20:44	06:33 19:58	07:09 08:00 (4) 19:01	07:52 (2) 08:44 (4)	06:47 17:11	07:27 16:39	07:50 16:44
30	05:59 20:43	06:35 19:56	07:10 09:02 (4) 19:00	07:53 (2) 08:42 (4)	06:48 17:09	07:28 16:39	07:50 16:45
31	06:01 20:42	06:36 19:55	07:58 (4) 09:02 (4)		06:49 17:08		07:50 16:45
Potential sun hours	469	434	376	342	290	277	
Total, worst case		714	1978	483			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: J - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (10)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:50 16:46	07:34 17:24	06:54 18:02	07:21 (2) 07:52 (2)	06:58 19:41	08:04 (4) 09:16 (4)	06:08 20:18	05:35 20:51
2	07:51 16:47	07:33 17:25	06:52 18:03	07:20 (2) 07:53 (2)	06:56 19:42	08:04 (4) 09:15 (4)	06:06 20:19	05:35 20:52
3	07:51 16:48	07:32 17:27	06:50 18:05	07:18 (2) 07:53 (2)	06:55 19:44	08:04 (4) 09:14 (4)	06:05 20:20	05:34 20:52
4	07:51 16:49	07:31 17:28	06:49 18:06	07:18 (2) 07:54 (2)	06:53 19:45	08:04 (4) 09:13 (4)	06:04 20:21	05:34 20:53
5	07:51 16:50	07:29 17:29	06:47 18:07	07:17 (2) 07:54 (2)	06:51 19:46	08:04 (4) 09:11 (4)	06:02 20:22	05:33 20:54
6	07:50 16:51	07:28 17:31	06:45 18:09	07:17 (2) 07:58 (4)	06:49 19:47	08:05 (4) 09:11 (4)	06:01 20:24	05:33 20:55
7	07:50 16:52	07:27 17:32	06:44 18:10	07:16 (2) 08:02 (4)	06:47 19:48	08:05 (4) 09:10 (4)	05:59 20:25	05:32 20:55
8	07:50 16:53	07:26 17:34	06:42 18:11	07:16 (2) 08:06 (4)	06:46 19:50	08:05 (4) 09:08 (4)	05:58 20:26	05:32 20:56
9	07:50 16:54	07:24 17:35	06:40 18:13	07:16 (2) 08:08 (4)	06:44 19:51	08:05 (4) 09:07 (4)	05:57 20:27	05:32 20:57
10	07:50 16:55	07:23 17:36	06:38 18:14	07:16 (2) 08:10 (4)	06:42 19:52	08:06 (4) 09:06 (4)	05:56 20:28	05:32 20:57
11	07:49 16:57	07:22 17:38	06:36 18:15	07:16 (2) 08:11 (4)	06:40 19:53	08:07 (4) 09:04 (4)	05:54 20:29	05:31 20:58
12	07:49 16:58	07:20 17:39	06:35 18:16	07:16 (2) 08:13 (4)	06:39 19:55	08:07 (4) 09:03 (4)	05:53 20:31	05:31 20:58
13	07:49 16:59	07:19 17:41	06:33 18:18	07:17 (2) 08:15 (4)	06:37 19:56	08:08 (4) 09:01 (4)	05:52 20:32	05:31 20:59
14	07:48 17:00	07:17 17:42	06:31 18:19	07:17 (2) 08:16 (4)	06:35 19:57	08:09 (4) 08:59 (4)	05:51 20:33	05:31 20:59
15	07:48 17:01	07:16 17:43	06:29 18:20	07:16 (4) 08:16 (4)	06:33 19:58	08:10 (4) 08:57 (4)	05:50 20:34	05:31 21:00
16	07:47 17:03	07:15 17:45	06:27 18:21	07:14 (4) 08:17 (4)	06:32 19:59	08:11 (4) 08:55 (4)	05:49 20:35	05:31 21:00
17	07:47 17:04	07:13 17:46	06:26 18:23	07:13 (4) 08:17 (4)	06:30 20:01	08:13 (4) 08:53 (4)	05:47 20:36	05:31 21:01
18	07:46 17:05	07:12 17:47	06:24 18:24	07:12 (4) 08:18 (4)	06:28 20:02	08:15 (4) 08:50 (4)	05:46 20:37	05:31 21:01
19	07:45 17:06	07:10 17:49	06:22 18:25	07:11 (4) 08:19 (4)	06:27 20:03	08:16 (4) 08:47 (4)	05:45 20:38	05:31 21:01
20	07:45 17:08	07:09 17:50	06:20 18:26	07:10 (4) 08:19 (4)	06:25 20:04	08:20 (4) 08:44 (4)	05:44 20:39	05:31 21:02
21	07:44 17:09	07:07 17:51	06:18 18:28	07:09 (4) 08:19 (4)	06:23 20:05	08:23 (4) 08:39 (4)	05:43 20:40	05:31 21:02
22	07:43 17:10	07:05 17:53	06:16 18:29	07:08 (4) 08:19 (4)	06:22 20:07		05:43 20:41	05:32 21:02
23	07:43 17:12	07:04 17:54	06:15 18:30	07:07 (4) 08:19 (4)	06:20 20:08		05:42 20:42	05:32 21:02
24	07:42 17:13	07:02 17:55	07:34 (2) 07:40 (2)	06:13 18:31	07:07 (4) 08:18 (4)	06:18 20:09	05:41 20:43	05:32 21:02
25	07:41 17:14	07:01 17:57	07:29 (2) 07:45 (2)	06:11 18:33	07:06 (4) 08:18 (4)	06:17 20:10	05:40 20:44	05:32 21:03
26	07:40 17:16	06:59 17:58	07:26 (2) 07:48 (2)	06:09 18:34	07:06 (4) 08:19 (4)	06:15 20:12	05:39 20:45	05:33 21:03
27	07:39 17:17	06:57 17:59	07:24 (2) 07:49 (2)	06:07 18:35	07:06 (4) 08:18 (4)	06:14 20:13	05:38 20:46	05:33 21:03
28	07:38 17:18	06:56 18:01	07:23 (2) 07:51 (2)	06:06 18:36	07:05 (4) 08:18 (4)	06:12 20:14	05:38 20:47	05:33 21:03
29	07:37 17:20		07:04 19:37	07:04 19:37	08:05 (4) 09:17 (4)	06:11 20:15	05:37 20:48	05:34 21:03
30	07:36 17:21		07:02 19:39	07:02 19:39	08:04 (4) 09:16 (4)	06:09 20:16	05:36 20:49	05:34 21:03
31	07:35 17:22		07:00 19:40	07:00 19:40	08:04 (4) 09:15 (4)		05:36 20:50	
Potential sun hours	288	292	369	403	457	463		
Total, worst case		97	1823	1118				

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: J - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (10)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:35 21:02	06:02 20:41	06:37 19:53	08:06 (4) 09:03 (4)	07:12 18:58	07:55 (2) 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	08:04 (4) 09:04 (4)	07:13 18:56	07:54 (2) 17:05	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	08:03 (4) 09:05 (4)	07:14 18:54	07:53 (2) 17:04	07:31 16:37
4	05:37 21:02	06:05 20:37	06:40 19:48	08:02 (4) 09:05 (4)	07:15 18:52	07:53 (2) 17:02	06:55 16:37
5	05:37 21:02	06:06 20:36	06:42 19:46	08:01 (4) 09:06 (4)	07:16 18:50	07:53 (2) 17:01	06:56 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	08:00 (4) 09:06 (4)	07:18 18:49	07:53 (2) 17:00	06:57 16:37
7	05:38 21:01	06:08 20:33	06:44 19:42	08:00 (4) 09:07 (4)	07:19 18:47	07:52 (2) 16:58	06:59 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	07:59 (4) 09:08 (4)	07:20 18:45	07:52 (2) 16:57	07:00 16:36
9	05:40 21:00	06:11 20:30	06:46 19:38	07:58 (4) 09:08 (4)	07:21 18:43	07:53 (2) 16:56	07:01 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	07:57 (4) 09:08 (4)	07:22 18:42	07:53 (2) 16:55	07:03 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	07:57 (4) 09:08 (4)	07:24 18:40	07:53 (2) 16:54	07:04 16:36
12	05:42 20:59	06:14 20:26	06:50 19:33	07:56 (4) 09:08 (4)	07:25 18:38	07:53 (2) 16:53	07:05 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	07:55 (4) 09:07 (4)	07:26 18:36	07:55 (2) 16:51	07:07 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	07:55 (4) 09:07 (4)	07:27 18:35	07:56 (2) 16:50	07:08 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	07:54 (4) 09:07 (4)	07:29 18:33	07:57 (2) 16:49	07:09 16:37
16	05:46 20:56	06:19 20:20	06:54 19:26	07:55 (4) 09:08 (4)	07:30 18:31	08:00 (2) 16:48	07:11 16:37
17	05:46 20:55	06:20 20:18	06:55 19:24	07:54 (4) 09:07 (4)	07:31 18:29	08:02 (2) 16:48	07:12 16:37
18	05:47 20:55	06:21 20:17	06:56 19:22	07:54 (4) 09:06 (4)	07:32 18:28	08:16 (2) 16:47	07:13 16:38
19	05:48 20:54	06:22 20:15	06:58 19:20	07:54 (4) 09:06 (4)	07:34 18:26	16:46	07:14 16:38
20	05:49 20:53	06:23 20:13	06:59 19:18	07:54 (4) 09:05 (4)	07:35 18:24	07:16 16:45	07:46 16:38
21	05:50 20:52	06:24 20:12	07:00 19:16	07:54 (4) 09:04 (4)	07:36 18:23	07:17 16:44	07:47 16:39
22	05:51 20:51	06:25 20:10	07:01 19:14	07:54 (4) 09:03 (4)	07:37 18:21	16:43	07:18 16:39
23	05:52 20:50	06:27 20:08	07:02 19:13	07:54 (4) 09:03 (4)	07:39 18:20	07:20 16:43	07:48 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	07:55 (4) 09:02 (4)	07:40 18:18	07:21 16:42	07:48 16:40
25	05:54 20:48	06:29 20:05	07:05 19:09	07:55 (4) 09:01 (4)	06:41 17:17	07:22 16:41	07:49 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	07:55 (4) 09:00 (4)	06:43 17:15	07:23 16:41	07:49 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	07:56 (4) 08:59 (4)	06:44 17:14	07:25 16:40	07:49 16:42
28	05:57 20:45	06:32 20:00	07:08 19:03	07:56 (4) 08:57 (4)	06:45 17:12	07:26 16:40	07:50 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	07:57 (4) 08:56 (4)	06:47 17:11	07:27 16:39	07:50 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	07:57 (2) 08:55 (4)	06:48 17:09	07:28 16:39	07:50 16:45
31	06:01 20:42	06:36 19:55	08:07 (4) 09:03 (4)	07:08	06:49 17:08	16:39	07:50 16:45
Potential sun hours	469	434	376	342	290	277	
Total, worst case		402	2018	656			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: K - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (11)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 16:46	07:34 17:24	06:54 18:02	07:22 (2) 07:59 (4)	06:58 19:41	08:11 (4) 20:18
2	07:51 16:47	07:33 17:25	06:52 18:03	07:21 (2) 08:06 (4)	06:56 19:42	08:11 (4) 20:19
3	07:51 16:48	07:32 17:27	06:50 18:05	07:20 (2) 08:09 (4)	06:55 19:44	08:11 (4) 20:20
4	07:51 16:49	07:31 17:28	06:49 18:06	07:20 (2) 08:13 (4)	06:53 19:45	08:11 (4) 20:21
5	07:50 16:50	07:29 17:29	06:47 18:07	07:19 (2) 08:15 (4)	06:51 19:46	08:11 (4) 20:22
6	07:50 16:51	07:28 17:31	06:45 18:09	07:19 (2) 08:17 (4)	06:49 19:47	08:13 (4) 20:24
7	07:50 16:52	07:27 17:32	06:44 18:10	07:19 (2) 08:18 (4)	06:47 19:48	08:13 (4) 20:25
8	07:50 16:53	07:26 17:34	06:42 18:11	07:19 (2) 08:20 (4)	06:46 19:50	08:14 (4) 20:26
9	07:50 16:54	07:24 17:35	06:40 18:13	07:19 (2) 08:21 (4)	06:44 19:51	08:14 (4) 20:27
10	07:50 16:55	07:23 17:36	06:38 18:14	07:19 (2) 08:22 (4)	06:42 19:52	08:16 (4) 20:28
11	07:49 16:57	07:22 17:38	06:36 18:15	07:19 (2) 08:23 (4)	06:40 19:53	08:17 (4) 20:29
12	07:49 16:58	07:20 17:39	06:35 18:16	07:20 (4) 08:23 (4)	06:39 19:55	08:18 (4) 20:31
13	07:49 16:59	07:19 17:41	06:33 18:18	07:20 (4) 08:25 (4)	06:37 19:56	08:19 (4) 20:32
14	07:48 17:00	07:17 17:42	06:31 18:19	07:19 (4) 08:25 (4)	06:35 19:57	08:21 (4) 20:33
15	07:48 17:01	07:16 17:43	06:29 18:20	07:17 (4) 08:26 (4)	06:33 19:58	08:23 (4) 20:34
16	07:47 17:03	07:15 17:45	06:27 18:21	07:16 (4) 08:26 (4)	06:32 19:59	08:26 (4) 20:35
17	07:47 17:04	07:13 17:46	06:26 18:23	07:15 (4) 08:26 (4)	06:30 20:01	08:30 (4) 20:36
18	07:46 17:05	07:12 17:47	06:24 18:24	07:14 (4) 08:26 (4)	06:28 20:02	08:46 (4) 20:37
19	07:45 17:06	07:10 17:49	06:22 18:25	07:14 (4) 08:26 (4)	06:27 20:03	05:45 20:38
20	07:45 17:08	07:09 17:50	06:20 18:26	07:14 (4) 08:26 (4)	06:25 20:04	05:44 20:39
21	07:44 17:09	07:07 17:51	06:18 18:28	07:13 (4) 08:26 (4)	06:23 20:05	05:43 20:40
22	07:43 17:10	07:05 17:53	06:16 18:29	07:12 (4) 08:26 (4)	06:22 20:07	05:43 20:41
23	07:43 17:12	07:04 17:54	06:15 18:30	07:12 (4) 08:25 (4)	06:20 20:08	05:42 20:42
24	07:42 17:13	07:02 17:55	06:13 18:31	07:11 (4) 08:25 (4)	06:18 20:09	05:41 20:43
25	07:41 17:14	07:01 17:57	06:11 18:33	07:11 (4) 08:24 (4)	06:17 20:10	05:40 20:44
26	07:40 17:16	06:59 17:58	06:09 18:34	07:11 (4) 08:24 (4)	06:15 20:12	05:39 20:45
27	07:39 17:17	06:57 17:59	06:07 18:35	07:11 (4) 08:23 (4)	06:14 20:13	05:38 20:46
28	07:38 17:18	06:56 18:01	06:06 18:36	07:10 (4) 08:23 (4)	06:12 20:14	05:38 20:47
29	07:37 17:20		06:04 19:37	07:04 09:22 (4)	06:11 20:15	05:37 20:48
30	07:36 17:21		07:02 19:39	08:10 (4) 09:21 (4)	06:09 20:16	05:36 20:49
31	07:35 17:22		07:00 19:40	08:10 (4) 09:20 (4)		05:36 20:50
Potential sun hours	288	292	369	403	457	463
Total, worst case		170	2025	846		

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: K - Shadow Receptor: 1.0 × 1.0 Azimuth: -50.0° Slope: 90.0° (11)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:35 21:02	06:02 20:41	06:37 19:53	08:16 (4) 09:03 (4)	07:12 18:58	08:00 (4) 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	08:14 (4) 09:05 (4)	07:13 18:56	07:58 (2) 09:02 (4)	06:52 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	08:12 (4) 09:06 (4)	07:14 18:54	07:57 (2) 09:00 (4)	06:53 16:37
4	05:37 21:02	06:05 20:37	06:40 19:48	08:11 (4) 09:07 (4)	07:15 18:52	07:56 (2) 08:59 (4)	06:55 16:37
5	05:37 21:02	06:06 20:36	06:42 19:46	08:09 (4) 09:08 (4)	07:16 18:50	07:56 (2) 08:58 (4)	06:56 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	08:08 (4) 09:08 (4)	07:18 18:49	07:55 (2) 08:56 (4)	06:57 16:37
7	05:38 21:01	06:08 20:33	06:44 19:42	08:07 (4) 09:10 (4)	07:19 18:47	07:55 (2) 08:53 (4)	06:59 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	08:06 (4) 09:10 (4)	07:20 18:45	07:54 (2) 08:51 (4)	07:00 16:36
9	05:40 21:00	06:11 20:30	06:46 19:38	08:05 (4) 09:11 (4)	07:21 18:43	07:55 (2) 08:49 (4)	07:01 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	08:04 (4) 09:11 (4)	07:22 18:42	07:55 (2) 08:46 (4)	07:03 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	08:03 (4) 09:11 (4)	07:24 18:40	07:54 (2) 08:42 (4)	07:04 16:36
12	05:42 20:59	06:14 20:26	06:50 19:33	08:02 (4) 09:12 (4)	07:25 18:38	07:54 (2) 08:37 (4)	07:05 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	08:01 (4) 09:12 (4)	07:26 18:36	07:56 (2) 08:30 (2)	07:07 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	08:01 (4) 09:12 (4)	07:27 18:35	07:56 (2) 08:28 (2)	07:08 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	08:00 (4) 09:12 (4)	07:29 18:33	07:56 (2) 08:27 (2)	07:09 16:37
16	05:46 20:56	06:19 20:20	06:54 19:26	08:00 (4) 09:13 (4)	07:30 18:31	07:58 (2) 08:26 (2)	07:11 16:37
17	05:46 20:55	06:20 20:18	06:55 19:24	07:59 (4) 09:13 (4)	07:31 18:29	07:59 (2) 08:24 (2)	07:12 16:37
18	05:47 20:55	06:21 20:17	06:56 19:22	07:59 (4) 09:12 (4)	07:32 18:28	08:01 (2) 08:22 (2)	07:13 16:38
19	05:48 20:54	06:22 20:15	06:58 19:20	07:58 (4) 09:12 (4)	07:34 18:26	08:04 (2) 08:19 (2)	07:14 16:38
20	05:49 20:53	06:23 20:13	06:59 19:18	07:58 (4) 09:11 (4)	07:35 18:24	08:08 (2) 08:14 (2)	07:16 16:38
21	05:50 20:52	06:24 20:12	07:00 19:16	07:58 (4) 09:11 (4)	07:36 18:23		07:17 16:39
22	05:51 20:51	06:25 20:10	07:01 19:14	07:57 (4) 09:10 (4)	07:37 18:21		07:18 16:39
23	05:52 20:50	06:27 20:08	07:02 19:13	07:57 (4) 09:10 (4)	07:39 18:20		07:20 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	07:58 (4) 09:10 (4)	07:40 18:18		07:21 16:40
25	05:54 20:48	06:29 20:05	07:05 19:09	07:58 (4) 09:09 (4)	06:41 17:17		07:22 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	07:58 (4) 09:08 (4)	06:43 17:15		07:23 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	07:58 (4) 09:07 (4)	06:44 17:14		07:25 16:42
28	05:57 20:45	06:32 20:00	07:08 19:03	07:58 (4) 09:06 (4)	06:45 17:12		07:26 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	08:22 (4) 08:59 (4)	06:47 17:11		07:27 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	08:20 (4) 09:00 (4)	06:48 17:09		07:28 16:45
31	06:01 20:42	06:36 19:55	07:11 19:00	08:18 (4) 09:02 (4)	06:49 17:08		07:50 16:45
Potential sun hours	469	434	376	342	290	277	
Total, worst case		195	2008	879			

