

APPENDIX VIII. SOUND AND SHADOW FLICKER ASSESSMENT



Introduction

Celtic Current LP is currently in the planning stages for developing the New Victoria Community Wind Project. The project will consist of a single, Enercon E-92 turbine located south east of the community of New Victoria.

The following report summarizes the results of sound and shadow flicker modeling which will be incorporated into the Nova Scotia Environmental Assessment Registration Document.

Sound Analysis

Background

AL-PRO Wind Energy Consulting Canada Inc. has completed a sound impact assessment for the proposed New Victoria Wind Turbine. The objective of the analysis was to assess the impact of the the wind turbine sound emissions on surrounding dwellings. There are no municipally or provincially regulated restrictions on sound pressure levels from wind turbines, however, Nova Scotia Environment (NSE) requires that predicted levels should not exceed 40 dBA for residential receptors which include homes, daycare's, hospitals and schools. This guideline was used for this assessment.

Methodology

The sound analysis was completed using WindPro 3.0.651 which provides a comprehensive suite of wind farm design and modeling software. The sound model is based on the *ISO 9613-2 – Attenuation of sound during propagation outdoors, Part 2*. This international standard provides a conservative estimate of sound propagation and subsequent environmental attenuation as a result of ground porosity, atmospheric attenuation and geometric spreading. A conservative modeling approach was utilized for this project by using the General model with no ground attenuation. This assumes the earth's surface between the turbine and the receptor is a hard surface which results in no sound dampening. The ISO 9613-2 standard assumes an ambient air temperature of 10° C and 70% relative humidity which are ideal for atmospheric sound transfer. A meteorological coefficient can be assigned to the model to simulate sound damping due to unique meteorological conditions and noise propagation in the upwind direction. To maintain a conservative approach, no meteorological coefficient was applied for this analysis.

Table 1 summarizes the turbine position and turbine specifications used for the model are summarized in Table 2. The turbine manufacturer provided an extract of a test report completed by a third party consulting firm, Müller-BBM that shows the highest sound power output level of 105.4 dBA was observed at a wind speed of 7.0 m/s (10 m a.g.l.) for an E-92 turbine with a 98 m hub height. This level and the associated 1/3 octave band data were used as model inputs Table 3.

Table 1: Proposed Turbine Positions

Position	Easting*	Northing*
Turbine Option Location 1	720,720	5,125,089
Turbine Option Location 2	720,882	5,125,008

* UTM, NAD83, Zone 20

Table 2: Turbine Specifications Used for Sound Modeling

Item	Specification
Manufacturer	Enercon
Model	E-92
Hub Height	98 m
Rotor Diameter	92 m
Operation Mode	Full Power
Rated Power Output	2,350 kW
Wind Speed	7.0 m/s
Maximum Sound Output (7 m/s)	105.4 dBA

Table 3: Extract From Test Report E- 92 Model1 M111164- 02 (Müller- BBM GmbH)

Wind Speed @ 10 m (m/s)	Sound Power level (dBA)	Octave Sound Power level (dB)							
		63	125	250	500	1000	2000	4000	8000
6	103.7	85.7	94.1	94.8	97.3	98.7	95.5	91.3	79.3
7	105.4	87.4	95.8	96.5	99	100.4	97.2	91.3	81
8	104.9	86.9	95.3	96	98.5	99.9	96.7	90.8	80.5

All mapped buildings within 1 km of the proposed wind turbine were extracted from the Nova Scotia Topographic database and field verified to ensure sheds, garages, playgrounds, old foundations, etc. were excluded from the analysis. A total of 85 receptors including single and multiple family dwellings as well as a church were identified and considered as receptors. The location of the various receptors are shown in Figures 1 and 2 for Turbine Option Location 1 and 2. The individual sound pressure levels for each receptor are shown in Table 4. Modelling data output sheets for both Turbine Option Locations are attached.

Table 4: Sound Modeling Results for Individual Receptors.