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: L - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (12)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:08 (12) 23 06:31 (12)	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:35 21:02	06:10 (12) 20 06:30 (12)	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:34 21:02	06:11 (12) 18 06:29 (12)	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:13 (12) 15 06:28 (12)	06:05 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:37 21:01	06:15 (12) 12 06:27 (12)	06:06 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:17 (12) 7 06:24 (12)	06:07 20:34	06:43 19:44	07:17 18:49	06:57 17:00	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:10 (12) 10 06:20 (12)	06:08 20:32	06:44 19:42	07:19 18:47	06:58 16:58	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:08 (12) 14 06:22 (12)	06:10 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:07 (12) 17 06:24 (12)	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:05 (12) 20 06:25 (12)	06:12 20:28	06:47 19:36	07:22 18:41	07:02 16:55	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:42 20:59	06:05 (12) 21 06:26 (12)	06:13 20:27	06:48 19:35	07:23 18:40	07:04 16:54	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:04 (12) 23 06:27 (12)	06:14 20:25	06:49 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:58	05:43 20:58	06:04 (12) 24 06:28 (12)	06:15 20:24	06:51 19:31	07:26 18:36	07:06 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:44 20:57	06:04 (12) 25 06:29 (12)	06:16 20:22	06:52 19:29	07:27 18:35	07:08 16:51	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:45 20:56	06:03 (12) 27 06:30 (12)	06:17 20:21	06:53 19:27	07:28 18:33	07:09 16:50	07:42 16:37
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17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:47 20:55	06:03 (12) 27 06:30 (12)	06:20 20:18	06:55 19:24	07:31 18:29	07:11 16:48	07:44 16:38
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20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:49 20:52	06:03 (12) 28 06:31 (12)	06:23 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:50 20:52	06:04 (12) 28 06:32 (12)	06:24 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:04 (12) 28 06:32 (12)	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:04 (12) 28 06:32 (12)	06:27 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:04 (12) 28 06:32 (12)	06:28 20:06	07:03 19:11	07:40 18:18	07:20 16:42	07:48 16:41
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31	07:35 17:23	07:00 19:40	06:07 20:16	06:07 20:16	05:36 20:49	05:36 20:49	06:01 20:41	06:01 20:41	06:36 19:54	06:49 17:08	06:49 17:08	07:50 16:46	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278	
Total, worst case						589	95						

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: M - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (13)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:07 (12) 06:31 (12)	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38	
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:36 21:02	06:08 (12) 06:31 (12)	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38	
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:09 (12) 06:30 (12)	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38	
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:10 (12) 06:29 (12)	06:05 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37	
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:37 21:01	06:12 (12) 06:28 (12)	06:06 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37	
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:13 (12) 06:26 (12)	06:07 20:34	06:43 19:44	07:17 18:49	06:57 17:00	07:34 16:37	
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:17 (12) 06:24 (12)	06:08 20:32	06:44 19:42	07:19 18:47	06:58 16:58	07:35 16:37	
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9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:05 (12) 06:25 (12)	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:03 (12) 06:25 (12)	05:41 20:59	06:12 20:28	06:47 19:36	07:22 18:41	07:02 16:55	07:38 16:37
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12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:02 (12) 06:27 (12)	05:42 20:58	06:14 20:25	06:49 19:33	07:25 18:38	07:05 16:53	07:40 16:37
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Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278		
Total, worst case						647	123							

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: N - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (14)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:11 (12) 21:02	06:05 (12) 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
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3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:06 (12) 21:02	06:06 (12) 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
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22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	06:01 (12) 20:51	06:25 (12) 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	06:01 (12) 20:50	06:27 (12) 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	06:01 (12) 20:49	06:28 (12) 20:06	07:03 19:11	07:40 18:18	07:20 16:42	07:48 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	06:02 (12) 20:48	06:29 (12) 20:05	07:04 19:09	06:41 17:17	07:22 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	06:02 (12) 20:47	06:30 (12) 20:03	07:06 19:07	06:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	06:03 (12) 20:46	06:31 (12) 20:01	07:07 19:05	06:44 17:14	07:24 16:40	07:49 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	06:03 (12) 20:45	06:32 (12) 20:00	07:08 19:03	06:45 17:12	07:25 16:40	07:49 16:43
29	07:37 17:20	07:04 19:37	06:11 20:15	06:17 20:48	05:37 20:48	05:34 21:02	06:03 (12) 20:44	06:33 (12) 19:58	07:09 19:01	06:46 17:11	07:26 16:39	07:49 16:44
30	07:36 17:21	07:02 19:38	06:09 20:16	06:15 20:49	05:37 20:49	05:35 21:02	06:05 (12) 20:43	06:35 (12) 19:56	07:10 18:59	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:23	07:00 19:40	06:07 20:16	06:13 20:49	05:36 20:49	05:36 20:49	06:01 (12) 20:41	06:36 (12) 19:54	06:49 17:08	07:11 16:39	07:29 16:39	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
Total, worst case						940	272					

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: O - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (15)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:11 (12) 06:21 (12)	06:02 19:53	06:37 18:58	07:11 17:06	06:50 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:36 21:02	06:14 (12) 06:20 (12)	06:03 19:51	06:38 18:56	07:13 17:05	06:52 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:20 (12)	06:04 19:49	06:39 18:54	07:14 17:04	06:53 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:20 (12)	06:05 19:47	06:40 18:52	07:15 17:02	06:54 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:37 21:01	06:20 (12)	06:06 19:46	06:41 18:50	07:16 17:01	06:56 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:20 (12)	06:07 19:44	06:43 18:49	07:17 17:00	06:57 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:20 (12)	06:08 19:42	06:44 18:47	07:19 16:58	06:58 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:20 (12)	06:10 19:40	06:45 18:45	07:20 16:57	07:00 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:20 (12)	06:11 19:38	06:46 18:43	07:21 16:56	07:01 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:10 (12) 06:13 (12)	06:12 19:36	06:47 18:41	07:22 16:55	07:02 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:42 20:59	06:07 (12) 06:16 (12)	06:13 19:35	06:48 18:40	07:23 16:54	07:04 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:06 (12) 06:18 (12)	06:14 19:33	06:49 18:38	07:25 16:53	07:05 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:58	05:43 20:58	06:05 (12) 06:20 (12)	06:15 19:31	06:51 18:36	07:26 16:52	07:06 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:44 20:57	06:05 (12) 06:21 (12)	06:16 19:29	06:52 18:35	07:27 16:51	07:08 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:45 20:56	06:04 (12) 06:22 (12)	06:17 19:27	06:53 18:33	07:28 16:50	07:09 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:04 (12) 06:23 (12)	06:19 19:25	06:54 18:31	07:30 16:49	07:10 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:47 20:55	06:03 (12) 06:23 (12)	06:20 19:24	06:55 18:29	07:31 16:48	07:11 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:48 20:54	06:03 (12) 06:24 (12)	06:21 19:22	06:56 18:28	07:32 16:47	07:13 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:49 20:53	06:03 (12) 06:24 (12)	06:22 19:20	06:57 18:26	07:33 16:46	07:14 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:49 20:52	06:03 (12) 06:24 (12)	06:23 19:18	06:59 18:24	07:35 16:45	07:15 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:50 20:52	06:04 (12) 06:25 (12)	06:24 19:16	07:00 18:23	07:36 16:44	07:17 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:04 (12) 06:25 (12)	06:25 19:14	07:01 18:21	07:37 16:43	07:18 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:04 (12) 06:25 (12)	06:27 19:12	07:02 18:20	07:39 16:43	07:19 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:04 (12) 06:25 (12)	06:28 20:06	07:03 19:11	07:40 18:18	07:20 16:42
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	05:54 20:48	06:05 (12) 06:25 (12)	06:29 20:05	07:04 19:09	06:41 17:17	07:22 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	05:55 20:47	06:06 (12) 06:25 (12)	06:30 19:07	07:06 17:15	06:42 16:41	07:23 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	05:56 20:46	06:07 (12) 06:25 (12)	06:31 19:05	07:07 17:14	06:44 16:40	07:24 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	05:57 20:45	06:07 (12) 06:24 (12)	06:32 20:00	07:08 19:03	06:45 17:12	07:25 16:40
29	07:37 17:20	07:04 19:37	06:11 20:15	06:17 20:48	05:37 20:48	05:34 21:02	05:59 20:44	06:08 (12) 06:23 (12)	06:33 19:58	07:09 19:01	06:46 17:11	07:26 16:39
30	07:36 17:21	07:02 19:38	06:09 20:16	06:15 20:49	05:37 20:49	05:35 21:02	06:00 20:43	06:10 (12) 06:23 (12)	06:35 19:56	07:10 18:59	06:48 17:09	07:28 16:39
31	07:35 17:23	07:00 19:40	06:07 20:16	06:13 20:49	05:36 20:49	05:36 20:49	06:01 20:41	06:23 (12)	06:36 19:54	06:49 17:08	07:50 16:46	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
Total, worst case						361	16					

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: P - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (16)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:12 (12) 06:18 (12)	06:02 19:53	06:37 18:58	07:11 17:06	06:50 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:36 21:02	06:03 19:51	06:38 18:56	07:13 17:05	06:52 16:38	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 19:49	06:39 18:54	07:14 17:04	06:53 16:38	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:05 19:47	06:40 18:52	07:15 17:02	06:54 16:37	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:37 21:01	06:06 19:46	06:41 18:50	07:16 17:01	06:56 16:37	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:07 19:44	06:43 18:49	07:17 17:00	06:57 16:37	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:08 19:42	06:44 18:47	07:19 16:58	06:58 16:37	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:10 19:40	06:45 18:45	07:20 16:57	07:00 16:37	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:11 19:38	06:46 18:43	07:21 16:56	07:01 16:37	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 19:36	06:47 18:41	07:22 16:55	07:02 16:37	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:42 20:59	06:13 19:35	06:48 18:40	07:23 16:54	07:04 16:37	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 19:33	06:49 18:38	07:25 16:53	07:05 16:37	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:58	05:43 20:58	06:15 19:31	06:51 18:36	07:26 16:52	07:06 16:37	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:44 20:57	06:16 19:29	06:52 18:35	07:27 16:51	07:08 16:37	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:45 20:56	06:17 19:27	06:53 18:33	07:28 16:50	07:09 16:37	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 19:25	06:54 18:31	07:30 16:49	07:10 16:37	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:47 20:55	06:20 19:24	06:55 18:29	07:31 16:48	07:11 16:38	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:48 20:54	06:21 19:22	06:56 18:28	07:32 16:47	07:13 16:38	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:49 20:53	06:22 19:20	06:57 18:26	07:33 16:46	07:14 16:38	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:49 20:52	06:23 19:18	06:59 18:24	07:35 16:45	07:15 16:39	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:50 20:52	06:24 19:16	07:00 18:23	07:36 16:44	07:17 16:39	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:25 19:14	07:01 18:21	07:37 16:43	07:18 16:40	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 19:12	07:02 18:20	07:39 16:43	07:19 16:40	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 19:11	07:03 18:18	07:40 16:42	07:20 16:41	07:48 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	05:54 20:48	06:29 19:09	07:04 17:17	06:41 16:41	07:22 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	05:55 20:47	06:30 19:07	07:06 17:15	06:42 16:41	07:23 16:42	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	05:56 20:46	06:31 19:05	07:07 17:14	06:44 16:40	07:24 16:43	07:49 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	05:57 20:45	06:32 19:03	07:08 17:12	06:45 16:40	07:25 16:43	07:49 16:43
29	07:37 17:20		07:04 19:37	06:11 20:15	05:37 20:48	05:34 21:02	05:59 20:44	06:33 19:58	07:09 19:01	06:46 17:11	07:26 16:39	07:49 16:44
30	07:36 17:21		07:02 19:38	06:09 20:16	05:37 20:49	05:35 21:02	06:00 20:43	06:35 19:56	07:10 18:59	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:23		07:00 19:40		05:36 20:49		06:01 20:41	06:36 19:54		06:49 17:08		07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
Total, worst case						303	6					

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: Q - Shadow Receptor: 1.0 × 1.0 Azimuth: -170.0° Slope: 90.0° (17)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50	07:34	06:54	06:58	06:08	05:35	05:35	06:02	06:37	07:11	06:50	07:29	
	16:47	17:24	18:02	19:41	20:17	20:50	21:02	20:40	19:53	18:58	17:06	16:38	
2	07:50	07:33	06:52	06:56	06:06	05:35	05:36	06:03	06:38	07:13	06:52	07:30	
	16:48	17:25	18:03	19:42	20:18	20:51	21:02	20:39	19:51	18:56	17:05	16:38	
3	07:50	07:31	06:50	06:55	06:05	05:34	05:36	06:04	06:39	07:14	06:53	07:31	
	16:48	17:27	18:05	19:43	20:20	20:52	21:02	20:38	19:49	18:54	17:04	16:38	
4	07:50	07:30	06:49	06:53	06:04	05:34	05:37	06:05	06:40	07:15	06:54	07:32	
	16:49	17:28	18:06	19:45	20:21	20:53	21:01	20:36	19:47	18:52	17:02	16:37	
5	07:50	07:29	06:47	06:51	06:02	05:33	05:37	06:06	06:41	07:16	06:56	07:33	
	16:50	17:29	18:07	19:46	20:22	20:53	21:01	20:35	19:46	18:50	17:01	16:37	
6	07:50	07:28	06:45	06:49	06:01	05:33	05:38	06:07	06:43	07:17	06:57	07:34	
	16:51	17:31	18:09	19:47	20:23	20:54	21:01	20:34	19:44	18:49	17:00	16:37	
7	07:50	07:27	06:43	06:47	06:00	05:33	05:39	06:08	06:44	07:19	06:58	07:35	
	16:52	17:32	18:10	19:48	20:24	20:55	21:00	20:32	19:42	18:47	16:58	16:37	
8	07:50	07:25	06:42	06:46	05:58	05:32	05:39	06:10	06:45	07:20	07:00	07:36	
	16:53	17:34	18:11	19:49	20:26	20:56	21:00	20:31	19:40	18:45	16:57	16:37	
9	07:49	07:24	06:40	06:44	05:57	05:32	05:40	06:11	06:46	07:21	07:01	07:37	
	16:55	17:35	18:12	19:51	20:27	20:56	21:00	20:30	19:38	18:43	16:56	16:37	
10	07:49	07:23	06:38	06:42	05:56	05:32	05:41	06:12	06:47	07:22	07:02	07:38	
	16:56	17:36	18:14	19:52	20:28	20:57	20:59	20:28	19:36	18:41	16:55	16:37	
11	07:49	07:21	06:36	06:40	05:54	05:32	05:42	06:13	06:48	07:23	07:04	07:39	
	16:57	17:38	18:15	19:53	20:29	20:57	20:59	20:27	19:35	18:40	16:54	16:37	
12	07:49	07:20	06:34	06:39	05:53	05:31	05:42	06:14	06:49	07:25	07:05	07:40	
	16:58	17:39	18:16	19:54	20:30	20:58	20:58	20:25	19:33	18:38	16:53	16:37	
13	07:48	07:19	06:33	06:37	05:52	05:31	6 06:07 (12)	05:43	06:15	06:51	07:26	07:06	07:41
	16:59	17:41	18:17	19:55	20:31	20:58	6 06:13 (12)	20:58	20:24	19:31	18:36	16:52	16:37
14	07:48	07:17	06:31	06:35	05:51	05:31	9 06:06 (12)	05:44	06:16	06:52	07:27	07:08	07:42
	17:00	17:42	18:19	19:57	20:32	20:59	9 06:15 (12)	20:57	20:22	19:29	18:35	16:51	16:37
15	07:47	07:16	06:29	06:33	05:50	05:31	11 06:05 (12)	05:45	06:17	06:53	07:28	07:09	07:42
	17:01	17:43	18:20	19:58	20:33	20:59	11 06:16 (12)	20:56	20:21	19:27	18:33	16:50	16:37
16	07:47	07:14	06:27	06:32	05:49	05:31	13 06:04 (12)	05:46	06:19	06:54	07:30	07:10	07:43
	17:03	17:45	18:21	19:59	20:35	21:00	13 06:17 (12)	20:56	20:19	19:25	18:31	16:49	16:37
17	07:46	07:13	06:25	06:30	05:48	05:31	14 06:04 (12)	05:47	06:20	06:55	07:31	07:11	07:44
	17:04	17:46	18:22	20:00	20:36	21:00	14 06:18 (12)	20:55	20:18	19:24	18:29	16:48	16:38
18	07:46	07:11	06:24	06:28	05:47	05:31	16 06:03 (12)	05:48	06:21	06:56	07:32	07:13	07:44
	17:05	17:47	18:24	20:02	20:37	21:01	16 06:19 (12)	20:54	20:16	19:22	18:28	16:47	16:38
19	07:45	07:10	06:22	06:27	05:46	05:31	16 06:03 (12)	05:49	06:22	06:57	07:33	07:14	07:45
	17:06	17:49	18:25	20:03	20:38	21:01	16 06:19 (12)	20:53	20:15	19:20	18:26	16:46	16:38
20	07:44	07:08	06:20	06:25	05:45	05:31	16 06:03 (12)	05:49	06:23	06:59	07:35	07:15	07:46
	17:08	17:50	18:26	20:04	20:39	21:01	16 06:19 (12)	20:52	20:13	19:18	18:24	16:45	16:39
21	07:44	07:07	06:18	06:23	05:44	05:32	16 06:04 (12)	05:50	06:24	07:00	07:36	07:17	07:46
	17:09	17:51	18:27	20:05	20:40	21:01	16 06:20 (12)	20:52	20:11	19:16	18:23	16:44	16:39
22	07:43	07:05	06:16	06:22	05:43	05:32	16 06:04 (12)	05:51	06:25	07:01	07:37	07:18	07:47
	17:10	17:53	18:29	20:06	20:41	21:02	16 06:20 (12)	20:51	20:10	19:14	18:21	16:43	16:40
23	07:42	07:04	06:15	06:20	05:42	05:32	16 06:04 (12)	05:52	06:27	07:02	07:39	07:19	07:47
	17:12	17:54	18:30	20:08	20:42	21:02	16 06:20 (12)	20:50	20:08	19:12	18:20	16:43	16:40
24	07:41	07:02	06:13	06:19	05:41	05:32	16 06:04 (12)	05:53	06:28	07:03	07:40	07:20	07:48
	17:13	17:55	18:31	20:09	20:43	21:02	16 06:20 (12)	20:49	20:06	19:11	18:18	16:42	16:41
25	07:40	07:00	06:11	06:17	05:40	05:33	14 06:06 (12)	05:54	06:29	07:04	06:41	07:22	07:48
	17:14	17:57	18:32	20:10	20:44	21:02	14 06:20 (12)	20:48	20:05	19:09	17:17	16:41	16:41
26	07:40	06:59	06:09	06:15	05:39	05:33	14 06:06 (12)	05:55	06:30	07:06	06:42	07:23	07:49
	17:16	17:58	18:34	20:11	20:45	21:02	14 06:20 (12)	20:47	20:03	19:07	17:15	16:41	16:42
27	07:39	06:57	06:07	06:14	05:39	05:33	13 06:07 (12)	05:56	06:31	07:07	06:44	07:24	07:49
	17:17	17:59	18:35	20:12	20:46	21:02	13 06:20 (12)	20:46	20:01	19:05	17:14	16:40	16:43
28	07:38	06:55	06:05	06:12	05:38	05:34	10 06:08 (12)	05:57	06:32	07:08	06:45	07:25	07:49
	17:18	18:01	18:36	20:14	20:47	21:02	10 06:18 (12)	20:45	20:00	19:03	17:12	16:40	16:43
29	07:37		07:04	06:11	05:37	05:34	7 06:10 (12)	05:59	06:33	07:09	06:46	07:26	07:49
	17:20		19:37	20:15	20:48	21:02	7 06:17 (12)	20:44	19:58	19:01	17:11	16:39	16:44
30	07:36		07:02	06:09	05:37	05:35		06:00	06:35	07:10	06:48	07:28	07:50
	17:21		19:38	20:16	20:49	21:02		20:43	19:56	18:59	17:09	16:39	16:45
31	07:35		07:00		05:36			06:01	06:36		06:49		07:50
	17:23		19:40		20:49			20:41	19:54		17:08		16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278	
Total, worst case						223							

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: R - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (18)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:03 (12) 06:02	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:36 21:02	06:04 (12) 06:30 (12)	06:03 20:39	07:13 19:51	06:52 18:56	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:05 (12) 06:29 (12)	06:04 20:38	07:14 19:49	06:53 18:54	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:06 (12) 06:29 (12)	06:05 20:36	07:15 19:47	06:54 18:52	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:37 21:01	06:05 (12) 06:29 (12)	06:06 20:35	07:16 19:46	06:56 18:50	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:03 (12) 06:27 (12)	06:07 20:34	07:17 19:44	06:57 18:49	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:02 (12) 06:26 (12)	06:08 20:32	07:19 19:42	06:58 18:47	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:01 (12) 06:24 (12)	06:10 20:31	07:20 19:40	07:00 18:45	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:01 (12) 06:25 (12)	06:11 20:30	07:21 19:38	07:01 18:43	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:02 (12) 06:25 (12)	06:12 20:29	07:22 19:36	07:02 18:41	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:42 20:59	06:03 (12) 06:26 (12)	06:13 20:27	07:23 19:35	07:04 18:40	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:04 (12) 06:27 (12)	06:14 20:25	07:25 19:33	07:05 18:38	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:59	05:43 20:58	06:05 (12) 06:28 (12)	06:15 20:24	07:26 19:31	07:06 18:36	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:44 20:57	06:06 (12) 06:29 (12)	06:16 20:22	07:27 19:29	07:08 18:35	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:45 20:56	06:07 (12) 06:29 (12)	06:17 20:21	07:28 19:27	07:09 18:33	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:08 (12) 06:29 (12)	06:19 20:19	07:30 19:25	07:10 18:31	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:47 20:55	06:09 (12) 06:30 (12)	06:20 20:18	07:31 19:24	07:11 18:29	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:48 20:54	06:10 (12) 06:30 (12)	06:21 20:16	07:32 19:22	07:13 18:28	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:49 20:53	06:11 (12) 06:30 (12)	06:22 20:15	07:33 19:20	07:14 18:26	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:49 20:52	06:12 (12) 06:30 (12)	06:23 20:13	07:35 19:18	07:15 18:24	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:50 20:52	06:13 (12) 06:31 (12)	06:24 20:11	07:36 19:16	07:17 18:23	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:14 (12) 06:31 (12)	06:25 20:10	07:37 19:14	07:18 18:21	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:15 (12) 06:31 (12)	06:27 20:08	07:39 19:12	07:19 18:20	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:16 (12) 06:00 (12)	06:28 20:06	07:40 19:11	07:20 18:18	07:48 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	05:54 20:48	06:17 (12) 06:32 (12)	06:29 20:05	07:41 19:09	07:22 17:17	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	05:55 20:47	06:18 (12) 06:31 (12)	06:30 20:03	07:42 19:07	07:23 17:15	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	05:56 20:46	06:19 (12) 06:32 (12)	06:31 20:01	07:43 19:05	07:24 17:14	07:49 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	05:57 20:45	06:01 (12) 06:31 (12)	06:32 20:00	07:44 19:03	07:25 17:12	07:49 16:43
29	07:37 17:20	07:04 19:37	06:11 20:15	06:17 20:48	05:37 20:48	05:34 21:02	05:59 20:44	06:02 (12) 06:31 (12)	06:33 19:58	07:45 19:01	07:26 17:11	07:49 16:44
30	07:36 17:21	07:02 19:38	06:09 20:16	06:15 20:49	05:37 20:49	05:35 21:02	06:00 20:43	06:03 (12) 06:31 (12)	06:35 19:56	07:46 18:59	07:28 17:09	07:50 16:45
31	07:35 17:23	07:00 19:40	06:07 20:16	06:13 20:49	05:36 20:49	05:36 20:50	06:01 20:41	06:04 (12) 19:54	06:36 19:54	07:47 17:08	07:29 17:08	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
Total, worst case						747	175					

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:
WON038

Licensed user:
Iron solar s.r.l.
via Lanzone, 31
IT-20122 Milano
+393487125089
Fabio Paccapelo / francesca.saccarola@hopegroup.it
Calculated:
10/04/2024 19:53/3.6.377

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: S - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (19)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December			
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:06 (12) 21:02	05:35 21:02	06:02 (12) 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38		
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:05 (12) 21:02	05:36 21:02	06:04 (12) 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38		
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:03 (12) 21:02	05:36 21:02	06:04 (12) 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38		
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	06:02 (12) 21:01	05:37 21:01	06:05 (12) 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37		
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	06:02 (12) 21:01	05:37 21:01	06:06 (12) 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37		
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	06:00 (12) 21:01	05:38 21:01	06:06 (12) 20:34	06:43 19:44	07:17 18:49	06:57 17:00	07:34 16:37		
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	06:00 (12) 21:00	05:39 21:00	06:08 (12) 20:32	06:44 19:42	07:19 18:47	06:58 17:00	07:35 16:37		
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15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:58 (12) 20:56	05:45 20:56	06:17 (12) 20:21	06:53 19:27	07:28 18:33	07:09 16:50	07:42 16:37		
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17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:58 (12) 20:55	05:47 20:55	06:20 (12) 20:18	06:55 19:24	07:31 18:29	07:11 16:48	07:44 16:38		
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:58 (12) 20:54	05:48 20:54	06:21 (12) 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38		
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:58 (12) 20:53	05:49 20:53	06:22 (12) 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38		
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:58 (12) 20:52	05:49 20:52	06:23 (12) 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39		
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:59 (12) 20:52	05:50 20:52	06:24 (12) 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39		
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:59 (12) 20:51	05:51 20:51	06:25 (12) 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40		
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Potential sun hours	288	292	369	403	457	11	463	1010	469	327	434	376	342	290	278
Total, worst case						11	1010		469	327	434	376	342	290	278

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

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

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: T - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (20)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:04 (12) 21:02	05:35 21:02	06:01 (12) 20:40	06:02 19:53	06:37 18:58	07:11 17:06	06:50 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:03 (12) 21:02	05:36 21:02	06:03 (12) 20:39	06:03 19:51	06:38 18:56	07:13 17:05	06:52 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:01 (12) 21:02	05:36 21:02	06:03 (12) 20:38	06:04 19:49	06:39 18:54	07:14 17:04	06:53 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	06:01 (12) 21:01	05:37 21:01	06:04 (12) 20:36	06:05 19:47	06:40 18:52	07:15 17:02	06:54 16:37
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12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	06:01 (12) 21:00	05:43 21:00	06:12 (12) 20:25	06:14 19:33	06:49 18:38	07:25 17:05	07:05 16:37
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19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	06:01 (12) 21:00	05:49 21:00	06:22 (12) 20:15	06:25 19:20	06:57 18:26	07:33 17:14	07:14 16:38
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Potential sun hours	288	292	369	403	457	463	469	360	434	376	342	290	278
Total, worst case					24	1044							

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: U - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (21)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:03 (12) 21:02	06:05 (12) 20:40	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
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12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	06:01 (12) 20:58	06:12 (12) 20:25	06:14 20:25	06:49 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:59	06:01 (12) 20:58	06:12 (12) 20:24	06:15 20:24	06:51 19:31	07:26 18:36	07:06 16:52	07:41 16:37
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29	07:37 17:20	07:04 19:37	06:04 20:15	06:11 20:48	05:37 20:48	05:34 21:02	06:05 (12) 20:44	06:33 (12) 20:44	06:33 19:58	07:09 19:01	06:46 17:11	07:26 16:39	07:49 16:44
30	07:36 17:21	07:02 19:38	06:03 20:16	06:09 20:49	05:37 20:49	05:35 21:02	06:05 (12) 20:43	06:34 (12) 20:43	06:35 19:56	07:10 18:59	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:23	07:00 19:40	06:02 20:16	06:08 20:49	05:36 20:49	05:36 21:02	06:06 (12) 20:41	06:35 (12) 20:41	06:36 19:54	07:09 18:54	06:49 17:08	07:29 16:46	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278	
Total, worst case					270	1403	770						

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

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

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: V - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (22)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:02 (12) 21:02	05:35 21:02	06:04 (12) 20:40	06:02 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:02 (12) 21:02	05:36 21:02	06:05 (12) 20:39	06:03 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:01 (12) 21:02	05:36 21:02	06:04 (12) 20:38	06:04 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	06:01 (12) 21:01	05:37 21:01	06:05 (12) 20:36	06:05 19:47	07:15 18:52	06:54 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	06:01 (12) 21:01	05:37 21:01	06:06 (12) 20:35	06:06 19:46	07:16 18:50	06:56 17:01	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	06:00 (12) 21:01	05:38 21:01	06:06 (12) 20:34	06:07 19:44	07:17 18:49	06:57 17:00	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	06:00 (12) 21:00	05:39 21:00	06:07 (12) 20:32	06:08 19:42	07:19 18:47	06:58 17:00	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	06:00 (12) 21:00	05:39 21:00	06:08 (12) 20:31	06:10 19:40	07:20 18:45	07:00 17:00	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	06:00 (12) 21:00	05:40 21:00	06:08 (12) 20:30	06:11 19:38	07:21 18:43	07:01 17:00	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	06:00 (12) 20:59	05:41 20:59	06:09 (12) 20:28	06:12 19:36	07:22 18:41	07:02 17:00	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	06:00 (12) 20:59	05:42 20:59	06:10 (12) 20:27	06:13 19:35	07:23 18:40	07:04 17:00	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	06:00 (12) 20:58	05:42 20:58	06:11 (12) 20:25	06:14 19:33	07:25 18:38	07:05 17:00	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:59	06:00 (12) 20:58	05:43 20:58	06:12 (12) 20:24	06:15 19:31	07:26 18:36	07:06 17:00	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	06:00 (12) 20:57	05:44 20:57	06:13 (12) 20:22	06:16 19:29	07:27 18:35	07:08 17:00	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	06:00 (12) 20:56	05:45 20:56	06:14 (12) 20:21	06:19 19:27	07:28 18:33	07:09 17:00	07:43 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	06:00 (12) 20:56	05:46 20:56	06:15 (12) 20:19	06:20 19:25	07:29 18:31	07:10 17:00	07:44 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	06:00 (12) 20:55	05:47 20:55	06:16 (12) 20:18	06:22 19:24	07:30 18:29	07:11 17:00	07:45 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	06:00 (12) 20:54	05:48 20:54	06:17 (12) 20:16	06:23 19:22	07:31 18:28	07:13 17:00	07:46 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	06:00 (12) 20:53	05:49 20:53	06:18 (12) 20:15	06:24 19:20	07:32 18:26	07:14 17:00	07:47 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	06:00 (12) 20:52	05:49 20:52	06:19 (12) 20:13	06:25 19:18	07:33 18:24	07:15 17:00	07:48 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	06:01 (12) 20:52	05:50 20:52	06:20 (12) 20:11	06:26 19:16	07:34 18:23	07:17 17:00	07:49 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	06:01 (12) 20:51	05:51 20:51	06:21 (12) 20:10	06:27 19:14	07:35 18:21	07:18 17:00	07:50 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	06:01 (12) 20:50	05:52 20:50	06:22 (12) 20:08	06:28 19:12	07:36 18:20	07:19 17:00	07:51 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	06:01 (12) 20:49	05:53 20:49	06:23 (12) 20:06	06:29 19:11	07:37 18:18	07:20 17:00	07:52 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	06:02 (12) 20:48	05:54 20:48	06:24 (12) 20:05	06:29 19:09	07:38 18:17	07:22 17:00	07:53 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	06:02 (12) 20:47	05:55 20:47	06:25 (12) 20:03	06:30 19:07	07:39 18:15	07:23 17:00	07:54 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	06:03 (12) 20:46	05:56 20:46	06:26 (12) 20:01	06:31 19:05	07:40 18:14	07:24 17:00	07:55 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	06:04 (12) 20:45	05:57 20:45	06:27 (12) 20:00	06:32 19:03	07:41 18:12	07:25 17:00	07:56 16:43
29	07:37 17:20	07:04 18:00	06:04 19:04	06:11 20:15	05:37 20:48	05:34 21:02	06:04 (12) 20:44	05:59 20:44	06:28 (12) 19:58	06:33 19:01	07:42 18:11	07:26 17:00	07:57 16:44
30	07:36 17:21	07:02 18:00	06:03 19:06	06:09 20:16	05:37 20:49	05:35 21:02	06:03 (12) 20:43	06:00 20:43	06:29 (12) 19:56	06:35 18:59	07:43 18:09	07:28 17:00	07:58 16:45
31	07:35 17:23	07:00 18:00	06:02 19:06	06:08 20:16	05:36 20:49	05:36 21:02	06:04 (12) 20:42	06:01 20:42	06:30 (12) 19:54	06:36 18:57	07:44 18:08	07:29 17:00	07:59 16:46
Potential sun hours	288	292	369	403	457	463	469	469	434	376	342	290	278
Total, worst case					275	1394	774						

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

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

SHADOW - Calendar

Calculation: WON038_ShadowFlickering Shadow receptor: W - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (23)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:59 (12) 06:41 (12)	05:35 21:02	06:02 (12) 06:50 (12)	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:00 (12) 06:42 (12)	05:36 21:02	06:03 (12) 06:51 (12)	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:59 (12) 06:42 (12)	05:36 21:02	06:03 (12) 06:50 (12)	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:59 (12) 06:43 (12)	05:37 21:01	06:04 (12) 06:50 (12)	06:05 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:59 (12) 06:44 (12)	05:37 21:01	06:05 (12) 06:51 (12)	06:06 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:58 (12) 06:44 (12)	05:38 21:01	06:04 (12) 06:50 (12)	06:07 20:34	06:43 19:44	07:17 18:49	06:57 17:00	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:59 (12) 06:44 (12)	05:39 21:00	06:05 (12) 06:50 (12)	06:08 20:32	06:44 19:42	07:19 18:47	06:58 16:58	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:59 (12) 06:45 (12)	05:39 21:00	06:06 (12) 06:51 (12)	06:10 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:59 (12) 06:46 (12)	05:40 21:00	06:06 (12) 06:50 (12)	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:58 (12) 06:45 (12)	05:41 20:59	06:07 (12) 06:50 (12)	06:12 20:28	06:47 19:36	07:22 18:41	07:02 16:55	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:58 (12) 06:46 (12)	05:42 20:59	06:08 (12) 06:50 (12)	06:13 20:27	06:48 19:35	07:23 18:40	07:04 16:54	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:59 (12) 06:46 (12)	05:42 20:58	06:08 (12) 06:50 (12)	06:14 20:25	06:49 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:59	05:59 (12) 06:47 (12)	05:43 20:58	06:08 (12) 06:48 (12)	06:15 20:24	06:51 19:31	07:26 18:36	07:06 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:59 (12) 06:47 (12)	05:44 20:57	06:09 (12) 06:48 (12)	06:16 20:22	06:52 19:29	07:27 18:35	07:08 16:51	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:59 (12) 06:47 (12)	05:45 20:56	06:10 (12) 06:48 (12)	06:17 20:21	06:53 19:27	07:28 18:33	07:09 16:50	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:59 (12) 06:48 (12)	05:46 20:56	06:11 (12) 06:47 (12)	06:19 20:19	06:54 19:25	07:30 18:31	07:10 16:49	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:23	06:30 20:00	05:48 20:36	05:31 21:00	05:59 (12) 06:48 (12)	05:47 20:55	06:12 (12) 06:47 (12)	06:20 20:18	06:55 19:24	07:31 18:29	07:11 16:48	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:59 (12) 06:48 (12)	05:48 20:54	06:13 (12) 06:46 (12)	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:59 (12) 06:48 (12)	05:49 20:53	06:14 (12) 06:45 (12)	06:22 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	6 06:11 (12) 06:27 (12)	05:59 (12) 06:48 (12)	05:49 20:52	06:15 (12) 06:43 (12)	06:23 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	20 06:10 (12) 06:30 (12)	05:59 (12) 06:49 (12)	05:50 20:52	06:16 (12) 06:42 (12)	06:24 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	24 06:08 (12) 06:32 (12)	05:59 (12) 06:49 (12)	05:51 20:51	06:18 (12) 06:40 (12)	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	27 06:06 (12) 06:33 (12)	05:59 (12) 06:49 (12)	05:52 20:50	06:20 (12) 06:38 (12)	06:27 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	29 06:05 (12) 06:34 (12)	05:59 (12) 06:49 (12)	05:53 20:49	06:23 (12) 06:36 (12)	06:28 20:06	07:03 19:11	07:40 18:18	07:20 16:42	07:48 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	32 06:03 (12) 06:35 (12)	05:59 (12) 06:50 (12)	05:54 20:48	06:29 (12) 06:50 (12)	06:29 20:05	07:04 19:09	07:41 17:17	07:22 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	34 06:03 (12) 06:37 (12)	05:59 (12) 06:50 (12)	05:55 20:47	06:30 (12) 06:50 (12)	06:30 20:03	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	36 06:02 (12) 06:38 (12)	05:59 (12) 06:50 (12)	05:56 20:46	06:31 (12) 06:50 (12)	06:31 20:01	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	37 06:01 (12) 06:38 (12)	05:59 (12) 06:50 (12)	05:57 20:45	06:32 (12) 06:50 (12)	06:32 20:00	07:08 19:03	07:44 17:12	07:25 16:40	07:49 16:43
29	07:37 17:20	06:54 18:02	06:04 18:37	06:11 20:15	05:37 20:48	38 06:01 (12) 06:39 (12)	05:59 (12) 06:50 (12)	05:59 20:44	06:33 (12) 06:50 (12)	06:33 19:58	07:09 19:01	07:45 17:11	07:26 16:39	07:49 16:44
30	07:36 17:21	06:53 18:03	06:03 18:38	06:10 20:16	05:37 20:49	40 06:00 (12) 06:40 (12)	05:59 (12) 06:50 (12)	06:00 20:43	06:35 (12) 06:50 (12)	06:35 19:56	07:10 18:59	07:46 17:09	07:28 16:39	07:50 16:45
31	07:35 17:23	06:52 18:04	06:02 18:39	06:09 20:17	05:36 20:50	41 06:00 (12) 06:41 (12)	05:59 (12) 06:50 (12)	06:01 20:43	06:36 (12) 06:50 (12)	06:36 19:54	07:11 18:58	07:47 17:08	07:29 16:38	07:50 16:46
Potential sun hours	288	292	369	403	457	463	469	491	434	376	342	290	278	
Total, worst case					380	1416	901							

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: X - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (24)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:00 (12) 21:02	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:00 (12) 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:00 (12) 21:02	06:04 (12) 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	06:00 (12) 21:01	06:05 (12) 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
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16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	06:00 (12) 20:56	06:18 (12) 20:19	06:54 19:25	07:30 18:31	07:10 16:49	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:23	06:30 20:00	05:48 20:36	05:31 12 06:15 (12)	06:01 (12) 20:57	06:19 (12) 20:18	06:55 19:24	07:31 18:29	07:11 16:48	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 18 06:30 (12)	06:01 (12) 21:01	06:20 (12) 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 22 06:10 (12)	06:01 (12) 21:01	06:21 (12) 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 26 06:34 (12)	06:01 (12) 21:01	06:22 (12) 20:52	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 29 06:36 (12)	06:02 (12) 21:01	06:23 (12) 20:52	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 31 06:37 (12)	06:02 (12) 21:02	06:24 (12) 20:51	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40
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24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 35 06:39 (12)	06:02 (12) 21:02	06:26 (12) 20:49	07:03 19:11	07:40 18:18	07:20 16:42	07:48 16:41
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26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 38 06:41 (12)	06:03 (12) 21:02	06:28 (12) 20:47	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 39 06:42 (12)	06:03 (12) 21:02	06:29 (12) 20:46	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:43
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 41 06:43 (12)	06:03 (12) 21:02	06:30 (12) 20:45	07:08 19:03	07:44 17:12	07:25 16:40	07:49 16:43
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Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
Total, worst case					487	1449	1030					

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: Y - Shadow Receptor: 1.0 × 1.0 Azimuth: -150.0° Slope: 90.0° (25)
Assumptions for shadow calculations

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

	January	February	March	April	May	June	July	August	September	October	November	December			
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:06 (12) 06:55 (12)	05:35 21:02	06:12 (12) 07:01 (12)	06:02 20:40	06:26 (12) 06:54 (12)	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:07 (12) 06:56 (12)	05:36 21:02	06:12 (12) 07:02 (12)	06:03 20:39	06:28 (12) 06:52 (12)	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	06:06 (12) 06:55 (12)	05:36 21:02	06:12 (12) 07:01 (12)	06:04 20:38	06:30 (12) 06:54 (12)	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	06:07 (12) 06:56 (12)	05:37 21:01	06:13 (12) 07:02 (12)	06:05 20:36	06:33 (12) 06:46 (12)	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
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Potential sun hours	288	292	369	403	457	463	469	434	84	376	342	290	278		
Total, worst case					921	1479	1402								