ID	UTM, NAD83, Zone 20		Elevation [m]	Predicted Sound (dBA)		ID	UTM, NAD83, Zone 20		Elevation [m]	Predicted Sound (dBA)	
	Eastings	Northing		Option 1	Option 2		Eastings	Northing		Option 1	Option 2
1	720,203	5,125,744	20	36.4	34.5	44	721,198	5,125,740	32.2	36.7	36.9
2	720,190	5,125,795	20	35.8	34.0	45	721,196	5,125,877	33.4	37.4	37.6
3	720,206	5,125,820	20	35.7	33.9	46	721,220	5,125,667	34.6	37.3	37.6
4	720,308	5,125,739	21.6	37.2	35.2	47	721,237	5,125,733	34.1	36.5	36.7
5	720,604	5,125,865	25	37.0	35.6	48	721,208	5,125,786	31.3	36.2	36.3
6	720,543	5,126,003	23.1	35.2	33.9	49	721,219	5,125,818	30.4	35.8	35.9
7	720,570	5,125,992	23.6	35.4	34.1	50	721,237	5,125,858	29.2	35.3	35.3
8	720,584	5,125,987	23.8	35.5	34.2	51	721,270	5,125,839	31.1	35.3	35.4
9	720,613	5,125,976	24.3	35.7	34.4	52	721,249	5,125,810	31.7	35.7	35.8
10	720,643	5,125,963	24.8	35.9	34.6	53	721,236	5,125,773	32.9	36.1	36.3
11	720,655	5,125,956	25	36.0	34.7	54	721,254	5,125,723	35.1	36.5	36.8
12	720,674	5,125,953	25	36.0	34.8	55	721,283	5,125,755	35.1	35.9	36.2
13	720,684	5,125,946	25	36.1	34.9	56	721,295	5,125,790	34.2	35.5	35.8
14	720,703	5,125,943	25	36.1	35.0	57	721,304	5,125,827	33.1	35.1	35.4
15	720,597	5,126,024	23.1	35.1	33.9	58	721,344	5,125,807	35.7	35.0	35.3
16	720,633	5,126,011	23.7	35.3	34.1	59	721,323	5,125,779	35.5	35.4	35.7
17	720,666	5,125,996	24.3	35.5	34.4	60	721,310	5,125,745	36	35.8	36.2
18	720,801	5,126,011	24.8	35.3	34.4	61	721,303	5,125,697	36.5	36.3	36.7
19	720,796	5,125,973	25	35.7	34.8	62	721,300	5,125,675	36.6	36.5	37
20	720,786	5,125,953	25	36.0	35.0	63	721,339	5,125,664	37.4	36.1	36.6
21	720,826	5,125,892	25	36.7	35.8	64	721,338	5,125,733	36.9	35.7	36.1
22	720,865	5,125,925	25	36.2	35.4	65	721,346	5,125,767	36.4	35.3	35.7
23	720,852	5,125,871	25	36.9	36.0	66	721,366	5,125,799	37.2	34.9	35.3
24	720,883	5,125,858	25	37.0	36.2	67	721,397	5,125,767	38.6	34.8	35.2
25	720,899	5,125,914	25	36.3	35.5	68	721,366	5,125,761	37	35.2	35.7
26	720,906	5,125,990	25	35.4	34.7	69	721,365	5,125,732	37.6	35.5	36
27	720,967	5,126,017	24.5	34.9	34.3	70	721,355	5,125,678	37.9	36.0	36.6
28	720,977	5,125,883	25	36.4	35.8	71	721,371	5,125,672	38.3	35.9	36.5
29	720,982	5,125,817	25	37.2	36.6	72	721,427	5,125,705	39.3	35.2	35.8
30	721,010	5,125,807	25.3	37.2	36.7	73	721,435	5,125,636	40	35.6	36.4
31	721,076	5,125,836	26.1	36.5	36.2	74	721,386	5,125,564	39.7	36.6	37.5
32	721,091	5,125,871	25	36.0	35.7	75	721,410	5,125,565	40	36.4	37.3
33	721,119	5,125,861	25.9	36.0	35.8	76	721,476	5,125,677	40	35.0	35.7
34	721,105	5,125,825	27.1	36.4	36.2	77	721,473	5,125,716	40	34.7	35.4
35	721,137	5,125,760	29.4	37.0	36.9	78	721,527	5,125,695	40	34.4	35.1
36	721,151	5,125,808	28.6	36.3	36.3	79	721,534	5,125,661	40	34.5	35.3
37	721,163	5,125,842	27.8	35.9	35.8	80	721,547	5,125,605	40	34.8	35.7
38	721,176	5,125,874	26.9	35.5	35.4	81	721,570	5,125,594	40	34.6	35.6
39	721,207	5,125,864	28.2	35.4	35.4	82	721,584	5,125,588	40	34.5	35.5
40	721,193	5,125,830	29.2	35.8	35.8	83	721,604	5,125,582	40	34.4	35.4
41	721,182	5,125,798	30	36.2	36.3	84	721,487	5,125,263	40	37.0	38.7
42	721,166	5,125,747	30.6	36.9	36.9	85	721,655	5,125,171	32.9	35.2	37
43	721,182	5,125,738	31.5	36.9	37.0						

Sound Modeling Results

The results of the analysis indicate that predicted sound pressure levels will not exceed 40 dBA for existing receptors for both turbine location options. This meets the existing threshold levels recognized by Nova Scotia Environment and no noise mitigation measures will be required.

Shadow Flicker Analysis

Background

The rotating blades of a wind turbine create moving shadows known as shadow flicker that are noticeable in close proximity of a turbine.

The potential impact depends on the time of year, the physical characteristics of the wind turbine, the orientation of the blades relative to the sun and of course, the presence of sunlight.

Methodology

A shadow flicker analysis was completed using WindPro 3.0.651 which provides a comprehensive suite of wind farm design and modeling software. The shadow flicker analysis was based on a worst case scenario which assumes that:

- The sun shines 100% of the time when it is above the horizon;
- The turbine rotor is always perpendicular to the sun;
- Shadow flicker starts as the sun moves above 3 degrees from the horizon;
- The shadows dissipate at a maximum distance from the blade as a result of atmospheric conditions and light diffusion, and;
- The rotor blades are always spinning.

The total length of the shadow influence in the atmosphere is calculated from the physical dimensions of the turbine blade. In this analysis, the maximum shadow distance for the E-92 was calculated to be 1,517 m. There are no municipal, provincial or federal guidelines for shadow flicker, however most jurisdictions consider a maximum of 30 hours of shadow flicker per year and a maximum of 30 minutes per day as the threshold parameters used to define the acceptable level of flicker from wind projects. These levels originate from Europe and are designed to reduce annoyance at neighboring dwellings.

Initially, a digital elevation model (DEM) was generated from 5 m contour data contained within the Nova Scotia Topographic database. The DEM was used to define the 'bare earth' for the initial model runs.