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

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

Calculation: WON038_ShadowFlickering Shadow receptor: Z - Shadow Receptor: 1.0 × 1.0 Azimuth: -140.0° Slope: 90.0° (26)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	06:16 (12) 21:02	06:02 20:40	06:29 (12) 19:53	06:37 18:58	07:11 17:06	06:50 16:38	
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10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	06:21 (12) 20:57	06:18 (12) 20:59	06:12 20:28	06:46 (12) 19:36	06:47 18:41	07:22 16:55	07:38 16:37	
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	06:20 (12) 20:57	06:18 (12) 20:59	06:13 20:27	06:46 (12) 19:35	06:48 18:40	07:23 16:54	07:39 16:37	
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	05:53 20:30	06:19 (12) 20:58	06:19 (12) 20:58	06:14 20:25	06:47 (12) 19:33	06:49 18:38	07:25 16:53	07:40 16:37	
13	07:48 16:59	07:19 17:41	06:33 18:18	06:37 19:55	05:52 20:31	06:18 (12) 20:59	06:19 (12) 20:58	06:15 20:24	06:51 (12) 19:31	06:51 18:36	07:26 16:52	07:41 16:37	
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	06:17 (12) 20:59	06:19 (12) 20:57	06:16 20:22	06:52 (12) 19:29	06:52 18:35	07:27 16:51	07:42 16:37	
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	06:17 (12) 20:59	06:20 (12) 20:56	06:17 20:21	06:53 (12) 19:27	06:53 18:33	07:28 16:50	07:42 16:37	
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	06:16 (12) 21:00	06:20 (12) 20:56	06:19 20:20	06:54 (12) 19:25	06:54 18:31	07:30 16:49	07:43 16:37	
17	07:46 17:04	07:13 17:46	06:25 18:23	06:30 20:00	05:48 20:36	06:16 (12) 21:00	06:20 (12) 20:55	06:20 20:21	06:55 (12) 19:24	06:55 18:29	07:31 16:48	07:44 16:38	
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	06:15 (12) 21:01	06:20 (12) 20:54	06:21 20:22	06:56 (12) 19:22	06:56 18:28	07:32 16:47	07:44 16:38	
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	06:15 (12) 21:01	06:20 (12) 20:53	06:22 20:23	06:57 (12) 19:20	06:57 18:26	07:33 16:46	07:45 16:38	
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	06:15 (12) 21:01	06:21 (12) 20:52	06:23 20:24	06:59 (12) 19:18	06:59 18:24	07:35 16:45	07:46 16:39	
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	06:16 (12) 21:01	06:22 (12) 20:52	06:24 20:11	06:58 (12) 19:16	06:58 18:23	07:36 16:44	07:46 16:39	
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	06:15 (12) 21:02	06:22 (12) 20:51	06:25 20:20	06:59 (12) 19:14	06:59 18:21	07:37 16:43	07:47 16:40	
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	06:15 (12) 21:02	06:21 (12) 20:50	06:26 20:20	06:59 (12) 19:12	06:59 18:20	07:39 16:43	07:47 16:40	
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	06:15 (12) 21:02	06:21 (12) 20:49	06:27 20:20	06:59 (12) 19:11	06:59 18:18	07:40 16:42	07:48 16:41	
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	06:14 (12) 21:02	06:22 (12) 20:48	06:28 20:05	06:59 (12) 19:09	06:59 17:17	07:41 16:41	07:48 16:41	
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	06:13 (12) 21:02	06:22 (12) 20:47	06:29 20:03	06:59 (12) 19:07	06:59 17:15	07:42 16:41	07:49 16:42	
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	06:12 (12) 21:02	06:23 (12) 20:46	06:29 20:01	06:59 (12) 19:05	06:59 17:14	07:43 16:40	07:49 16:43	
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	06:11 (12) 21:02	06:23 (12) 20:45	06:29 20:00	06:59 (12) 19:03	06:59 17:12	07:44 16:40	07:49 16:43	
29	07:37 17:20	06:54 19:37	06:04 19:37	06:11 20:15	05:37 20:48	06:10 (12) 21:02	06:23 (12) 20:44	06:29 19:58	06:59 (12) 19:01	06:59 17:11	07:45 16:39	07:49 16:44	
30	07:36 17:21	06:53 19:38	06:03 19:38	06:10 20:16	05:37 20:49	06:09 (12) 21:02	06:23 (12) 20:43	06:29 19:56	06:59 (12) 18:59	06:59 17:09	07:46 16:39	07:49 16:45	
31	07:35 17:23	06:52 19:40	06:02 19:40	06:09 20:50	05:36 20:50	06:08 (12) 21:02	06:23 (12) 20:41	06:29 19:54	06:59 (12) 19:54	06:59 17:08	07:47 16:40	07:50 16:46	
Potential sun hours	288	292	369	403	457	1195	463	434	277	376	342	290	278
Total, worst case						1397	469	1467					

Potential sun hours

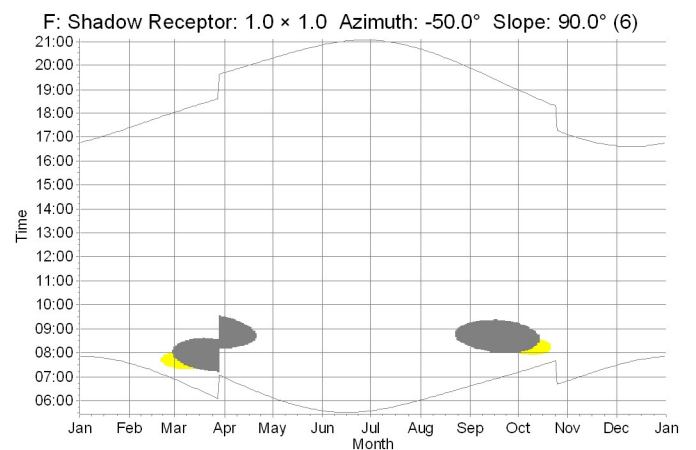
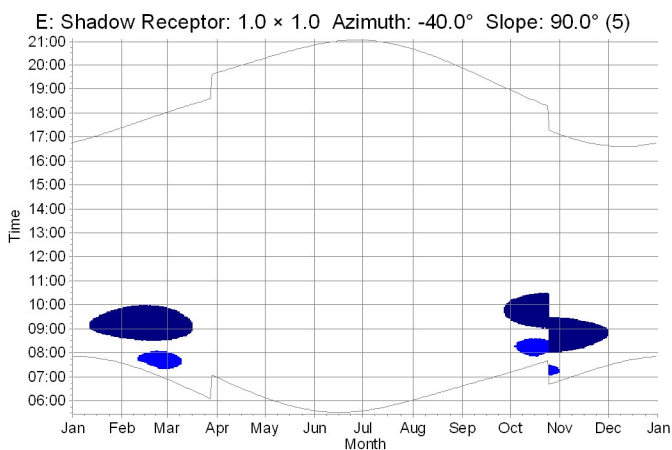
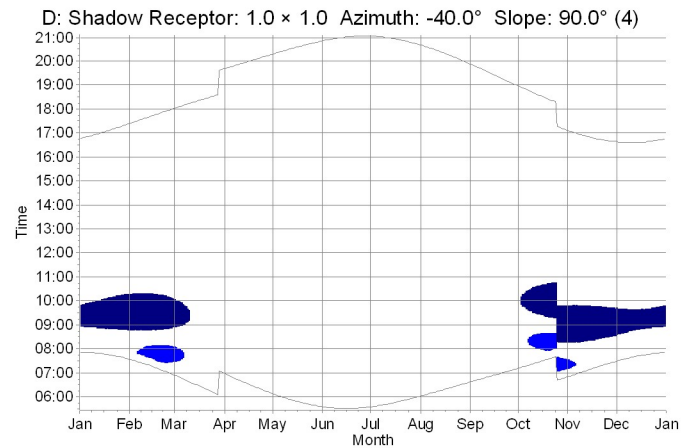
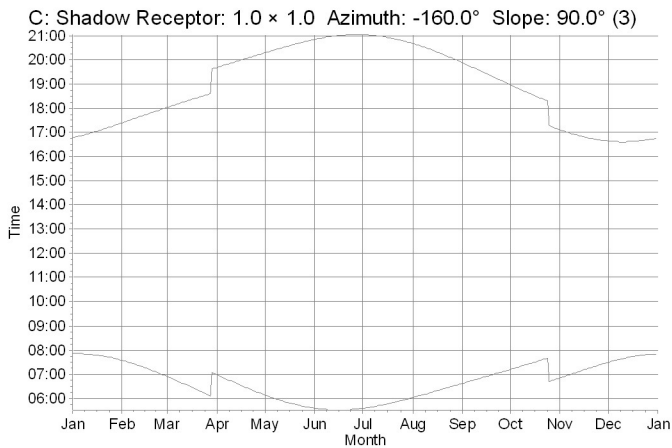
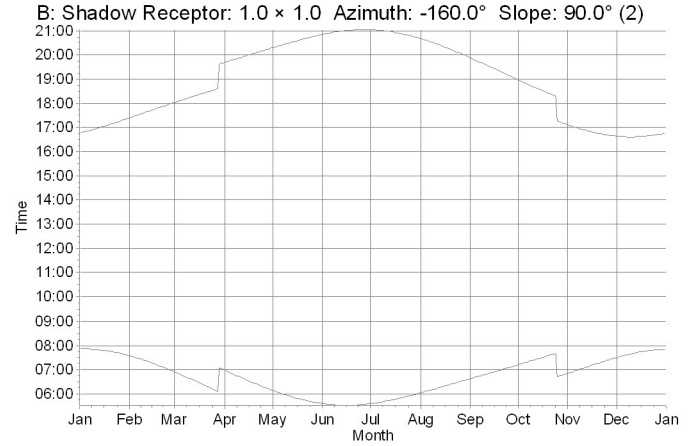
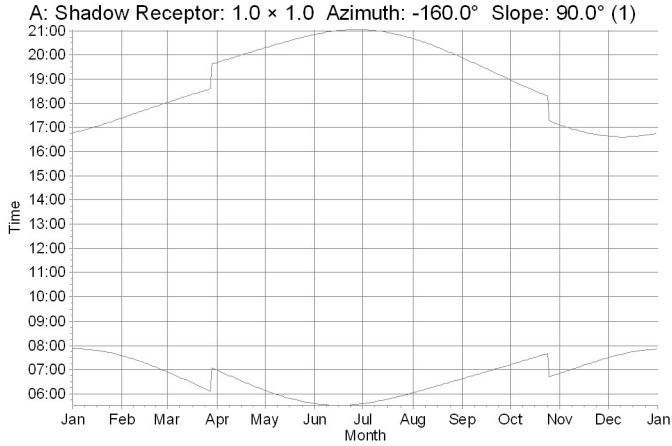
Total, worst case

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

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

SHADOW - Calendar, graphical

Calculation: WON038_ShadowFlickering



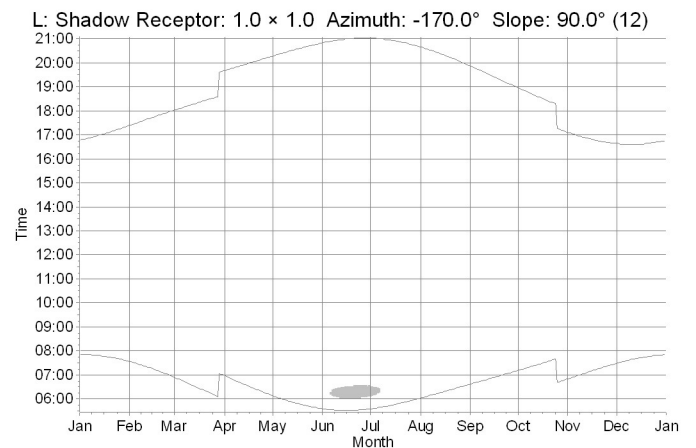
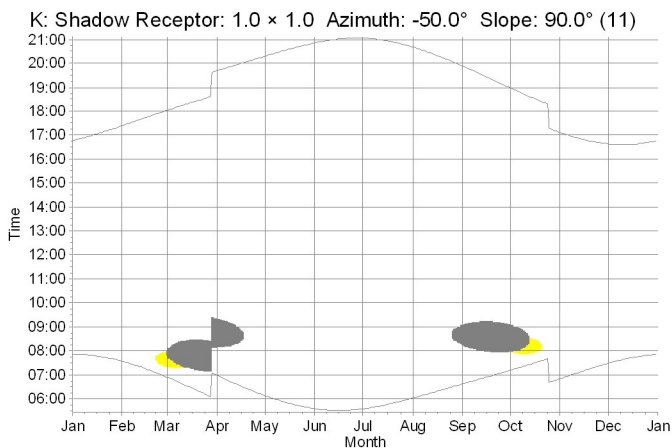
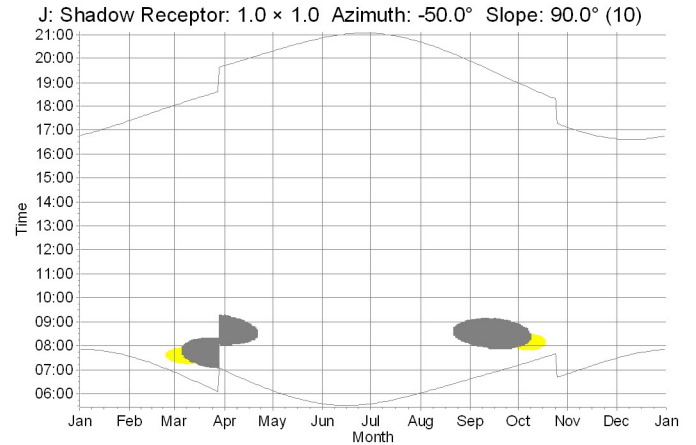
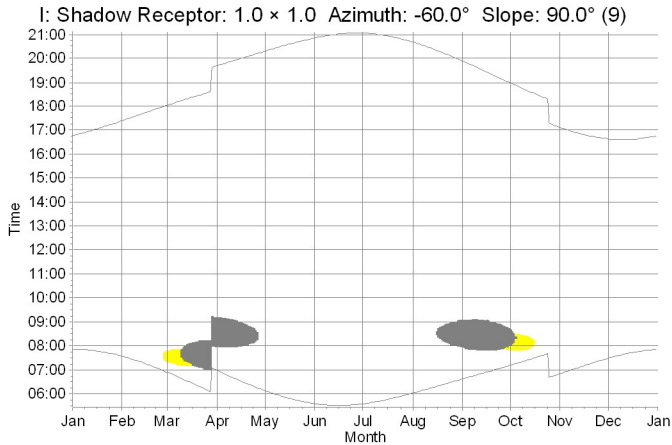
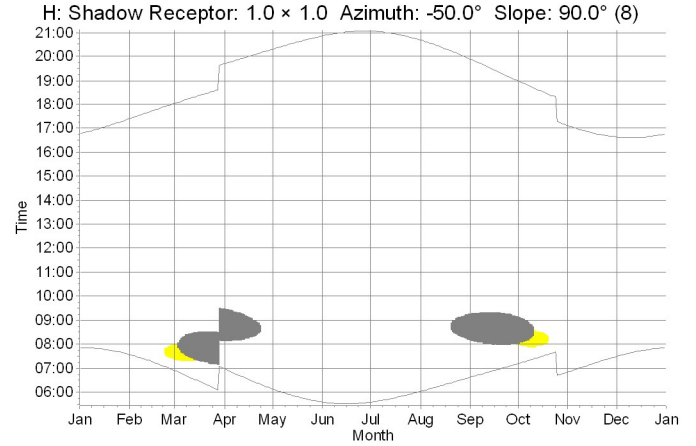
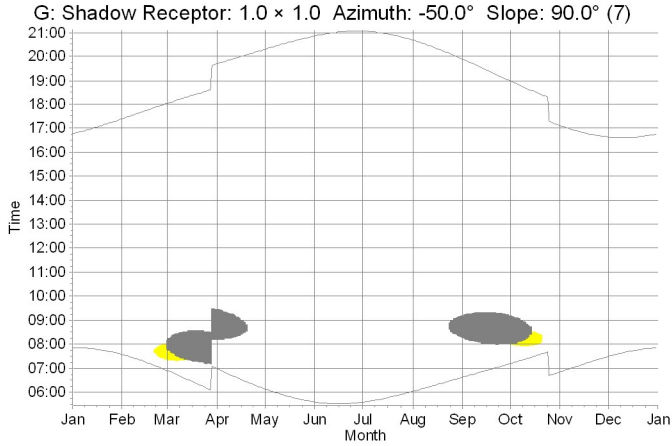
WTGs

- 2: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (2)
- 3: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (3)

- 4: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4)
- 7: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (7)

SHADOW - Calendar, graphical

Calculation: WON038_ShadowFlickering



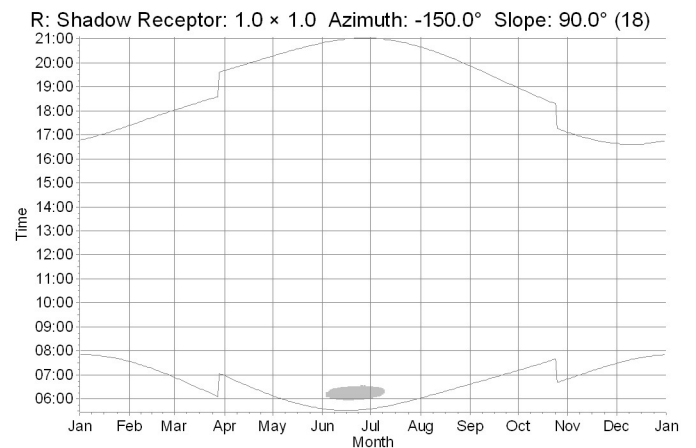
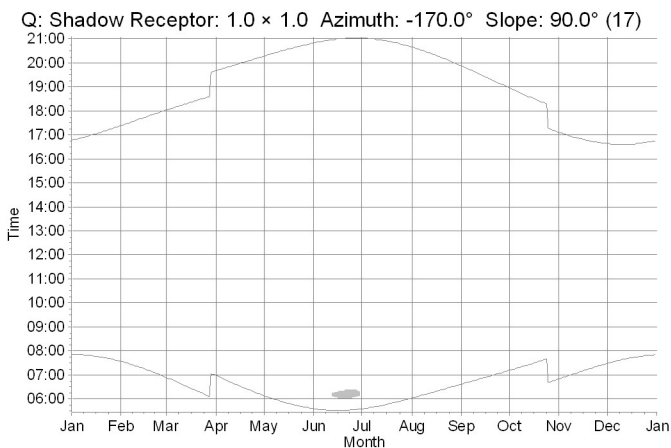
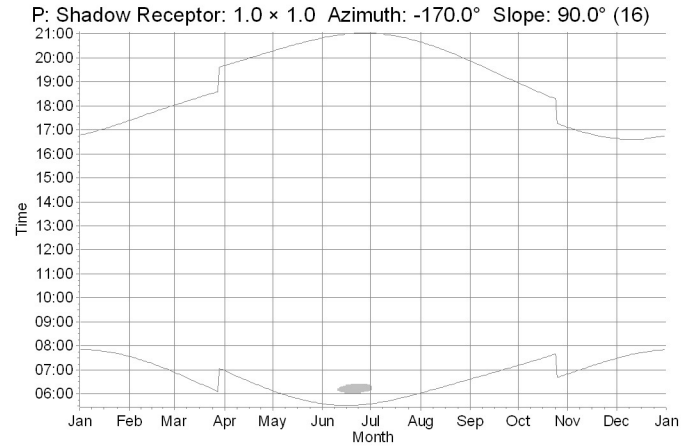
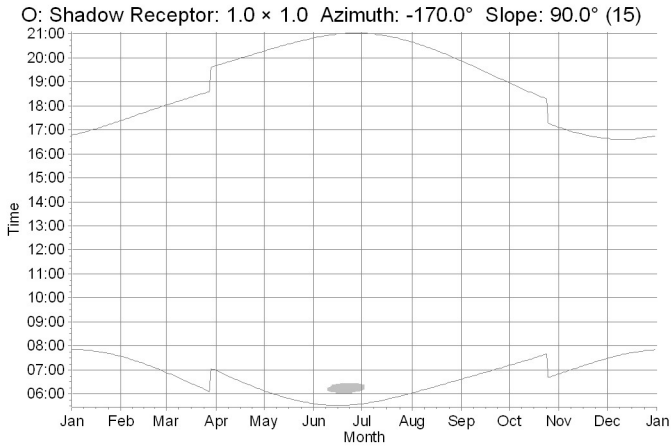
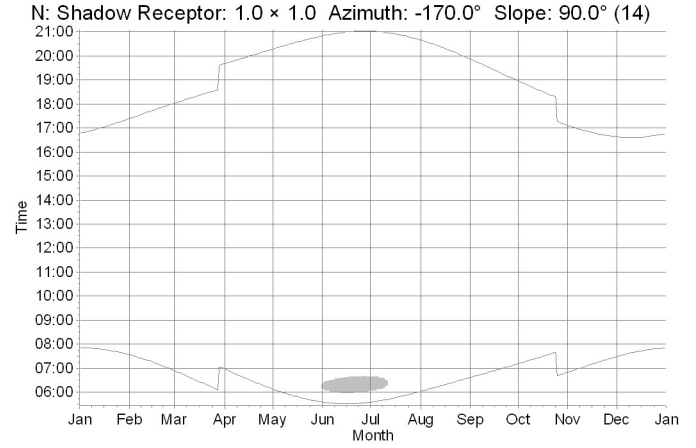
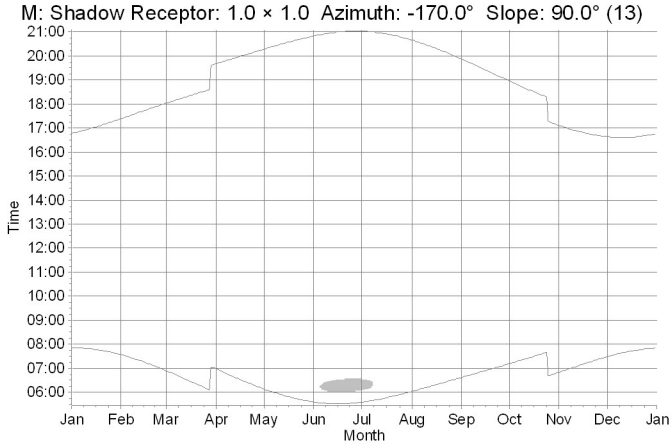
WTGs

- 2: VESTAS V163-4.5_h150 4500 163.0 IO! hub: 150.0 m (TOT: 231.5 m) (2)
- 4: VESTAS V163-4.5_h150 4500 163.0 IO! hub: 150.0 m (TOT: 231.5 m) (4)

- 12: VESTAS V163-4.5_h150 4500 163.0 IO! hub: 150.0 m (TOT: 231.5 m) (12)

SHADOW - Calendar, graphical

Calculation: WON038_ShadowFlickering

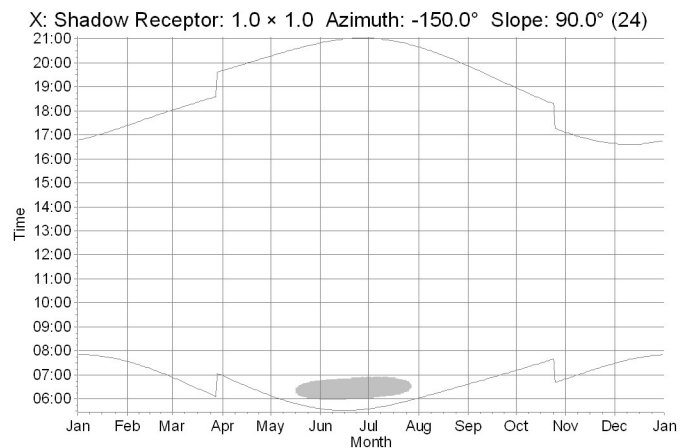
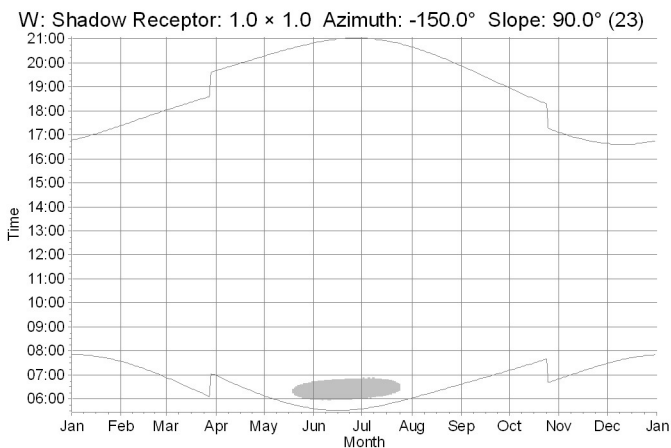
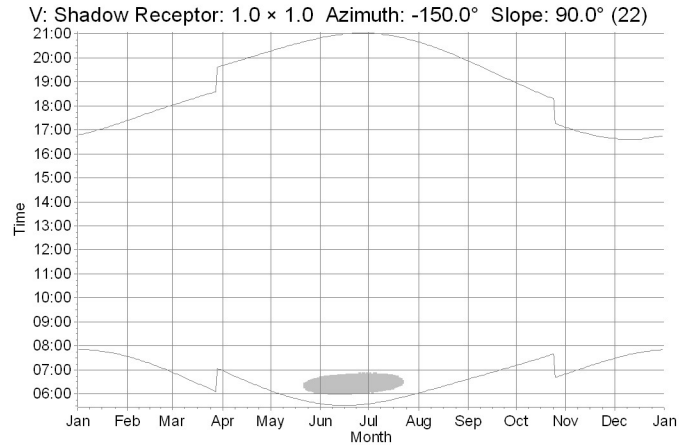
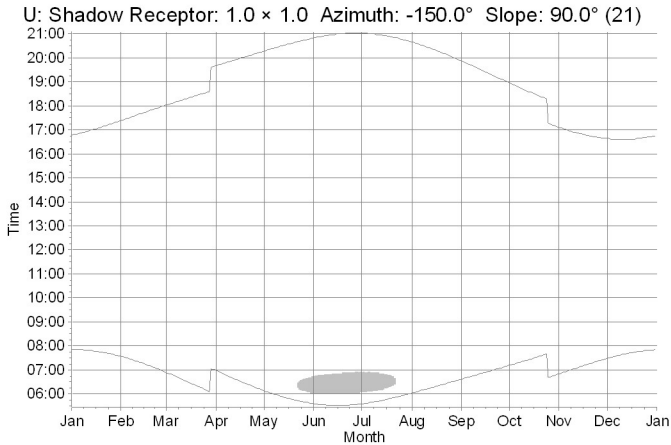
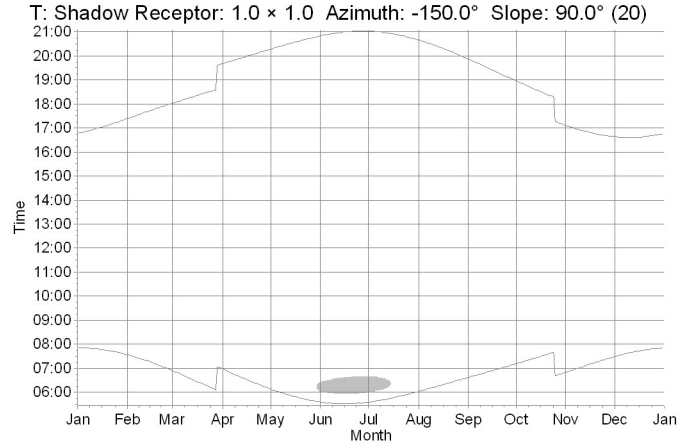
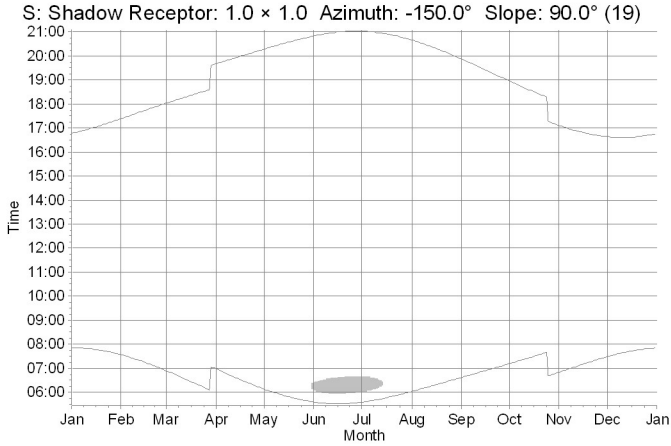


WTGs

12: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)

SHADOW - Calendar, graphical

Calculation: WON038_ShadowFlickering



WTGs

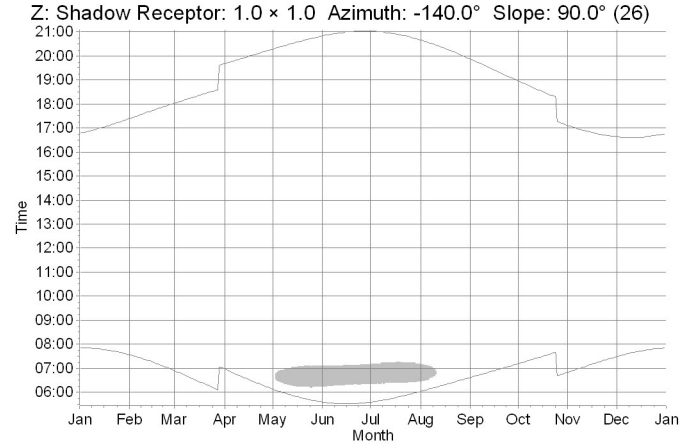
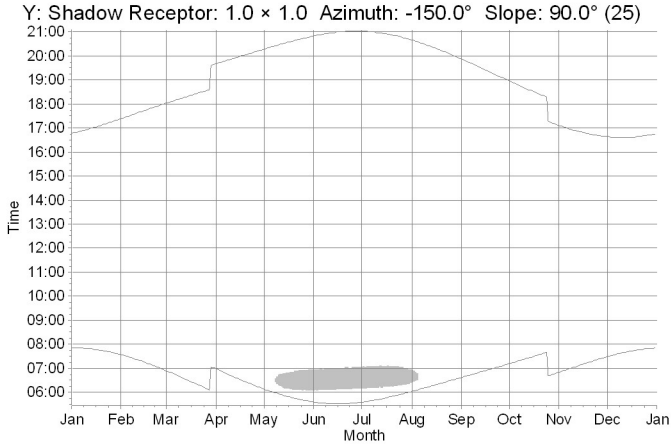
12: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)

Project:
WON038

Licensed user:
Iron solar s.r.l.
via Lanzone, 31
IT-20122 Milano
+393487125089
Fabio Paccapelo / francesca.saccarola@hopegroup.it
Calculated:
10/04/2024 19:53/3.6.377

SHADOW - Calendar, graphical

Calculation: WON038_ShadowFlickering



WTGs

12: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)