In the case of Turbine Option Location 2, the maximum daily shadow at nearby receptors slightly exceeded the maximum minutes per day using the bare earth approach. To obtain a more realistic approximation of the shadow impact, the existing forest height was incorporated into the analysis. Forest stand height data obtained from the Nova Scotia Department of Natural Resources was added to the DEM to create a digital surface model (DSM) which incorporated the canopy height of the existing forest. Forest stand height is



defined as the average height of co-dominant trees within a stand and was updated from 2008 aerial photography. Field verification of forest stand heights indicated that mean stand height from the forest inventory database is conservative in nature and may be attributed to annual height growth since the last update in 2008. The DSM was used as the terrain input for subsequent shadow modeling for Turbine Option Location 2.

Shadow analysis was performed for Turbine Option Location 1 using the bare earth/worst case scenario and Turbine Option Location 2 using the forest canopy height model/worst case scenario.

Shadow Flicker Results

The spatial extent of the shadow impact for the worst case scenario are presented in Figures 3 to 6. Figures 3 and 5 highlight the Total Shadow Hours Per Year for Turbine Option Locations 1 and 2. The Maximum Shadow Minutes Per Day for Turbine Option Locations 1 and 2 are shown in Figures 4 and 6 respectively. The results of this analysis indicate that all dwellings are below the threshold levels of 30 hours of shadow flicker per year and a maximum of 30 minutes per day.

Ten representative receptors closest to the shadow impact area were selected for a detailed analysis and the results are presented in Table 5. The location of the receptors is also indicated in Figures 3 to 6.

In all cases, receptors will receive less than 30 hours per year and 30 minutes per day of shadow flicker in the worst case scenario. Modelling output (results) sheets are attached to this report. As these results are based on conservative model inputs, the actual level of impact will be much less as sunshine, wind conditions and turbine availability will all reduce the impacts.

Therefore, results of the shadow flicker modeling indicate that no mitigation measures are required.

Table 5: Predicted Shadow Flicker for 5 Representative Receptors Based on a Worst Case and Realistic Case Scenario's.

<i>Receptor ID</i>	Turbine Option Location 1 ¹			Turbine Option Location 2 ²		
	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)
	Worst Case	Realistic Case	Worst Case	Worst Case	Realistic Case	Worst Case
46	19:02	03:50	00:29	00:00	00:00	00:00

Receptor ID	Turbine Option Location 1 ¹			Turbine Option Location 2 ²		
	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)	Shadow Hours Per Year (hr:min)	Max Shadow Minutes/Day (hr:min)
	Worst Case	Realistic Case	Worst Case	Worst Case	Realistic Case	Worst Case
61	21:30	04:19	00:28	00:00	00:00	00:00
63	25:47	05:13	00:27	00:00	00:00	00:00
70	26:52	05:29	00:27	00:00	00:00	00:00
71	26:50	05:31	00:26	00:00	00:00	00:00
75	15:34	03:24	00:27	00:00	00:00	00:00
84	12:01	02:38	00:27	03:02	00:42	00:11
85	08:31	02:01	00:23	10:45	02:29	00:27

1: Bare Earth Model
2: Forest Canopy Model

Realistic Condition Comparison

Although not used in the final modeling exercise, monthly sunshine data were used to compare the difference between methods described above and more realistic conditions. The realistic site case was modeled using site specific wind conditions and monthly sunshine probabilities obtained from the closest observatory at Charlottetown, PEI. The monthly daily sunshine hours used in the analysis are presented in Table 6.

The realistic case results are also presented in Table 5 which demonstrate the dramatic reduction in shadow hours per year between the worst case and realistic case conditions.

The realistic condition comparison confirms that receptors in close proximity to the proposed turbine locations will receive less than 30 hours per year and 30 minutes per day of shadow flicker in the worst case scenario. As these results are based on conservative model inputs, the actual level of impact (realistic case) will be much less as sunshine, wind conditions and turbine availability will all reduce the impacts.

Table 6: Monthly Average Sunshine Hours For Charlottetown, PEI.

Month	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Average Daily Sunshine Hours	3.37	4.18	4.42	5.04	6.34	7.54	7.95	7.19	5.76	3.96	2.63	2.31



References

International Organization for Standardization (1996). ISO 9613-2: Acoustics –Attenuation of sound during propagation outdoors – Part 2: General method of calculation.

Müller-BBM GmbH, GelsenKirchen, Germany, 2013, Extract of Test Report M111 164/02 regarding noise emission of Wind Turbine (WT) Enercon E - 92.

Ontario Ministry of the Environment (2008). Noise guidelines for wind farms. Ontario.

Nova Scotia Topographic Database, <https://gis8.nsgc.gov.ns.ca/DataLocatorASP/main.html>

Nova Scotia Forest Inventory, http://novascotia.ca/natr/forestry/gis/dl_forestry.asp

DECIBEL - Main Result

Calculation: Option 1 890 New Victoria Sound hard ground

Noise calculation model:

ISO 9613-2 General

Wind speed:

7.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.0

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

1: WTG noise is compared to demand (DK, DE, SE, NL etc.)