SHADOW - Calendar per WTG

Calculation: WON038_ShadowFlickering WTG: 1 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (1)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:18	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:36 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:32 17:27	06:50 18:05	06:55 19:44	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:31 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:44 18:10	06:47 19:48	06:00 20:25	05:33 20:55	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:37
9	07:50 16:54	07:24 17:35	06:40 18:13	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	07:50 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 21:00	06:12 20:29	06:47 19:37	07:22 18:42	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:58	05:42 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:49 16:59	07:19 17:41	06:33 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:51	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:50	07:43 16:37
16	07:47 17:03	07:15 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:11 16:49	07:43 16:37
17	07:47 17:04	07:13 17:46	06:26 18:23	06:30 20:01	05:48 20:36	05:31 21:01	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:12 16:48	07:44 16:37
18	07:46 17:05	07:12 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:47 20:54	06:21 20:17	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:25	07:16 16:45	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:28	06:23 20:05	05:44 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 17:53	06:17 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:13	07:39 18:20	07:20 16:43	07:48 16:40
24	07:42 17:13	07:02 17:56	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:41
25	07:41 17:14	07:00 17:57	06:11 18:33	06:17 20:10	05:40 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:05 19:09	07:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 18:00	06:07 18:35	06:14 20:13	05:39 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:56 18:01	06:06 18:36	06:12 20:14	05:38 20:47	05:34 21:03	05:57 20:45	06:32 20:00	07:08 19:03	07:44 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20	07:03 19:37	06:11 20:15	06:17 20:48	05:37 21:03	05:34 20:44	05:58 20:44	06:34 19:58	07:09 19:01	07:45 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	07:02 19:39	06:09 20:16	06:15 20:49	05:36 20:49	05:34 21:02	06:00 20:43	06:35 19:56	07:10 19:00	07:46 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:08 20:17	06:14 20:50	05:35 20:50	05:33 20:42	06:01 20:42	06:36 19:55	07:11 19:00	07:47 17:08	07:29 16:39	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
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: WON038_ShadowFlickering WTG: 2 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (2)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 07:21-08:00/39 18:02	06:58 19:41	06:08 20:18	05:35 20:51	05:35 21:02	06:02 20:41	06:37 19:53	07:12 07:52-08:35/43 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 07:20-08:01/41 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 07:51-08:36/45 18:56	06:52 17:05	07:30 16:38
3	07:51 16:48	07:32 17:27	06:50 07:18-08:00/42 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 07:50-08:36/46 18:54	06:53 17:04	07:31 16:37
4	07:51 16:49	07:31 17:28	06:49 07:17-08:01/44 18:06	06:53 19:45	06:03 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 07:50-08:36/46 18:52	06:55 17:02	07:33 16:37
5	07:50 16:50	07:29 17:29	06:47 07:16-08:01/45 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:41 19:46	07:16 07:51-08:37/46 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 07:15-08:01/46 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 07:50-08:37/47 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:43 07:14-08:00/46 18:10	06:47 19:48	05:59 20:25	05:32 20:55	05:38 21:01	06:08 20:33	06:44 19:42	07:19 07:50-08:36/46 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 07:14-08:00/46 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 07:50-08:36/46 18:45	07:00 16:57	07:37 16:36
9	07:50 16:54	07:24 17:35	06:40 07:13-07:59/46 18:12	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 07:52-08:36/44 18:43	07:01 16:56	07:38 16:36
10	07:50 16:55	07:23 17:36	06:38 07:13-07:58/45 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 21:00	06:12 20:29	06:47 19:37	07:22 07:52-08:35/43 18:41	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 07:12-07:57/45 18:15	06:40 19:53	05:54 20:29	05:31 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 07:53-08:35/42 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 07:12-07:56/44 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:49 19:33	07:25 07:53-08:34/41 18:38	07:05 16:53	07:40 16:36
13	07:49 16:59	07:19 17:40	06:33 07:13-07:55/42 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 07:55-08:34/39 18:36	07:07 16:51	07:41 16:36
14	07:48 17:00	07:17 17:42	06:31 07:13-07:54/41 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 07:56-08:32/36 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 07:13-07:52/39 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 07:56-08:31/35 18:33	07:09 16:49	07:43 16:37
16	07:47 17:02	07:15 17:45	06:27 07:13-07:50/37 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:18 20:20	06:54 19:25	07:30 07:58-08:30/32 18:31	07:11 16:48	07:43 16:37
17	07:47 17:04	07:13 17:46	06:26 07:14-07:48/34 18:23	06:30 20:01	05:47 20:36	05:31 21:01	05:46 20:55	06:20 20:18	06:55 19:24	07:31 07:59-08:28/29 18:29	07:12 16:47	07:44 16:37
18	07:46 17:05	07:12 17:47	06:24 07:14-07:45/31 18:24	06:28 20:02	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:17	06:56 19:22	07:32 08:01-08:26/25 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 07:16-07:42/26 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 08:04-08:25/21 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 07:18-07:40/22 18:26	06:25 20:04	05:44 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 08:07-08:21/14 18:24	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 07:39-07:47/8 17:51	06:18 07:19-07:37/18 18:28	06:23 20:05	05:43 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 08:10-08:16/6 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 07:35-07:52/17 17:53	06:16 07:23-07:33/10 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 08:05-08:21/16 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:11	07:04 07:31-07:54/23 17:54	06:15 07:23-07:33/10 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 08:02-08:23/21 19:12	07:39 18:20	07:20 16:43	07:48 16:40
24	07:42 17:13	07:02 07:28-07:55/27 17:55	06:13 07:28-07:33/10 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 08:00-08:25/25 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 07:27-07:57/30 17:57	06:11 07:27-07:33/10 18:32	06:17 20:10	05:40 20:44	05:32 21:03	05:54 20:48	06:29 20:05	07:04 07:58-08:28/30 19:09	06:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 07:25-07:58/33 17:58	06:09 07:25-07:33/10 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 07:56-08:30/34 19:07	06:43 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 07:24-07:59/35 17:59	06:07 07:24-07:33/10 18:35	06:14 20:13	05:38 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 07:55-08:31/36 19:05	06:44 17:13	07:24 16:40	07:49 16:42
28	07:38 17:18	06:56 07:23-08:00/37 18:01	06:05 07:23-07:33/10 18:36	06:12 20:14	05:38 20:47	05:33 21:03	05:57 20:45	06:32 20:00	07:08 07:54-08:32/38 19:03	06:45 17:12	07:26 16:39	07:50 16:43
29	07:37 17:20	06:55 07:22-08:00/37 18:02	06:04 07:22-07:33/10 19:37	06:11 20:15	05:37 20:48	05:34 21:03	05:58 20:44	06:33 19:58	07:09 07:52-08:33/41 19:01	06:47 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	06:54 07:21-08:00/37 18:03	06:03 07:21-07:33/10 19:39	06:09 20:16	05:36 20:49	05:34 21:02	05:59 20:43	06:35 19:56	07:10 07:53-08:35/42 19:00	06:48 17:09	07:28 16:39	07:50 16:44
31	07:35 17:22	06:53 07:20-08:00/37 18:04	06:02 07:20-07:33/10 19:40	06:08 20:17	05:35 20:50	05:34 21:03	05:59 20:42	06:36 19:55	07:11 07:52-08:36/43 19:00	06:49 17:08	07:50 16:45	07:51 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	289	766	290
Sum of minutes with flicker	0	210	829	0	0	0	0	0	0	289	766	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: WON038_ShadowFlickering WTG: 3 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (3)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 07:22-08:03/41 18:02	06:58 19:41	06:08 20:17	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 07:13-07:31/18 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 07:22-08:01/39 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 07:15-07:30/15 17:05	07:30 16:38
3	07:50 16:48	07:32 17:27	06:50 07:23-07:59/36 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 07:16-07:27/11 17:04	07:31 16:37
4	07:50 16:49	07:31 17:28	06:49 07:24-07:58/34 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 08:15-08:17/2 18:52	06:55 07:18-07:26/8 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 07:25-07:55/30 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:41 19:46	07:16 08:09-08:24/15 18:50	06:56 07:19-07:21/2 17:01	07:34 16:37
6	07:50 16:51	07:28 07:49-07:52/3 17:31	06:45 07:26-07:53/27 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 08:05-08:27/22 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 07:48-07:56/8 17:32	06:43 07:28-07:51/23 18:10	06:47 19:48	05:59 20:25	05:32 20:55	05:39 21:01	06:08 20:33	06:44 19:42	07:19 08:03-08:28/25 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 07:47-07:59/12 17:34	06:42 07:31-07:49/18 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 08:01-08:29/28 18:45	07:00 16:57	07:37 16:36
9	07:50 16:54	07:24 07:45-08:00/15 17:35	06:40 07:34-07:45/11 18:12	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 08:00-08:31/31 18:43	07:01 16:56	07:38 16:36
10	07:50 16:55	07:23 07:44-08:02/18 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 20:29	06:47 19:37	07:22 07:58-08:33/35 18:41	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 07:42-08:03/21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:31 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 07:57-08:34/37 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 07:41-08:05/24 17:39	06:35 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:49 19:33	07:25 07:56-08:35/39 18:38	07:05 16:53	07:40 16:36
13	07:48 16:59	07:19 07:39-08:05/26 17:40	06:33 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 07:55-08:37/42 18:36	07:07 16:51	07:41 16:37
14	07:48 17:00	07:17 07:38-08:06/28 17:42	06:31 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 07:54-08:37/43 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 07:37-08:07/30 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 07:54-08:38/44 18:33	07:09 16:49	07:43 16:37
16	07:47 17:03	07:14 07:35-08:07/32 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:25	07:30 07:54-08:39/45 18:31	07:10 16:48	07:43 16:37
17	07:47 17:04	07:13 07:33-08:07/34 17:46	06:26 18:23	06:30 20:01	05:47 20:36	05:31 21:01	05:46 20:55	06:20 20:18	06:55 19:24	07:31 07:53-08:39/46 18:29	07:12 16:48	07:44 16:37
18	07:46 17:05	07:11 07:32-08:08/36 17:47	06:24 18:24	06:28 20:02	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 07:54-08:39/45 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 07:30-08:08/38 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 07:56-08:39/43 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 07:29-08:08/39 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 07:57-08:39/42 18:24	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 07:27-08:08/41 17:51	06:18 18:28	06:23 20:05	05:43 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 07:58-08:39/41 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 07:26-08:08/42 17:53	06:16 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 08:00-08:39/39 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 07:24-08:08/44 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 08:01-08:38/37 18:20	07:19 16:43	07:48 16:40
24	07:42 17:13	07:02 07:22-08:07/45 17:55	06:13 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 08:02-08:38/36 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 07:22-08:07/45 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:04 19:09	06:41 07:04-07:38/34 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 07:22-08:06/44 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	06:43 07:05-07:37/32 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 07:21-08:05/44 17:59	06:07 18:35	06:14 20:13	05:38 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 19:05	06:44 07:06-07:36/30 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:55 07:22-08:04/42 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:03	05:57 20:45	06:32 20:00	07:08 19:03	06:45 07:08-07:36/28 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20		07:04 19:37	06:11 20:15	05:37 20:48	05:34 21:03	05:58 20:44	06:33 19:58	07:09 19:01	06:47 07:09-07:34/25 17:11	07:27 16:39	07:50 16:40
30	07:36 17:21		07:02 19:39	06:09 20:16	05:36 20:49	05:34 21:02	05:59 20:43	06:35 19:56	07:10 19:00	06:48 07:11-07:34/23 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22		07:00 19:40		05:36 20:50		06:01 20:42	06:36 19:55		06:49 07:12-07:32/20 17:08		07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
Sum of minutes with flicker	0	711	259	0	0	0	0	0	0	929	54	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: WON038_ShadowFlickering WTG: 4 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 16:46	07:34 17:24	06:54 07:49-08:13/24 18:02	06:58 07:59-09:29/90 19:41	06:08 20:18	05:35 20:51
2	07:51 16:47	07:33 17:25	06:52 07:43-08:17/34 18:03	06:56 07:58-09:28/90 19:42	06:06 20:19	05:35 20:52
3	07:51 16:48	07:32 17:27	06:50 07:39-08:20/41 18:05	06:55 07:58-09:26/88 19:44	06:05 20:20	05:34 20:52
4	07:51 16:49	07:31 17:28	06:49 07:36-08:23/47 18:06	06:53 07:57-09:25/88 19:45	06:04 20:21	05:34 20:53
5	07:50 16:50	07:29 17:29	06:47 07:33-08:25/52 18:07	06:51 07:57-09:24/87 19:46	06:02 20:22	05:33 20:54
6	07:50 16:51	07:28 17:31	06:45 07:31-08:26/55 18:09	06:49 07:57-09:23/86 19:47	06:01 20:24	05:33 20:55
7	07:50 16:52	07:27 17:32	06:44 07:28-08:27/59 18:10	06:47 07:57-09:22/85 19:48	05:59 20:25	05:32 20:55
8	07:50 16:53	07:26 17:34	06:42 07:27-08:30/63 18:11	06:46 07:57-09:20/83 19:50	05:58 20:26	05:32 20:56
9	07:50 16:54	07:24 17:35	06:40 07:25-08:30/65 18:12	06:44 07:57-09:18/81 19:51	05:57 20:27	05:32 20:57
10	07:50 16:55	07:23 17:36	06:38 07:24-08:31/67 18:14	06:42 07:58-09:18/80 19:52	05:56 20:28	05:32 20:57
11	07:49 16:57	07:22 17:38	06:36 07:22-08:32/70 18:15	06:40 07:58-09:16/78 19:53	05:54 20:29	05:31 20:58
12	07:49 16:58	07:20 17:39	06:35 07:20-08:33/73 18:16	06:39 07:58-09:14/76 19:54	05:53 20:30	05:31 20:58
13	07:49 16:59	07:19 17:40	06:33 07:19-08:34/75 18:18	06:37 07:58-09:12/74 19:56	05:52 20:32	05:31 20:59
14	07:48 17:00	07:17 17:42	06:31 07:18-08:34/76 18:19	06:35 07:59-09:11/72 19:57	05:51 20:33	05:31 20:59
15	07:48 17:01	07:16 17:43	06:29 07:16-08:35/79 18:20	06:33 07:59-09:09/70 19:58	05:50 20:34	05:31 21:00
16	07:47 17:03	07:15 17:45	06:27 07:14-08:35/81 18:21	06:32 08:00-09:07/67 19:59	05:49 20:35	05:31 21:00
17	07:47 17:04	07:13 17:46	06:26 07:13-08:35/82 18:23	06:30 08:01-09:05/64 20:01	05:47 20:36	05:31 21:01
18	07:46 17:05	07:12 17:47	06:24 07:11-08:35/84 18:24	06:28 08:02-09:03/61 20:02	05:46 20:37	05:31 21:01
19	07:45 17:06	07:10 17:49	06:22 07:10-08:36/86 18:25	06:27 08:02-09:00/58 20:03	05:45 20:38	05:31 21:01
20	07:45 17:08	07:08 17:50	06:20 07:08-08:35/87 18:26	06:25 08:04-08:58/54 20:04	05:44 20:39	05:31 21:02
21	07:44 17:09	07:07 17:51	06:18 07:07-08:35/88 18:28	06:23 08:05-08:54/49 20:05	05:43 20:40	05:31 21:02
22	07:43 17:10	07:05 17:53	06:16 07:06-08:35/89 18:29	06:22 08:07-08:51/44 20:07	05:43 20:41	05:32 21:02
23	07:43 17:12	07:04 17:54	06:15 07:04-08:34/90 18:30	06:20 08:08-08:45/37 20:08	05:42 20:42	05:32 21:02
24	07:42 17:13	07:02 17:55	06:13 07:03-08:34/91 18:31	06:18 08:10-08:41/31 20:09	05:41 20:43	05:32 21:02
25	07:41 17:14	07:01 17:57	06:11 07:02-08:33/91 18:32	06:17 08:13-08:38/25 20:10	05:40 20:44	05:32 21:03
26	07:40 17:16	06:59 17:58	06:09 07:02-08:33/91 18:34	06:15 08:16-08:33/17 20:11	05:39 20:45	05:33 21:03
27	07:39 17:17	06:57 17:59	06:07 07:01-08:33/92 18:35	06:14 20:13	05:38 20:46	05:33 21:03
28	07:38 17:18	06:56 07:59-08:05/6 18:01	06:05 07:00-08:32/92 18:36	06:12 20:14	05:38 20:47	05:33 21:03
29	07:37 17:20		07:04 08:00-09:31/91 19:37	06:11 20:15	05:37 20:48	05:34 21:03
30	07:36 17:21		07:02 07:59-09:30/91 19:39	06:09 20:16	05:36 20:49	05:34 21:03
31	07:35 17:22		07:00 07:58-09:29/91 19:40		05:36 20:50	
Potential sun hours	288	292	369	403	457	463
Sum of minutes with flicker	0	6	2297	1735	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: WON038_ShadowFlickering WTG: 4 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:35 21:02	06:02 20:41	06:37 07:57-09:15/78 19:53	07:12 07:59-09:13/74 18:58	06:51 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 07:56-09:16/80 19:51	07:13 08:00-09:11/71 18:56	06:52 17:05	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 07:55-09:16/81 19:49	07:14 08:01-09:09/68 18:54	06:53 17:04	07:31 16:37
4	05:37 21:02	06:05 20:37	06:40 07:54-09:17/83 19:48	07:15 08:01-09:08/67 18:52	06:55 17:02	07:33 16:37
5	05:37 21:02	06:06 20:35	06:41 07:53-09:18/85 19:46	07:16 08:03-09:07/64 18:50	06:56 17:01	07:34 16:37
6	05:38 21:01	06:07 20:34	06:43 07:53-09:18/85 19:44	07:18 08:04-09:05/61 18:49	06:57 17:00	07:35 16:37
7	05:38 21:01	06:08 20:33	06:44 07:53-09:20/87 19:42	07:19 08:05-09:03/58 18:47	06:59 16:58	07:36 16:37
8	05:39 21:00	06:09 20:31	06:45 07:52-09:20/88 19:40	07:20 08:07-09:00/53 18:45	07:00 16:57	07:37 16:36
9	05:40 21:00	06:11 20:30	06:46 07:52-09:20/88 19:38	07:21 08:10-08:59/49 18:43	07:01 16:56	07:38 16:36
10	05:41 21:00	06:12 20:29	06:47 07:51-09:21/90 19:37	07:22 08:12-08:56/44 18:41	07:03 16:55	07:39 16:36
11	05:41 20:59	06:13 20:27	06:48 07:51-09:21/90 19:35	07:24 08:15-08:53/38 18:40	07:04 16:54	07:39 16:36
12	05:42 20:59	06:14 20:26	06:50 07:50-09:21/91 19:33	07:25 08:19-08:48/29 18:38	07:05 16:53	07:40 16:36
13	05:43 20:58	06:15 20:24	06:51 07:50-09:21/91 19:31	07:26 08:25-08:44/19 18:36	07:07 16:51	07:41 16:37
14	05:44 20:57	06:16 20:23	06:52 07:50-09:21/91 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	05:45 20:57	06:17 20:21	06:53 07:50-09:21/91 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	05:46 20:56	06:19 08:28-08:35/7 20:20	06:54 07:50-09:22/92 19:26	07:30 18:31	07:11 16:48	07:43 16:37
17	05:46 20:55	06:20 08:22-08:41/19 20:18	06:55 07:50-09:22/92 19:24	07:31 18:29	07:12 16:47	07:44 16:37
18	05:47 20:55	06:21 08:19-08:45/26 20:17	06:56 07:50-09:21/91 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	05:48 20:54	06:22 08:16-08:48/32 20:15	06:58 07:50-09:21/91 19:20	07:34 18:26	07:14 16:46	07:46 16:38
20	05:49 20:53	06:23 08:14-08:52/38 20:13	06:59 07:51-09:21/90 19:18	07:35 18:24	07:16 16:45	07:46 16:38
21	05:50 20:52	06:24 08:11-08:57/46 20:12	07:00 07:51-09:20/89 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	05:51 20:51	06:25 08:09-09:00/51 20:10	07:01 07:51-09:20/89 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	05:52 20:50	06:27 08:08-09:02/54 20:08	07:02 07:52-09:19/87 19:12	07:39 18:20	07:20 16:43	07:48 16:40
24	05:53 20:49	06:28 08:06-09:04/58 20:07	07:03 07:53-09:19/86 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	05:54 20:48	06:29 08:04-09:06/62 20:05	07:05 07:54-09:18/84 19:09	06:41 17:17	07:22 16:41	07:49 16:41
26	05:55 20:47	06:30 08:03-09:07/64 20:03	07:06 07:55-09:17/82 19:07	06:43 17:15	07:23 16:41	07:49 16:42
27	05:56 20:46	06:31 08:01-09:09/68 20:02	07:07 07:56-09:16/80 19:05	06:44 17:14	07:25 16:40	07:49 16:42
28	05:57 20:45	06:32 08:01-09:11/70 20:00	07:08 07:56-09:15/79 19:03	06:45 17:12	07:26 16:40	07:50 16:43
29	05:58 20:44	06:33 08:00-09:12/72 19:58	07:09 07:57-09:14/77 19:01	06:47 17:11	07:27 16:39	07:50 16:44
30	05:59 20:43	06:35 07:59-09:13/74 19:56	07:10 07:58-09:14/76 19:00	06:48 17:09	07:28 16:39	07:50 16:45
31	06:01 20:42	06:36 07:58-09:14/76 19:55		06:49 17:08		07:50 16:45
Potential sun hours	469	434	376	342	290	277
Sum of minutes with flicker	0	817	2584	695	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: WON038_ShadowFlickering WTG: 5 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (5)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:18	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:51 16:48	07:32 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:37
4	07:51 16:49	07:31 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:44 18:10	06:47 19:48	06:47 20:25	05:59 20:55	05:32 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 18:11	06:46 19:50	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:36
9	07:50 16:54	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	07:50 16:55	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 21:00	06:12 20:29	06:47 19:37	07:22 18:41	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:31 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:36
13	07:49 16:59	07:19 17:40	06:33 18:18	06:37 19:56	05:52 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:51	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	07:47 17:03	07:15 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:11 16:48	07:43 16:37
17	07:47 17:04	07:13 17:46	06:26 18:23	06:30 20:01	05:47 20:36	05:31 21:01	05:46 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:12 16:48	07:44 16:37
18	07:46 17:05	07:12 17:47	06:24 18:24	06:28 20:02	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:17	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:24	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 17:51	06:18 18:28	06:23 20:05	05:43 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:07	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:20 16:43	07:48 16:40
24	07:42 17:13	07:02 17:55	06:13 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:03	05:54 20:48	06:29 20:05	07:04 19:09	07:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:13	05:38 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:56 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:33 21:03	05:57 20:45	06:32 20:00	07:08 19:03	07:44 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20	07:05 19:37	06:11 20:15	06:17 20:48	05:41 21:03	05:37 21:03	05:58 20:44	06:33 19:58	07:09 19:01	07:45 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	07:02 19:39	06:09 20:16	06:15 20:49	05:36 20:49	05:34 21:02	05:59 20:43	06:35 19:56	07:10 19:00	07:46 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:08 20:17	06:14 20:50	05:35 20:50	05:34 21:02	06:01 20:42	06:36 19:55	07:11 19:00	07:47 17:08	07:29 16:39	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
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: WON038_ShadowFlickering WTG: 6 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (6)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:48	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:36 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:05 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:38 21:01	06:07 20:34	06:43 19:44	07:17 18:49	06:57 17:00	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:39 21:00	06:08 20:32	06:44 19:42	07:19 18:47	06:58 16:58	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:10 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:36 16:37
9	07:49 16:55	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 20:28	06:47 19:36	07:22 18:41	07:02 16:55	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:57	05:42 20:59	06:13 20:27	06:48 19:35	07:23 18:40	07:04 16:54	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	05:53 20:30	05:31 20:58	05:42 20:58	06:14 20:25	06:49 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	05:52 20:31	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:06 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	05:51 20:32	05:31 20:59	05:44 20:57	06:16 20:22	06:52 19:29	07:27 18:34	07:08 16:51	07:42 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:34	05:31 20:59	05:45 20:56	06:17 20:21	06:53 19:27	07:28 18:33	07:09 16:50	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:19 20:19	06:54 19:25	07:30 18:31	07:10 16:49	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:48 20:36	05:31 21:00	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:11 16:48	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	05:47 20:37	05:31 21:01	05:48 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:46 20:38	05:31 21:01	05:48 20:53	06:22 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:45 20:39	05:31 21:01	05:49 20:52	06:23 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:44 20:40	05:32 21:01	05:50 20:52	06:24 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:40
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:19 16:43	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:06	07:03 19:11	07:40 18:18	07:20 16:42	07:48 16:41
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:33 21:02	05:54 20:48	06:29 20:05	07:04 19:09	07:41 17:17	07:22 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:02	05:55 20:47	06:30 20:03	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:39 20:46	05:33 21:02	05:56 20:46	06:31 20:01	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	05:57 20:45	06:32 20:00	07:08 19:03	07:44 17:12	07:25 16:40	07:49 16:43
29	07:37 17:20	07:05 19:37	06:11 20:15	06:17 20:48	05:41 21:02	05:37 20:44	05:59 20:44	06:33 19:58	07:09 19:01	07:45 17:11	07:27 16:39	07:49 16:44
30	07:36 17:21	07:02 19:38	06:09 20:16	06:15 20:49	05:37 20:49	05:35 21:02	06:00 20:43	06:35 19:56	07:10 18:59	07:46 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:11 20:16	06:17 20:50	05:40 20:50	05:33 21:02	05:54 20:41	06:29 19:54	07:04 17:08	07:41 16:49	07:22 16:46	07:48 16:46
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
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: WON038_ShadowFlickering WTG: 7 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (7)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:50 08:57-09:48/51 16:46	07:34 08:38-10:16/98 17:24	06:54 08:35-10:02/87 18:02	06:58 19:41	06:08 20:17	05:35 20:51
2	07:50 08:57-09:49/52 16:47	07:33 08:38-10:16/98 17:25	06:52 08:35-10:00/85 18:03	06:56 19:42	06:06 20:19	05:35 20:52
3	07:51 08:57-09:50/53 16:48	07:32 08:38-10:17/99 17:27	06:50 08:35-09:58/83 18:05	06:55 19:43	06:05 20:20	05:34 20:52
4	07:50 08:55-09:50/55 16:49	07:31 08:37-10:17/100 17:28	06:49 08:37-09:56/79 18:06	06:53 19:45	06:04 20:21	05:34 20:53
5	07:50 08:55-09:52/57 16:50	07:29 08:36-10:17/101 17:29	06:47 08:37-09:54/77 18:07	06:51 19:46	06:02 20:22	05:33 20:54
6	07:50 08:55-09:53/58 16:51	07:28 08:36-10:17/101 17:31	06:45 08:37-09:51/74 18:09	06:49 19:47	06:01 20:23	05:33 20:55
7	07:50 08:55-09:54/59 16:52	07:27 08:36-10:18/102 17:32	06:44 08:38-09:47/69 18:10	06:47 19:48	05:59 20:25	05:33 20:55
8	07:50 08:56-09:55/59 16:53	07:26 08:36-10:18/102 17:34	06:42 08:40-09:45/65 18:11	06:46 19:50	05:58 20:26	05:32 20:56
9	07:50 08:55-09:56/61 16:54	07:24 08:35-10:18/103 17:35	06:40 08:41-09:40/59 18:12	06:44 19:51	05:57 20:27	05:32 20:57
10	07:50 08:55-09:57/62 16:55	07:23 08:35-10:18/103 17:36	06:38 08:42-09:36/54 18:14	06:42 19:52	05:56 20:28	05:32 20:57
11	07:49 08:55-09:59/64 16:57	07:22 08:34-10:17/103 17:38	06:36 08:43-09:33/50 18:15	06:40 19:53	05:54 20:29	05:31 20:58
12	07:49 08:54-09:59/65 16:58	07:20 08:34-10:18/104 17:39	06:35 08:44-09:30/46 18:16	06:39 19:54	05:53 20:30	05:31 20:58
13	07:49 08:54-10:01/67 16:59	07:19 08:33-10:17/104 17:41	06:33 08:46-09:27/41 18:18	06:37 19:56	05:52 20:32	05:31 20:59
14	07:48 08:53-10:01/68 17:00	07:17 08:34-10:17/103 17:42	06:31 08:49-09:24/35 18:19	06:35 19:57	05:51 20:33	05:31 20:59
15	07:48 08:54-10:03/69 17:01	07:16 08:34-10:17/103 17:43	06:29 08:52-09:20/28 18:20	06:33 19:58	05:50 20:34	05:31 21:00
16	07:47 08:53-10:04/71 17:03	07:15 08:33-10:16/103 17:45	06:27 08:56-09:14/18 18:21	06:32 19:59	05:49 20:35	05:31 21:00
17	07:47 08:52-10:04/72 17:04	07:13 08:33-10:15/102 17:46	06:26 18:23	06:30 20:01	05:47 20:36	05:31 21:01
18	07:46 08:51-10:06/75 17:05	07:12 08:33-10:15/102 17:47	06:24 18:24	06:28 20:02	05:46 20:37	05:31 21:01
19	07:45 08:50-10:07/77 17:06	07:10 08:33-10:14/101 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01
20	07:45 08:48-10:07/79 17:08	07:08 08:33-10:14/101 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:02
21	07:44 08:47-10:08/81 17:09	07:07 08:33-10:13/100 17:51	06:18 18:28	06:23 20:05	05:43 20:40	05:31 21:02
22	07:43 08:46-10:09/83 17:10	07:05 08:33-10:12/99 17:53	06:16 18:29	06:22 20:07	05:43 20:41	05:32 21:02
23	07:42 08:46-10:10/84 17:12	07:04 08:33-10:11/98 17:54	06:15 18:30	06:20 20:08	05:42 20:42	05:32 21:02
24	07:42 08:45-10:11/86 17:13	07:02 08:33-10:09/96 17:55	06:13 18:31	06:19 20:09	05:41 20:43	05:32 21:02
25	07:41 08:44-10:12/88 17:14	07:00 08:34-10:09/95 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:02
26	07:40 08:43-10:12/89 17:16	06:59 08:34-10:07/93 17:58	06:09 18:34	06:15 20:11	05:39 20:45	05:33 21:03
27	07:39 08:42-10:13/91 17:17	06:57 08:34-10:05/91 17:59	06:07 18:35	06:14 20:13	05:38 20:46	05:33 21:03
28	07:38 08:42-10:14/92 17:18	06:56 08:35-10:04/89 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:03
29	07:37 08:41-10:15/94 17:20		07:04 19:37	06:11 20:15	05:37 20:48	05:34 21:03
30	07:36 08:40-10:15/95 17:21		07:02 19:39	06:09 20:16	05:36 20:49	05:34 21:02
31	07:35 08:39-10:15/96 17:22		07:00 19:40		05:36 20:50	
Potential sun hours	288	292	369	403	457	463
Sum of minutes with flicker	2253	2794	950	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: WON038_ShadowFlickering WTG: 7 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (7)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:37
9	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	05:41 21:00	06:12 20:29	06:47 19:37	07:22 18:41	07:03 16:55	07:38 16:36
11	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:36
13	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:52	07:41 16:37
14	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:10 16:48	07:43 16:37
17	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:12 16:48	07:44 16:37
18	05:47 20:54	06:21 20:17	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:24	07:16 16:45	07:46 16:38
21	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:20 16:43	07:48 16:40
24	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	05:54 20:48	06:29 20:05	07:05 19:09	06:41 17:17	07:22 16:41	07:49 16:41
26	05:55 20:47	06:30 20:03	07:06 19:07	06:43 17:15	07:23 16:41	07:49 16:42
27	05:56 20:46	06:31 20:02	07:07 19:05	06:44 17:14	07:24 16:40	07:49 16:42
28	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:26 16:40	07:50 16:43
29	05:58 20:44	06:33 19:58	07:09 19:01	06:47 17:11	07:27 16:39	07:50 16:44
30	05:59 20:43	06:35 19:56	07:10 19:00	06:48 17:09	07:28 16:39	07:50 16:45
31	06:01 20:42	06:36 19:55		06:49 17:08		07:50 16:45
Potential sun hours	469	434	376	342	290	277
Sum of minutes with flicker	0	0	106	2692	2627	1579