Noise values in calculation:

All noise values are mean values (Lwa) (Normal)

Pure tones:

Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

1.5 m Allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)



▲ New WTG

■ Noise sensitive area

WTGs

Easting	Northing	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
				Valid	Manufact.	Type-generator				Creator	Name			
1	720,720	5,125,089	29.9 ENERCON E-92 2,3 M...	Yes	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	98.4	USER	Muller-BBM	7.0	105.4	No

Calculation Results

Sound Level

Noise sensitive area

No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	Sound Level From WTGs [dB(A)]	Distance to noise demand [m]	Demands fulfilled ?
A	Noise sensitive point: (1)	720,203	5,125,744	20.1	1.5	40.0	36.4	250	Yes
B	Noise sensitive point: (2)	720,190	5,125,795	20.0	1.5	40.0	35.8	299	Yes
C	Noise sensitive point: (3)	720,206	5,125,820	20.0	1.5	40.0	35.7	309	Yes
D	Noise sensitive point: (4)	720,308	5,125,739	21.7	1.5	40.0	37.2	185	Yes
E	Noise sensitive point: (5)	720,604	5,125,865	25.0	1.5	40.0	37.0	201	Yes
F	Noise sensitive point: (6)	720,543	5,126,003	22.6	1.5	40.0	35.2	347	Yes
G	Noise sensitive point: (7)	720,570	5,125,992	22.9	1.5	40.0	35.4	331	Yes
H	Noise sensitive point: (8)	720,584	5,125,987	23.0	1.5	40.0	35.5	324	Yes
I	Noise sensitive point: (9)	720,613	5,125,976	23.3	1.5	40.0	35.7	309	Yes
J	Noise sensitive point: (10)	720,643	5,125,963	23.6	1.5	40.0	35.9	293	Yes
K	Noise sensitive point: (11)	720,655	5,125,956	23.9	1.5	40.0	36.0	286	Yes
L	Noise sensitive point: (12)	720,674	5,125,953	24.3	1.5	40.0	36.0	281	Yes
M	Noise sensitive point: (13)	720,684	5,125,946	24.6	1.5	40.0	36.1	273	Yes
N	Noise sensitive point: (14)	720,703	5,125,943	25.0	1.5	40.0	36.1	270	Yes
O	Noise sensitive point: (15)	720,597	5,126,024	22.5	1.5	40.0	35.1	359	Yes
P	Noise sensitive point: (16)	720,633	5,126,011	23.3	1.5	40.0	35.3	342	Yes
Q	Noise sensitive point: (17)	720,666	5,125,996	24.0	1.5	40.0	35.5	324	Yes
R	Noise sensitive point: (18)	720,801	5,126,011	24.4	1.5	40.0	35.3	342	Yes
S	Noise sensitive point: (19)	720,796	5,125,973	25.0	1.5	40.0	35.7	303	Yes
T	Noise sensitive point: (20)	720,786	5,125,953	25.0	1.5	40.0	36.0	282	Yes
U	Noise sensitive point: (21)	720,826	5,125,892	25.0	1.5	40.0	36.7	226	Yes
V	Noise sensitive point: (22)	720,865	5,125,925	25.0	1.5	40.0	36.2	264	Yes
W	Noise sensitive point: (24)	720,852	5,125,871	25.0	1.5	40.0	36.9	209	Yes
X	Noise sensitive point: (25)	720,883	5,125,858	25.0	1.5	40.0	37.0	202	Yes
Y	Noise sensitive point: (26)	720,899	5,125,914	25.0	1.5	40.0	36.3	260	Yes
Z	Noise sensitive point: (27)	720,906	5,125,990	25.0	1.5	40.0	35.4	336	Yes
AA	Noise sensitive point: (28)	720,967	5,126,017	24.5	1.5	40.0	34.9	376	Yes