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: WON038_ShadowFlickering WTG: 8 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (8)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:12 18:58	06:51 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:19	05:35 20:52	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:32 17:27	06:50 18:05	06:55 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:31 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:02	06:05 20:37	06:40 19:48	07:15 18:52	06:55 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:42 19:46	07:16 18:50	06:56 17:01	07:34 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:55	05:38 21:01	06:07 20:34	06:43 19:44	07:18 18:49	06:57 17:00	07:35 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:02 20:25	05:33 20:55	05:39 21:01	06:08 20:33	06:44 19:42	07:19 18:47	06:59 16:58	07:36 16:37
8	07:50 16:53	07:26 17:34	06:42 18:11	06:46 19:50	06:02 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:37 16:37
9	07:50 16:54	07:24 17:35	06:40 18:13	06:44 19:51	06:02 20:27	05:32 20:57	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:38 16:36
10	07:50 16:56	07:23 17:36	06:38 18:14	06:42 19:52	06:02 20:28	05:32 20:57	05:41 20:59	06:12 20:29	06:47 19:37	07:22 18:42	07:03 16:55	07:38 16:36
11	07:49 16:57	07:22 17:38	06:36 18:15	06:40 19:53	06:02 20:29	05:32 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:24 18:40	07:04 16:54	07:39 16:36
12	07:49 16:58	07:20 17:39	06:35 18:16	06:39 19:54	06:02 20:30	05:31 20:58	05:42 20:58	06:14 20:26	06:50 19:33	07:25 18:38	07:05 16:53	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:18	06:37 19:56	06:02 20:32	05:31 20:59	05:43 20:58	06:15 20:24	06:51 19:31	07:26 18:36	07:07 16:52	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	06:02 20:33	05:31 20:59	05:44 20:57	06:16 20:23	06:52 19:29	07:27 18:35	07:08 16:50	07:42 16:37
15	07:48 17:01	07:16 17:43	06:29 18:20	06:33 19:58	06:02 20:34	05:31 21:00	05:45 20:57	06:17 20:21	06:53 19:27	07:29 18:33	07:09 16:49	07:43 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	06:02 20:35	05:31 21:00	05:46 20:56	06:19 20:20	06:54 19:26	07:30 18:31	07:10 16:49	07:43 16:37
17	07:47 17:04	07:13 17:46	06:26 18:23	06:30 20:01	06:02 20:36	05:31 21:01	05:47 20:55	06:20 20:18	06:55 19:24	07:31 18:29	07:12 16:48	07:44 16:37
18	07:46 17:05	07:12 17:47	06:24 18:24	06:28 20:02	06:02 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:45 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	06:02 20:38	05:31 21:01	05:48 20:54	06:22 20:15	06:58 19:20	07:34 18:26	07:14 16:46	07:45 16:38
20	07:45 17:08	07:08 17:50	06:20 18:26	06:25 20:04	06:02 20:39	05:31 21:02	05:49 20:53	06:23 20:13	06:59 19:18	07:35 18:25	07:16 16:45	07:46 16:38
21	07:44 17:09	07:07 17:51	06:18 18:28	06:23 20:05	06:02 20:40	05:31 21:02	05:50 20:52	06:24 20:12	07:00 19:16	07:36 18:23	07:17 16:44	07:47 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:07	06:02 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:04 17:54	06:15 18:30	06:20 20:08	06:02 20:42	05:32 21:02	05:52 20:50	06:27 20:08	07:02 19:12	07:39 18:20	07:20 16:43	07:48 16:40
24	07:42 17:13	07:02 17:55	06:13 18:31	06:19 20:09	06:02 20:43	05:32 21:02	05:53 20:49	06:28 20:07	07:03 19:11	07:40 18:18	07:21 16:42	07:48 16:40
25	07:41 17:14	07:00 17:57	06:11 18:32	06:17 20:10	06:02 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:05 19:09	07:41 17:17	07:22 16:41	07:49 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	06:02 20:45	05:33 21:03	05:55 20:47	06:30 20:03	07:06 19:07	07:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:13	06:02 20:46	05:33 21:03	05:56 20:46	06:31 20:02	07:07 19:05	07:43 17:14	07:24 16:40	07:49 16:42
28	07:38 17:18	06:56 18:01	06:05 18:36	06:12 20:14	06:02 20:47	05:34 21:03	05:57 20:45	06:32 20:00	07:08 19:03	07:44 17:12	07:26 16:40	07:50 16:43
29	07:37 17:20	07:04 19:37	06:11 20:15	06:17 20:48	06:02 21:03	05:34 21:03	05:58 20:44	06:33 19:58	07:09 19:01	07:45 17:11	07:27 16:39	07:50 16:44
30	07:36 17:21	07:02 19:39	06:09 20:16	06:15 20:49	06:02 21:02	05:34 21:02	06:00 20:43	06:35 19:56	07:10 19:00	07:46 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:11 20:16	06:17 20:50	06:02 21:02	05:34 21:02	06:01 20:42	06:36 19:55	07:11 19:00	07:47 17:08	07:29 16:39	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
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: WON038_ShadowFlickering WTG: 9 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (9)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:54 19:43	06:05 20:20	05:34 20:52	05:36 21:02	06:04 20:38	06:39 19:49	07:14 18:54	06:53 17:04	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:37 21:01	06:05 20:36	06:40 19:47	07:15 18:52	06:54 17:02	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:54	05:37 21:01	06:06 20:35	06:41 19:46	07:16 18:50	06:56 17:01	07:33 16:37
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7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	05:59 20:24	05:33 20:55	05:39 21:00	06:08 20:33	06:44 19:42	07:19 18:47	06:58 16:58	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	05:58 20:26	05:32 20:56	05:39 21:00	06:09 20:31	06:45 19:40	07:20 18:45	07:00 16:57	07:36 16:37
9	07:50 16:54	07:24 17:35	06:40 18:12	06:44 19:51	05:57 20:27	05:32 20:56	05:40 21:00	06:11 20:30	06:46 19:38	07:21 18:43	07:01 16:56	07:37 16:36
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	05:56 20:28	05:32 20:57	05:41 20:59	06:12 20:28	06:47 19:36	07:22 18:41	07:02 16:55	07:38 16:36
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	05:54 20:29	05:32 20:58	05:41 20:59	06:13 20:27	06:48 19:35	07:23 18:40	07:04 16:54	07:39 16:36
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31	07:35 17:22	07:00 19:40	06:11 20:16	06:17 20:50	05:40 21:02	05:32 20:41	05:54 20:41	06:29 19:54	07:04 17:08	07:41 16:49	07:22 16:45	07:48 16:45
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
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: WON038_ShadowFlickering WTG: 10 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (10)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:02 20:40	06:37 19:53	07:11 18:57	06:50 17:06	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	05:35 21:02	06:03 20:39	06:38 19:51	07:13 18:56	06:52 17:05	07:30 16:38
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18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:01	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38
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23	07:42 17:11	07:03 17:54	06:14 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:26 20:08	07:02 19:12	07:38 18:20	07:19 16:43	07:47 16:40
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Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	277
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: WON038_ShadowFlickering WTG: 11 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (11)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:50 16:46	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:35 21:02	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38
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15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	05:50 20:33	05:31 20:59	05:45 20:56	06:17 20:21	06:53 19:27	07:28 18:33	07:09 16:49	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	05:49 20:35	05:31 21:00	05:46 20:56	06:18 20:19	06:54 19:25	07:30 18:31	07:10 16:48	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	05:47 20:36	05:31 21:00	05:46 20:55	06:20 20:18	06:55 19:23	07:31 18:29	07:11 16:47	07:44 16:37
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:01	05:46 20:37	05:31 21:01	05:47 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	05:45 20:38	05:31 21:01	05:48 20:53	06:22 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	05:44 20:39	05:31 21:01	05:49 20:52	06:23 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:38
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	05:43 20:40	05:31 21:01	05:50 20:52	06:24 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	05:43 20:41	05:32 21:02	05:51 20:51	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39
23	07:42 17:12	07:03 17:54	06:14 18:30	06:20 20:08	05:42 20:42	05:32 21:02	05:52 20:50	06:26 20:08	07:02 19:12	07:38 18:20	07:19 16:43	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:18 20:09	05:41 20:43	05:32 21:02	05:53 20:49	06:28 20:06	07:03 19:10	07:40 18:18	07:20 16:42	07:48 16:40
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	05:40 20:44	05:32 21:02	05:54 20:48	06:29 20:05	07:04 19:09	06:41 17:16	07:22 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:33	06:15 20:11	05:39 20:45	05:33 21:02	05:55 20:47	06:30 20:03	07:05 19:07	06:42 17:15	07:23 16:41	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	05:38 20:46	05:33 21:02	05:56 20:46	06:31 20:01	07:07 19:05	06:44 17:13	07:24 16:40	07:49 16:42
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	05:38 20:47	05:34 21:02	05:57 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:25 16:40	07:49 16:43
29	07:37 17:20	07:03 19:37	06:11 20:15	06:17 20:48	05:37 21:02	05:34 20:44	05:58 20:44	06:33 19:58	07:09 19:01	06:46 17:10	07:26 16:39	07:49 16:44
30	07:36 17:21	07:02 19:38	06:09 20:16	06:15 20:49	05:36 20:49	05:34 21:02	05:59 20:42	06:34 19:56	07:10 18:59	06:48 17:09	07:28 16:39	07:50 16:45
31	07:35 17:22	07:00 19:40	06:08 20:17	06:14 20:50	05:35 20:51	05:35 21:02	06:02 20:40	06:37 19:53	07:11 18:58	06:50 17:06	07:29 16:38	
Potential sun hours	288	292	369	403	457	463	469	434	376	342	290	278
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: WON038_ShadowFlickering WTG: 12 - VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December			
1	07:50 16:47	07:34 17:24	06:54 18:02	06:58 19:41	06:08 20:17	05:35 20:50	05:59-07:04/65 21:02	05:35 21:02	06:01-07:09/68 20:40	06:02 20:40	06:26-07:09/43 19:53	06:37 18:58	07:11 17:06	06:50 16:38	07:29 16:38
2	07:50 16:47	07:33 17:25	06:52 18:03	06:56 19:42	06:06 20:18	05:35 20:51	06:00-07:05/65 21:02	05:36 21:02	06:03-07:10/67 20:39	06:03 20:39	06:28-07:08/40 19:51	06:38 18:56	07:13 17:05	06:52 16:38	07:30 16:38
3	07:50 16:48	07:31 17:27	06:50 18:05	06:54 19:43	06:05 20:20	05:34 20:20	05:59-07:04/65 21:02	05:36 21:02	06:03-07:10/67 20:38	06:04 20:38	06:30-07:07/37 19:49	06:39 18:54	07:14 17:04	06:53 16:38	07:31 16:38
4	07:50 16:49	07:30 17:28	06:49 18:06	06:53 19:45	06:04 20:21	05:34 20:53	05:59-07:05/66 21:01	05:37 21:01	06:04-07:10/66 20:36	06:05 20:36	06:32-07:06/34 19:47	06:40 18:52	07:15 17:02	06:54 16:37	07:32 16:37
5	07:50 16:50	07:29 17:29	06:47 18:07	06:51 19:46	06:02 20:22	05:33 20:53	05:59-07:05/66 21:01	05:37 21:01	06:05-07:11/66 20:35	06:06 20:35	06:33-07:05/32 19:46	06:41 18:50	07:16 17:01	06:56 16:37	07:33 16:37
6	07:50 16:51	07:28 17:31	06:45 18:09	06:49 19:47	06:01 20:23	05:33 20:54	05:58-07:05/67 21:01	05:38 21:01	06:04-07:11/67 20:34	06:07 20:34	06:35-07:04/29 19:44	06:43 18:49	07:17 17:00	06:57 16:37	07:34 16:37
7	07:50 16:52	07:27 17:32	06:43 18:10	06:47 19:48	06:00 20:24	05:33 20:55	05:59-07:05/66 21:00	05:39 21:00	06:05-07:11/66 20:32	06:08 20:32	06:37-07:02/25 19:42	06:44 18:47	07:19 16:58	06:58 16:37	07:35 16:37
8	07:50 16:53	07:25 17:34	06:42 18:11	06:46 19:49	06:00 20:25	05:32 20:56	05:59-07:05/66 21:00	05:39 21:00	06:06-07:12/66 20:30	06:09 20:30	06:38-07:00/22 19:40	06:45 18:45	07:20 16:57	07:00 16:37	07:36 16:37
9	07:49 16:54	07:24 17:35	06:40 18:12	06:44 19:51	06:00 20:27	05:32 20:56	05:59-07:05/66 21:00	05:40 21:00	06:06-07:12/66 20:30	06:11 20:30	06:41-06:57/16 19:38	06:46 18:43	07:21 16:56	07:01 16:37	07:37 16:37
10	07:49 16:56	07:23 17:36	06:38 18:14	06:42 19:52	06:00 20:28	05:32 20:57	05:58-07:05/67 21:00	05:41 20:59	06:07-07:12/65 20:59	06:12 20:59	06:46-06:51/5 19:36	06:47 18:41	07:22 16:55	07:02 16:37	07:38 16:37
11	07:49 16:57	07:21 17:38	06:36 18:15	06:40 19:53	06:00 20:29	05:32 20:57	05:58-07:05/67 21:00	05:42 20:59	06:08-07:13/65 20:59	06:13 20:59	06:48 19:35	06:48 18:40	07:23 16:54	07:04 16:37	07:39 16:37
12	07:49 16:58	07:20 17:39	06:34 18:16	06:39 19:54	06:00 20:30	05:31 20:58	05:57-07:05/68 21:00	05:42 20:58	06:08-07:13/65 20:58	06:14 20:58	06:49 19:33	06:49 18:38	07:25 16:53	07:05 16:37	07:40 16:37
13	07:48 16:59	07:19 17:41	06:33 18:17	06:37 19:55	06:00 20:31	05:31 20:58	05:57-07:05/68 21:00	05:43 20:57	06:08-07:12/64 20:57	06:15 20:57	06:51 19:31	07:26 18:36	07:06 16:52	07:41 16:37	07:41 16:37
14	07:48 17:00	07:17 17:42	06:31 18:19	06:35 19:57	06:00 20:32	05:31 20:59	05:57-07:06/69 21:00	05:44 20:59	06:09-07:13/64 20:57	06:16 20:57	06:52 19:29	07:27 18:34	07:08 16:51	07:41 16:37	07:41 16:37
15	07:47 17:01	07:16 17:43	06:29 18:20	06:33 19:58	06:00 20:33	05:31 20:59	05:57-07:06/69 21:00	05:45 20:56	06:10-07:13/63 20:56	06:17 20:56	06:53 19:27	07:28 18:33	07:09 16:50	07:42 16:37	07:42 16:37
16	07:47 17:03	07:14 17:45	06:27 18:21	06:32 19:59	06:00 20:35	05:31 21:00	05:57-07:06/69 21:00	05:46 20:56	06:11-07:13/62 20:56	06:19 20:56	06:54 19:25	07:30 18:31	07:10 16:49	07:43 16:37	07:43 16:37
17	07:46 17:04	07:13 17:46	06:25 18:22	06:30 20:00	06:00 20:36	05:31 21:00	05:57-07:06/69 21:00	05:47 20:55	06:12-07:14/62 20:55	06:20 20:18	06:55 19:23	07:31 18:29	07:11 16:48	07:44 16:38	07:44 16:38
18	07:46 17:05	07:11 17:47	06:24 18:24	06:28 20:02	06:00 20:37	05:31 21:01	05:57-07:06/69 21:00	05:48 20:54	06:13-07:14/61 20:54	06:21 20:16	06:56 19:22	07:32 18:28	07:13 16:47	07:44 16:38	07:44 16:38
19	07:45 17:06	07:10 17:49	06:22 18:25	06:27 20:03	06:00 20:38	05:31 21:01	05:57-07:06/69 21:00	05:48 20:53	06:14-07:14/60 20:53	06:22 20:15	06:57 19:20	07:33 18:26	07:14 16:46	07:45 16:38	07:45 16:38
20	07:44 17:08	07:08 17:50	06:20 18:26	06:25 20:04	06:00 20:39	05:31 21:01	05:57-07:06/69 21:00	05:49 20:52	06:14-07:13/59 20:52	06:23 20:13	06:59 19:18	07:35 18:24	07:15 16:45	07:46 16:39	07:46 16:39
21	07:44 17:09	07:07 17:51	06:18 18:27	06:23 20:05	06:00 20:40	05:32 21:01	05:58-07:07/69 21:00	05:50 20:52	06:15-07:13/58 20:52	06:24 20:11	07:00 19:16	07:36 18:23	07:17 16:44	07:46 16:39	07:46 16:39
22	07:43 17:10	07:05 17:53	06:16 18:29	06:22 20:06	06:00 20:41	05:32 21:02	05:58-07:07/69 21:00	05:51 20:51	06:16-07:13/57 20:50	06:25 20:10	07:01 19:14	07:37 18:21	07:18 16:43	07:47 16:39	07:47 16:39
23	07:42 17:12	07:03 17:54	06:15 18:30	06:20 20:08	06:00 20:42	05:32 21:02	05:58-07:07/69 21:00	05:52 20:50	06:18-07:13/55 20:50	06:27 20:08	07:02 19:12	07:38 18:20	07:19 16:43	07:47 16:40	07:47 16:40
24	07:41 17:13	07:02 17:55	06:13 18:31	06:19 20:09	06:00 20:43	05:32 21:02	05:58-07:07/69 21:00	05:53 20:49	06:19-07:13/54 20:49	06:28 20:06	07:03 19:10	07:40 18:18	07:20 16:42	07:48 16:41	07:48 16:41
25	07:40 17:14	07:00 17:57	06:11 18:32	06:17 20:10	06:00 20:44	05:33 21:02	05:59-07:08/69 21:00	05:54 20:48	06:19-07:13/54 20:48	06:29 20:05	07:04 19:09	06:41 17:17	07:22 16:41	07:48 16:41	07:48 16:41
26	07:40 17:16	06:59 17:58	06:09 18:34	06:15 20:11	06:00 20:45	05:33 21:02	05:59-07:08/69 21:00	05:55 20:47	06:20-07:13/53 20:47	06:30 20:03	07:06 19:07	06:42 17:15	07:23 16:41	07:49 16:42	07:49 16:42
27	07:39 17:17	06:57 17:59	06:07 18:35	06:14 20:12	06:00 20:46	05:33 21:02	06:00-07:09/69 21:00	05:56 20:46	06:21-07:12/51 20:46	06:31 20:01	07:07 19:05	06:44 17:14	07:24 16:40	07:49 16:42	07:49 16:42
28	07:38 17:18	06:55 18:01	06:05 18:36	06:12 20:14	06:00 20:47	05:34 21:02	06:00-07:09/69 21:00	05:57 20:45	06:21-07:12/51 20:45	06:32 20:00	07:08 19:03	06:45 17:12	07:25 16:40	07:49 16:43	07:49 16:43
29	07:37 17:20	06:54 19:37	06:04 19:37	06:11 20:15	06:00 20:48	05:34 21:02	06:00-07:08/68 21:00	05:58 20:44	06:22-07:11/49 20:44	06:33 19:58	07:09 19:01	06:46 17:11	07:26 16:39	07:49 16:44	07:49 16:44
30	07:36 17:21	06:53 19:38	06:03 20:16	06:10 20:16	06:00 20:49	05:35 21:02	06:01-07:09/68 21:00	06:00 20:42	06:23-07:11/48 19:56	06:35 19:56	07:10 18:59	06:48 17:09	07:28 16:39	07:50 16:45	07:50 16:45
31	07:35 17:22	06:52 19:40	06:02 19:40	06:09 20:16	06:00 20:49	05:36 20:49	06:02-07:10/45 20:41	06:01 20:41	06:25-07:10/45 19:54	06:36 19:54	07:11 17:08	06:49 17:08	07:29 16:45	07:50 16:45	07:50 16:45
Potential sun hours	288	292	369	403	457	463	469	434	283	376	342	290	278	0	0
Sum of minutes with flicker	0	0	0	0	1384	2033	1864	283	0	0	0	0	0	0	0