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DECIBEL - Main Result

Calculation: Option 1 890 New Victoria Sound hard ground

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Noise sensitive area

No.	Name	Easting	Northing	Z [m]	Imission height [m]	Demands Noise [dB(A)]	Sound Level From WTGs [dB(A)]	Distance to noise demand [m]	Demands fulfilled ? Noise
AB	Noise sensitive point: (29)	720,977	5,125,883	25.0	1.5	40.0	36.4	250	Yes
AC	Noise sensitive point: (30)	720,982	5,125,817	25.0	1.5	40.0	37.2	190	Yes
AD	Noise sensitive point: (31)	721,010	5,125,807	25.4	1.5	40.0	37.2	189	Yes
AE	Noise sensitive point: (32)	721,076	5,125,836	25.7	1.5	40.0	36.5	243	Yes
AF	Noise sensitive point: (33)	721,091	5,125,871	25.0	1.5	40.0	36.0	280	Yes
AG	Noise sensitive point: (34)	721,119	5,125,861	25.8	1.5	40.0	36.0	284	Yes
AH	Noise sensitive point: (35)	721,105	5,125,825	26.7	1.5	40.0	36.4	246	Yes
AI	Noise sensitive point: (36)	721,137	5,125,760	29.5	1.5	40.0	37.0	205	Yes
AJ	Noise sensitive point: (37)	721,151	5,125,808	28.3	1.5	40.0	36.3	253	Yes
AK	Noise sensitive point: (38)	721,163	5,125,842	27.8	1.5	40.0	35.9	289	Yes
AL	Noise sensitive point: (39)	721,176	5,125,874	26.9	1.5	40.0	35.5	323	Yes
AM	Noise sensitive point: (40)	721,207	5,125,864	28.2	1.5	40.0	35.4	330	Yes
AN	Noise sensitive point: (41)	721,193	5,125,830	29.2	1.5	40.0	35.8	295	Yes
AO	Noise sensitive point: (42)	721,182	5,125,798	30.0	1.5	40.0	36.2	262	Yes
AP	Noise sensitive point: (43)	721,166	5,125,747	30.3	1.5	40.0	36.9	210	Yes
AQ	Noise sensitive point: (44)	721,182	5,125,738	31.3	1.5	40.0	36.9	212	Yes
AR	Noise sensitive point: (45)	721,198	5,125,740	32.0	1.5	40.0	36.7	223	Yes
AS	Noise sensitive point: (46)	721,196	5,125,677	33.4	1.5	40.0	37.4	172	Yes
AT	Noise sensitive point: (47)	721,220	5,125,667	34.6	1.5	40.0	37.3	179	Yes
AU	Noise sensitive point: (48)	721,237	5,125,733	34.1	1.5	40.0	36.5	241	Yes
AV	Noise sensitive point: (49)	721,208	5,125,786	31.3	1.5	40.0	36.2	266	Yes
AW	Noise sensitive point: (50)	721,219	5,125,818	30.4	1.5	40.0	35.8	298	Yes
AX	Noise sensitive point: (51)	721,237	5,125,858	29.2	1.5	40.0	35.3	342	Yes
AY	Noise sensitive point: (52)	721,270	5,125,839	31.1	1.5	40.0	35.3	345	Yes
AZ	Noise sensitive point: (53)	721,249	5,125,810	31.7	1.5	40.0	35.7	309	Yes
BA	Noise sensitive point: (54)	721,236	5,125,773	32.9	1.5	40.0	36.1	272	Yes
BB	Noise sensitive point: (55)	721,254	5,125,723	35.1	1.5	40.0	36.5	244	Yes
BC	Noise sensitive point: (56)	721,283	5,125,755	35.2	1.5	40.0	35.9	287	Yes
BD	Noise sensitive point: (57)	721,295	5,125,790	34.2	1.5	40.0	35.5	322	Yes
BE	Noise sensitive point: (58)	721,304	5,125,827	33.0	1.5	40.0	35.1	356	Yes
BF	Noise sensitive point: (59)	721,344	5,125,807	36.0	1.5	40.0	35.0	367	Yes
BG	Noise sensitive point: (60)	721,323	5,125,779	36.4	1.5	40.0	35.4	332	Yes
BH	Noise sensitive point: (61)	721,310	5,125,745	36.7	1.5	40.0	35.8	297	Yes
BI	Noise sensitive point: (62)	721,303	5,125,697	36.2	1.5	40.0	36.3	257	Yes
BJ	Noise sensitive point: (63)	721,300	5,125,675	36.4	1.5	40.0	36.5	239	Yes
BK	Noise sensitive point: (64)	721,339	5,125,684	36.9	1.5	40.0	36.1	274	Yes
BL	Noise sensitive point: (65)	721,338	5,125,733	36.8	1.5	40.0	35.7	307	Yes
BM	Noise sensitive point: (66)	721,346	5,125,767	38.0	1.5	40.0	35.3	338	Yes
BN	Noise sensitive point: (67)	721,366	5,125,799	38.2	1.5	40.0	34.9	375	Yes
BO	Noise sensitive point: (68)	721,397	5,125,787	39.5	1.5	40.0	34.8	387	Yes
BP	Noise sensitive point: (69)	721,366	5,125,761	38.2	1.5	40.0	35.2	347	Yes
BQ	Noise sensitive point: (70)	721,365	5,125,732	37.3	1.5	40.0	35.5	325	Yes
BR	Noise sensitive point: (71)	721,355	5,125,678	37.3	1.5	40.0	36.0	281	Yes
BS	Noise sensitive point: (72)	721,371	5,125,672	37.6	1.5	40.0	35.9	288	Yes
BT	Noise sensitive point: (73)	721,427	5,125,705	38.2	1.5	40.0	35.2	352	Yes
BU	Noise sensitive point: (74)	721,435	5,125,636	39.0	1.5	40.0	35.6	315	Yes
BV	Noise sensitive point: (75)	721,386	5,125,564	39.3	1.5	40.0	36.6	232	Yes
BW	Noise sensitive point: (76)	721,410	5,125,565	39.5	1.5	40.0	36.4	253	Yes
BX	Noise sensitive point: (77)	721,476	5,125,677	39.3	1.5	40.0	35.0	372	Yes
BY	Noise sensitive point: (78)	721,473	5,125,716	39.0	1.5	40.0	34.7	394	Yes
BZ	Noise sensitive point: (79)	721,527	5,125,695	40.0	1.5	40.0	34.4	423	Yes
CA	Noise sensitive point: (80)	721,534	5,125,661	40.0	1.5	40.0	34.5	409	Yes
CB	Noise sensitive point: (81)	721,547	5,125,605	40.0	1.5	40.0	34.8	389	Yes
CC	Noise sensitive point: (82)	721,570	5,125,594	40.0	1.5	40.0	34.6	402	Yes
CD	Noise sensitive point: (83)	721,584	5,125,588	40.0	1.5	40.0	34.5	412	Yes
CE	Noise sensitive point: (84)	721,604	5,125,582	40.0	1.5	40.0	34.4	426	Yes
CF	Noise sensitive point: (85)	721,487	5,125,283	40.0	1.5	40.0	37.0	205	Yes
CG	Noise sensitive point: (86)	721,655	5,125,171	32.6	1.5	40.0	35.2	353	Yes

Project:

890 New Victoria Kirk

Licensed user:

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Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

06/07/2016 10:54 AM/3.0.651

DECIBEL - Main Result

Calculation: Option 1 890 New Victoria Sound hard ground

Distances (m)

	WTG
NSA	1
A	834
B	883
C	893
D	769
E	785
F	931
G	915
H	908
I	893
J	878
K	870
L	865
M	858
N	854
O	943
P	926
Q	908
R	926
S	887
T	866
U	810
V	849
W	793
X	786
Y	844
Z	920
AA	961
AB	835
AC	774
AD	774
AE	828
AF	865
AG	869
AH	830
AI	790
AJ	838
AK	874
AL	908
AM	915
AN	879
AO	846
AP	795
AQ	797
AR	807
AS	757
AT	764
AU	826
AV	851
AW	883
AX	927
AY	930
AZ	894
BA	857
BB	829
BC	872
BD	907
BE	941
BF	952
BG	916

To be continued on next page...

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DECIBEL - Main Result

Calculation: Option 1 890 New Victoria Sound hard ground

...continued from previous page

WTG

NSA	1
BH	882
BI	842
BJ	825
BK	859
BL	893
BM	923
BN	960
BO	972
BP	932
BQ	911
BR	866
BS	874
BT	938
BU	900
BV	818
BW	839
BX	958
BY	980
BZ	1009
CA	995
CB	975
CC	988
CD	998
CE	1012
CF	791
CG	939

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Assumptions

Calculated L(DW) = LWA,ref + K + Dc - (Adiv + Aatm + Agr + Abar + Amisc) - Cmet
(when calculated with ground attenuation, then Dc = Domega)

LWA,ref:	Sound pressure level at WTG
K:	Pure tone
Dc:	Directivity correction
Adiv:	the attenuation due to geometrical divergence
Aatm:	the attenuation due to atmospheric absorption
Agr:	the attenuation due to ground effect
Abar:	the attenuation due to a barrier
Amisc:	the attenuation due to miscellaneous other effects
Cmet:	Meteorological correction

Calculation Results

Noise sensitive area: A Noise sensitive point: (1)

WTG			Wind speed: 7.0 m/s									
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	834	841	36.38	105.4	0.00	69.50	-	-	0.00	0.00	-	0.00
Sum	36.38											

- Data undefined due to calculation with octave data

Noise sensitive area: B Noise sensitive point: (2)

WTG			Wind speed: 7.0 m/s									
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	883	890	35.78	105.4	0.00	69.99	-	-	0.00	0.00	-	0.00
Sum	35.78											

- Data undefined due to calculation with octave data

Noise sensitive area: C Noise sensitive point: (3)

WTG			Wind speed: 7.0 m/s									
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	893	900	35.67	105.4	0.00	70.08	-	-	0.00	0.00	-	0.00
Sum	35.67											

- Data undefined due to calculation with octave data

Noise sensitive area: D Noise sensitive point: (4)

WTG			Wind speed: 7.0 m/s									
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	769	777	37.22	105.4	0.00	68.80	-	-	0.00	0.00	-	0.00
Sum	37.22											

- Data undefined due to calculation with octave data

Noise sensitive area: E Noise sensitive point: (5)

WTG			Wind speed: 7.0 m/s									
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	785	792	37.02	105.4	0.00	68.97	-	-	0.00	0.00	-	0.00
Sum	37.02											

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: F Noise sensitive point: (6)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	931	937	35.23	105.4	0.00	70.44	-	-	0.00	0.00	-	0.00

Sum 35.23

- Data undefined due to calculation with octave data

Noise sensitive area: G Noise sensitive point: (7)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	915	921	35.42	105.4	0.00	70.29	-	-	0.00	0.00	-	0.00

Sum 35.42

- Data undefined due to calculation with octave data

Noise sensitive area: H Noise sensitive point: (8)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	908	914	35.50	105.4	0.00	70.22	-	-	0.00	0.00	-	0.00

Sum 35.50

- Data undefined due to calculation with octave data

Noise sensitive area: I Noise sensitive point: (9)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	893	899	35.67	105.4	0.00	70.08	-	-	0.00	0.00	-	0.00

Sum 35.67

- Data undefined due to calculation with octave data

Noise sensitive area: J Noise sensitive point: (10)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	878	884	35.86	105.4	0.00	69.93	-	-	0.00	0.00	-	0.00

Sum 35.86

- Data undefined due to calculation with octave data

Noise sensitive area: K Noise sensitive point: (11)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	870	876	35.95	105.4	0.00	69.85	-	-	0.00	0.00	-	0.00

Sum 35.95

- Data undefined due to calculation with octave data

Noise sensitive area: L Noise sensitive point: (12)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	865	871	36.01	105.4	0.00	69.80	-	-	0.00	0.00	-	0.00

Sum 36.01

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: M Noise sensitive point: (13)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	858	864	36.10	105.4	0.00	69.73	-	-	0.00	0.00	-	0.00

Sum 36.10

- Data undefined due to calculation with octave data

Noise sensitive area: N Noise sensitive point: (14)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	854	861	36.14	105.4	0.00	69.70	-	-	0.00	0.00	-	0.00

Sum 36.14

- Data undefined due to calculation with octave data

Noise sensitive area: O Noise sensitive point: (15)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	943	949	35.09	105.4	0.00	70.55	-	-	0.00	0.00	-	0.00

Sum 35.09

- Data undefined due to calculation with octave data

Noise sensitive area: P Noise sensitive point: (16)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	926	932	35.29	105.4	0.00	70.39	-	-	0.00	0.00	-	0.00