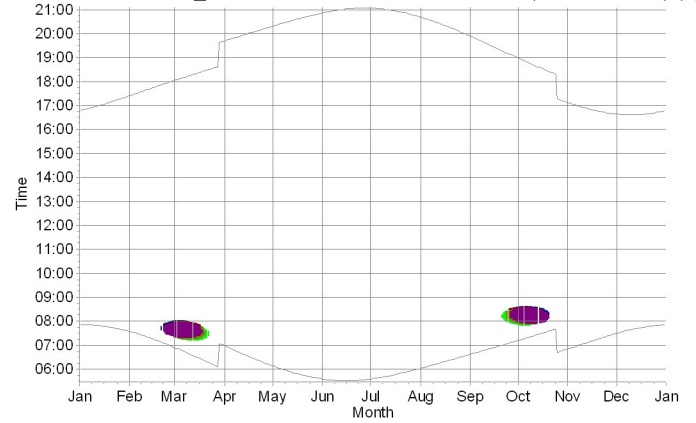
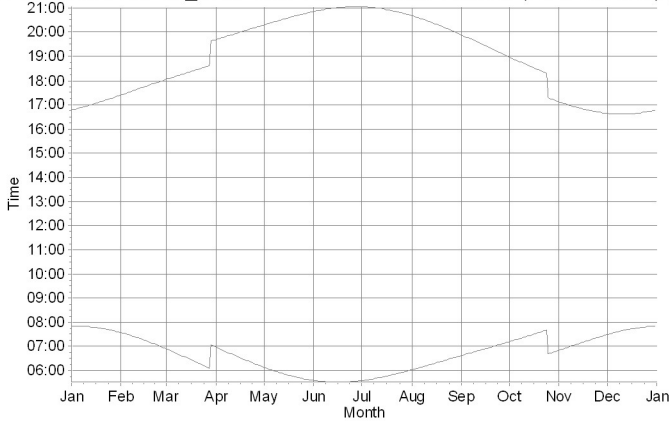
Table layout: For each day in each month the following matrix apply

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

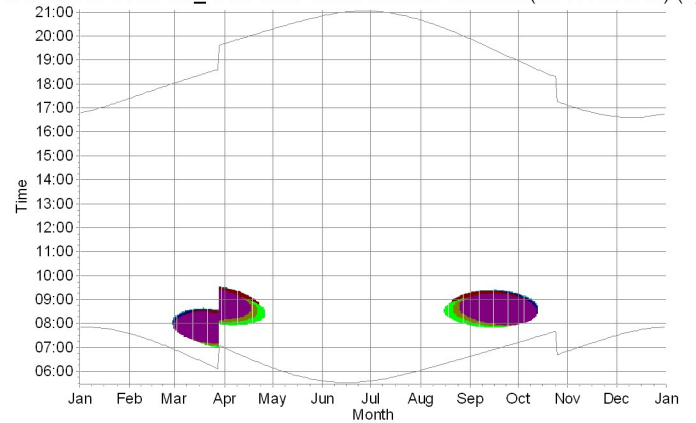
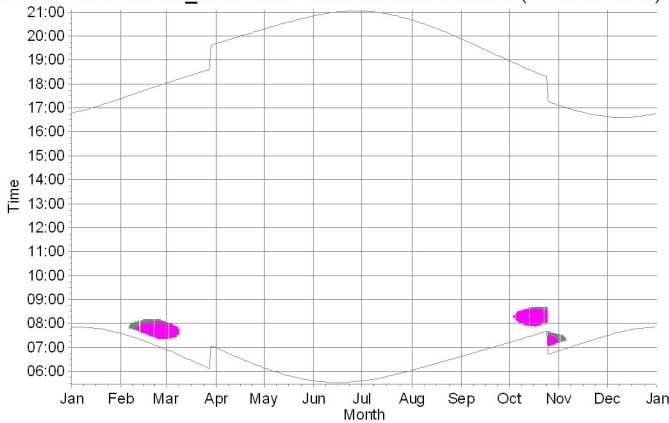
SHADOW - Calendar per WTG, graphical

Calculation: WON038_ShadowFlickering

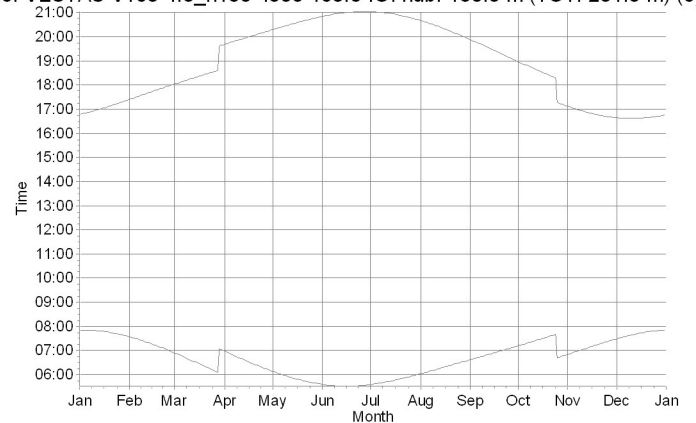
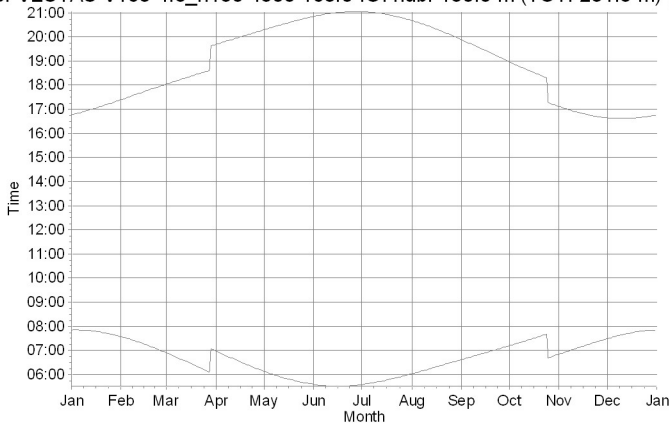
1: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (2: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (2)



3: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (4)



5: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (6: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (6)



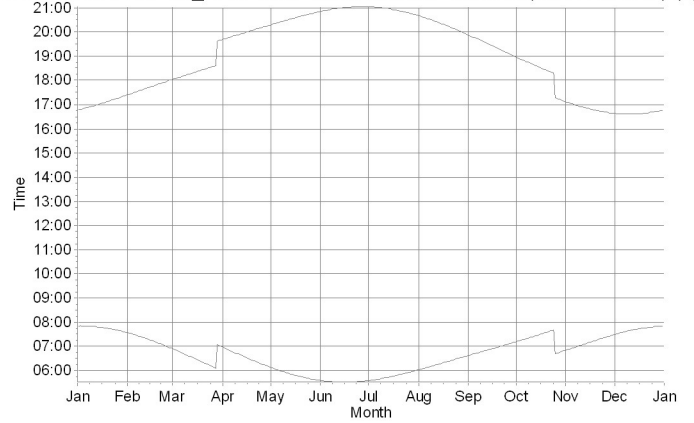
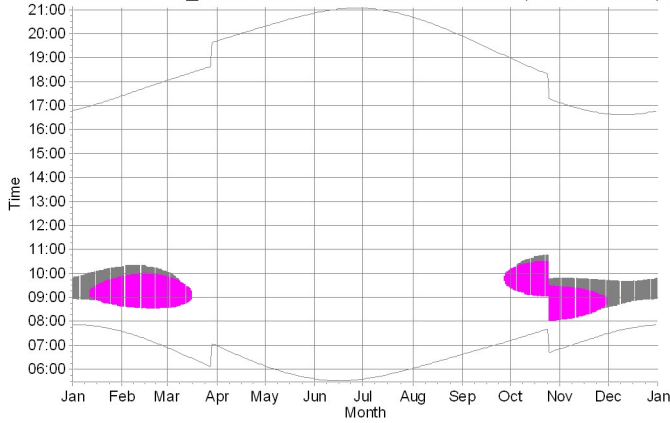
Shadow receptors

- | | | |
|--|--|---|
| D: Shadow Receptor: 1.0 x 1.0 Azimuth: -40.0° Slope: 90.0° (4) | G: Shadow Receptor: 1.0 x 1.0 Azimuth: -50.0° Slope: 90.0° (7) | J: Shadow Receptor: 1.0 x 1.0 Azimuth: -50.0° Slope: 90.0° (10) |
| E: Shadow Receptor: 1.0 x 1.0 Azimuth: -40.0° Slope: 90.0° (5) | H: Shadow Receptor: 1.0 x 1.0 Azimuth: -50.0° Slope: 90.0° (8) | K: Shadow Receptor: 1.0 x 1.0 Azimuth: -50.0° Slope: 90.0° (11) |
| F: Shadow Receptor: 1.0 x 1.0 Azimuth: -50.0° Slope: 90.0° (6) | I: Shadow Receptor: 1.0 x 1.0 Azimuth: -60.0° Slope: 90.0° (9) | |

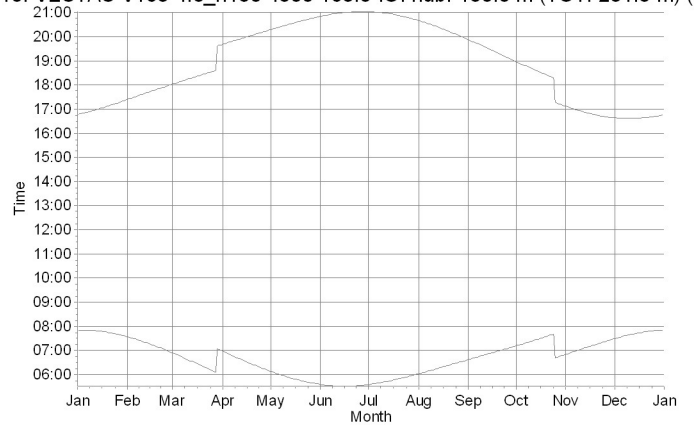
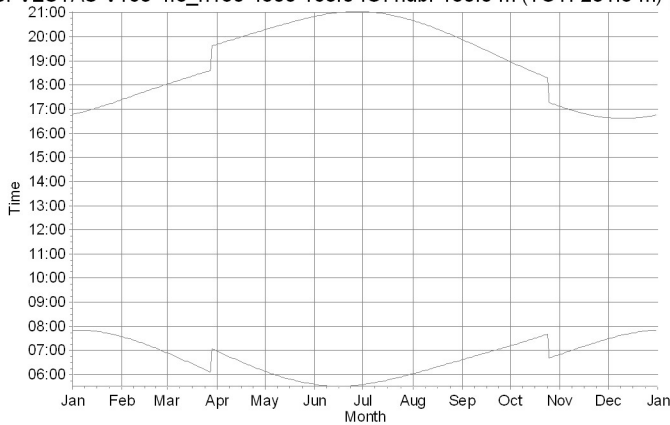
SHADOW - Calendar per WTG, graphical

Calculation: WON038_ShadowFlickering

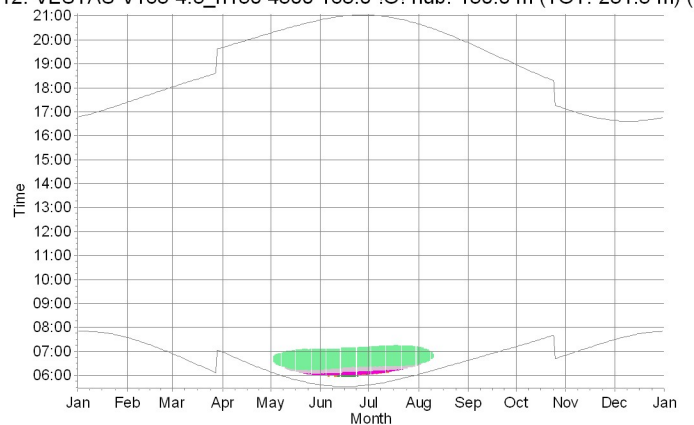
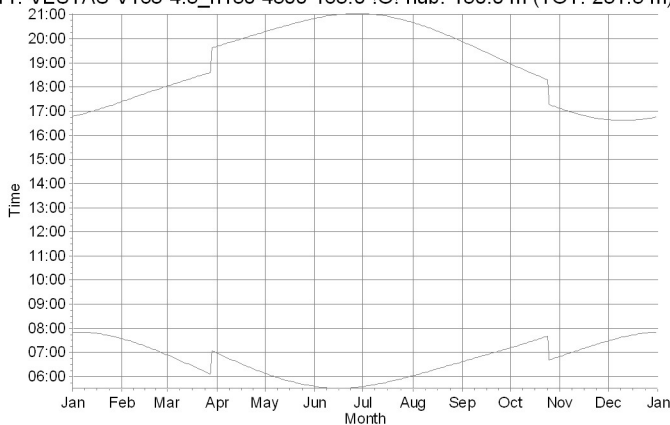
7: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (8: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (8)



9: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (10: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (10)



11: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) 12: VESTAS V163-4.5_h150 4500 163.0 !O! hub: 150.0 m (TOT: 231.5 m) (12)

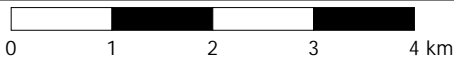
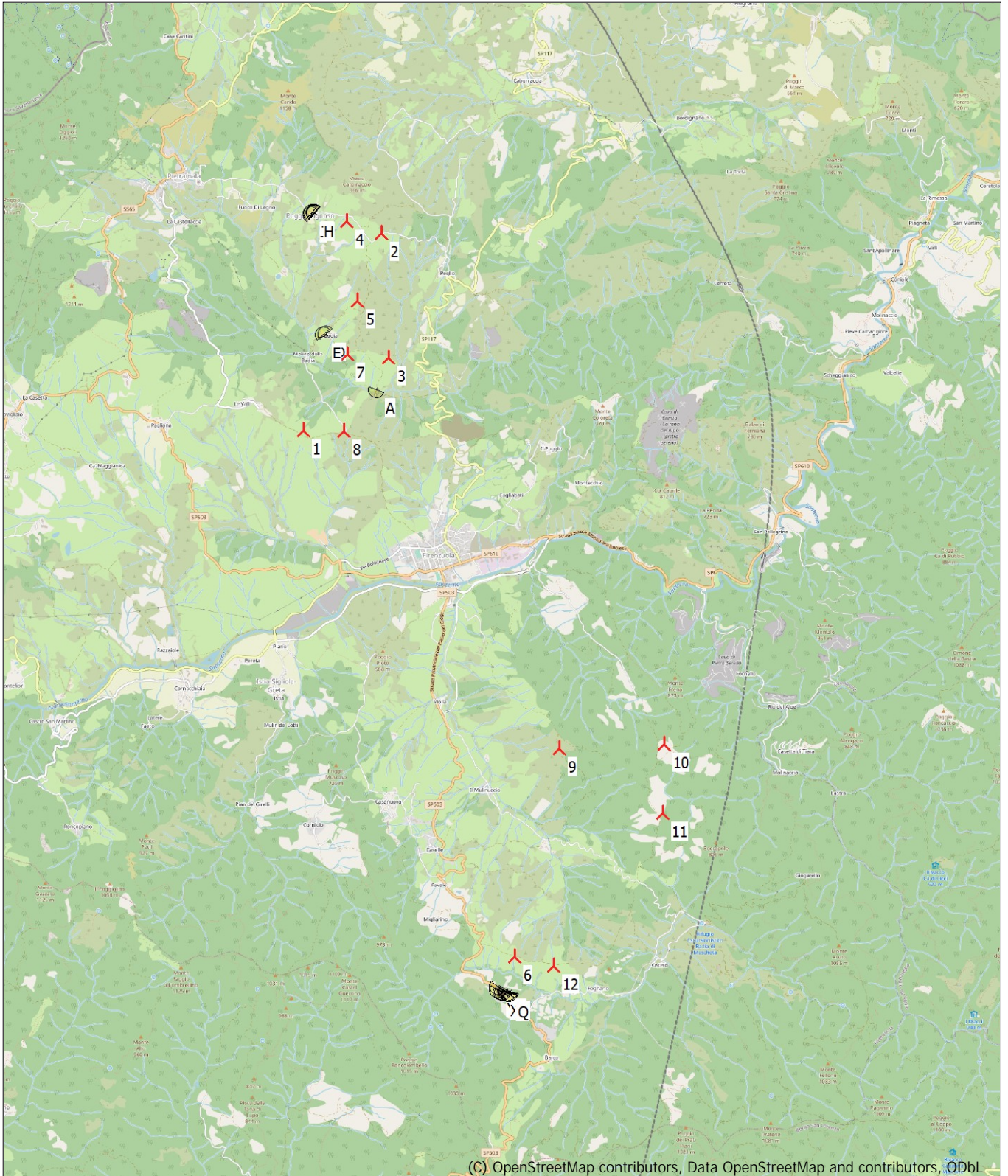


Shadow receptors

- | | | |
|--|--|--|
| D: Shadow Receptor: 1.0 x 1.0 Azimuth: -40.0° Slope: 90.0° (4) | P: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (16) | V: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (22) |
| E: Shadow Receptor: 1.0 x 1.0 Azimuth: -40.0° Slope: 90.0° (5) | Q: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (17) | W: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (23) |
| L: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (12) | R: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (18) | X: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (24) |
| M: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (13) | S: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (19) | Y: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (25) |
| N: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (14) | T: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (20) | Z: Shadow Receptor: 1.0 x 1.0 Azimuth: -140.0° Slope: 90.0° (26) |
| O: Shadow Receptor: 1.0 x 1.0 Azimuth: -170.0° Slope: 90.0° (15) | U: Shadow Receptor: 1.0 x 1.0 Azimuth: -150.0° Slope: 90.0° (21) | |

SHADOW - Map

Calculation: WON038_ShadowFlickering



Map: EMD OpenStreetMap , Print scale 1:75,000, Map center UTM (north)-WGS84 Zone: 32 East: 691,001 North: 4,887,184

New WTG Shadow receptor

Flicker map level: Elevation Grid Data Object: WON038_EMDGrid_0.wpg (1)