Sum 35.29

- Data undefined due to calculation with octave data

Noise sensitive area: Q Noise sensitive point: (17)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	908	914	35.50	105.4	0.00	70.22	-	-	0.00	0.00	-	0.00

Sum 35.50

- Data undefined due to calculation with octave data

Noise sensitive area: R Noise sensitive point: (18)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	926	931	35.30	105.4	0.00	70.38	-	-	0.00	0.00	-	0.00

Sum 35.30

- Data undefined due to calculation with octave data

Noise sensitive area: S Noise sensitive point: (19)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	887	893	35.74	105.4	0.00	70.02	-	-	0.00	0.00	-	0.00

Sum 35.74

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: T Noise sensitive point: (20)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	866	872	36.00	105.4	0.00	69.81	-	-	0.00	0.00	-	0.00

Sum 36.00

- Data undefined due to calculation with octave data

Noise sensitive area: U Noise sensitive point: (21)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	810	816	36.70	105.4	0.00	69.23	-	-	0.00	0.00	-	0.00

Sum 36.70

- Data undefined due to calculation with octave data

Noise sensitive area: V Noise sensitive point: (22)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	849	855	36.21	105.4	0.00	69.64	-	-	0.00	0.00	-	0.00

Sum 36.21

- Data undefined due to calculation with octave data

Noise sensitive area: W Noise sensitive point: (24)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	793	800	36.91	105.4	0.00	69.06	-	-	0.00	0.00	-	0.00

Sum 36.91

- Data undefined due to calculation with octave data

Noise sensitive area: X Noise sensitive point: (25)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	786	793	37.00	105.4	0.00	68.98	-	-	0.00	0.00	-	0.00

Sum 37.00

- Data undefined due to calculation with octave data

Noise sensitive area: Y Noise sensitive point: (26)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	844	850	36.26	105.4	0.00	69.59	-	-	0.00	0.00	-	0.00

Sum 36.26

- Data undefined due to calculation with octave data

Noise sensitive area: Z Noise sensitive point: (27)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	920	926	35.36	105.4	0.00	70.33	-	-	0.00	0.00	-	0.00

Sum 35.36

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AA Noise sensitive point: (28)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	961	966	34.91	105.4	0.00	70.70	-	-	0.00	0.00	-	0.00

Sum 34.91

- Data undefined due to calculation with octave data

Noise sensitive area: AB Noise sensitive point: (29)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	835	841	36.38	105.4	0.00	69.50	-	-	0.00	0.00	-	0.00

Sum 36.38

- Data undefined due to calculation with octave data

Noise sensitive area: AC Noise sensitive point: (30)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	774	781	37.16	105.4	0.00	68.85	-	-	0.00	0.00	-	0.00

Sum 37.16

- Data undefined due to calculation with octave data

Noise sensitive area: AD Noise sensitive point: (31)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	774	781	37.16	105.4	0.00	68.85	-	-	0.00	0.00	-	0.00

Sum 37.16

- Data undefined due to calculation with octave data

Noise sensitive area: AE Noise sensitive point: (32)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	828	834	36.47	105.4	0.00	69.42	-	-	0.00	0.00	-	0.00

Sum 36.47

- Data undefined due to calculation with octave data

Noise sensitive area: AF Noise sensitive point: (33)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	865	871	36.01	105.4	0.00	69.80	-	-	0.00	0.00	-	0.00

Sum 36.01

- Data undefined due to calculation with octave data

Noise sensitive area: AG Noise sensitive point: (34)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	869	875	35.96	105.4	0.00	69.84	-	-	0.00	0.00	-	0.00

Sum 35.96

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AH Noise sensitive point: (35)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	830	836	36.44	105.4	0.00	69.45	-	-	0.00	0.00	-	0.00

Sum 36.44

- Data undefined due to calculation with octave data

Noise sensitive area: AI Noise sensitive point: (36)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	790	796	36.96	105.4	0.00	69.02	-	-	0.00	0.00	-	0.00

Sum 36.96

- Data undefined due to calculation with octave data

Noise sensitive area: AJ Noise sensitive point: (37)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	838	844	36.35	105.4	0.00	69.52	-	-	0.00	0.00	-	0.00

Sum 36.35

- Data undefined due to calculation with octave data

Noise sensitive area: AK Noise sensitive point: (38)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	874	879	35.91	105.4	0.00	69.88	-	-	0.00	0.00	-	0.00

Sum 35.91

- Data undefined due to calculation with octave data

Noise sensitive area: AL Noise sensitive point: (39)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	908	913	35.51	105.4	0.00	70.21	-	-	0.00	0.00	-	0.00

Sum 35.51

- Data undefined due to calculation with octave data

Noise sensitive area: AM Noise sensitive point: (40)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	915	920	35.42	105.4	0.00	70.28	-	-	0.00	0.00	-	0.00

Sum 35.42

- Data undefined due to calculation with octave data

Noise sensitive area: AN Noise sensitive point: (41)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	879	885	35.85	105.4	0.00	69.94	-	-	0.00	0.00	-	0.00

Sum 35.85

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AO Noise sensitive point: (42)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	846	852	36.24	105.4	0.00	69.61	-	-	0.00	0.00	-	0.00

Sum 36.24

- Data undefined due to calculation with octave data

Noise sensitive area: AP Noise sensitive point: (43)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	795	801	36.90	105.4	0.00	69.07	-	-	0.00	0.00	-	0.00

Sum 36.90

- Data undefined due to calculation with octave data

Noise sensitive area: AQ Noise sensitive point: (44)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	797	803	36.87	105.4	0.00	69.09	-	-	0.00	0.00	-	0.00

Sum 36.87

- Data undefined due to calculation with octave data

Noise sensitive area: AR Noise sensitive point: (45)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	807	813	36.74	105.4	0.00	69.20	-	-	0.00	0.00	-	0.00

Sum 36.74

- Data undefined due to calculation with octave data

Noise sensitive area: AS Noise sensitive point: (46)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	757	763	37.41	105.4	0.00	68.65	-	-	0.00	0.00	-	0.00

Sum 37.41

- Data undefined due to calculation with octave data

Noise sensitive area: AT Noise sensitive point: (47)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	764	770	37.31	105.4	0.00	68.72	-	-	0.00	0.00	-	0.00

Sum 37.31

- Data undefined due to calculation with octave data

Noise sensitive area: AU Noise sensitive point: (48)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	826	831	36.50	105.4	0.00	69.40	-	-	0.00	0.00	-	0.00

Sum 36.50

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AV Noise sensitive point: (49)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	851	856	36.19	105.4	0.00	69.65	-	-	0.00	0.00	-	0.00

Sum 36.19

- Data undefined due to calculation with octave data

Noise sensitive area: AW Noise sensitive point: (50)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	883	888	35.80	105.4	0.00	69.97	-	-	0.00	0.00	-	0.00

Sum 35.80

- Data undefined due to calculation with octave data

Noise sensitive area: AX Noise sensitive point: (51)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	927	932	35.29	105.4	0.00	70.39	-	-	0.00	0.00	-	0.00

Sum 35.29

- Data undefined due to calculation with octave data

Noise sensitive area: AY Noise sensitive point: (52)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	930	935	35.26	105.4	0.00	70.42	-	-	0.00	0.00	-	0.00

Sum 35.26

- Data undefined due to calculation with octave data

Noise sensitive area: AZ Noise sensitive point: (53)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	894	899	35.67	105.4	0.00	70.07	-	-	0.00	0.00	-	0.00

Sum 35.67

- Data undefined due to calculation with octave data

Noise sensitive area: BA Noise sensitive point: (54)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	857	862	36.12	105.4	0.00	69.71	-	-	0.00	0.00	-	0.00

Sum 36.12

- Data undefined due to calculation with octave data

Noise sensitive area: BB Noise sensitive point: (55)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	829	834	36.47	105.4	0.00	69.42	-	-	0.00	0.00	-	0.00

Sum 36.47

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BC Noise sensitive point: (56)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	872	877	35.94	105.4	0.00	69.86	-	-	0.00	0.00	-	0.00

Sum 35.94

- Data undefined due to calculation with octave data

Noise sensitive area: BD Noise sensitive point: (57)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	907	912	35.52	105.4	0.00	70.20	-	-	0.00	0.00	-	0.00

Sum 35.52

- Data undefined due to calculation with octave data

Noise sensitive area: BE Noise sensitive point: (58)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	941	945	35.14	105.4	0.00	70.51	-	-	0.00	0.00	-	0.00

Sum 35.14

- Data undefined due to calculation with octave data

Noise sensitive area: BF Noise sensitive point: (59)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	952	956	35.02	105.4	0.00	70.61	-	-	0.00	0.00	-	0.00

Sum 35.02

- Data undefined due to calculation with octave data

Noise sensitive area: BG Noise sensitive point: (60)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	916	921	35.42	105.4	0.00	70.28	-	-	0.00	0.00	-	0.00

Sum 35.42

- Data undefined due to calculation with octave data

Noise sensitive area: BH Noise sensitive point: (61)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	882	887	35.82	105.4	0.00	69.96	-	-	0.00	0.00	-	0.00

Sum 35.82

- Data undefined due to calculation with octave data

Noise sensitive area: BI Noise sensitive point: (62)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	842	847	36.31	105.4	0.00	69.56	-	-	0.00	0.00	-	0.00

Sum 36.31

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BJ Noise sensitive point: (63)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	825	830	36.52	105.4	0.00	69.38	-	-	0.00	0.00	-	0.00

Sum 36.52

- Data undefined due to calculation with octave data

Noise sensitive area: BK Noise sensitive point: (64)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	859	863	36.10	105.4	0.00	69.72	-	-	0.00	0.00	-	0.00

Sum 36.10

- Data undefined due to calculation with octave data

Noise sensitive area: BL Noise sensitive point: (65)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	893	897	35.69	105.4	0.00	70.06	-	-	0.00	0.00	-	0.00

Sum 35.69

- Data undefined due to calculation with octave data

Noise sensitive area: BM Noise sensitive point: (66)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	923	927	35.35	105.4	0.00	70.34	-	-	0.00	0.00	-	0.00

Sum 35.35

- Data undefined due to calculation with octave data

Noise sensitive area: BN Noise sensitive point: (67)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	960	964	34.93	105.4	0.00	70.68	-	-	0.00	0.00	-	0.00

Sum 34.93

- Data undefined due to calculation with octave data

Noise sensitive area: BO Noise sensitive point: (68)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	972	976	34.80	105.4	0.00	70.79	-	-	0.00	0.00	-	0.00

Sum 34.80

- Data undefined due to calculation with octave data

Noise sensitive area: BP Noise sensitive point: (69)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	932	936	35.24	105.4	0.00	70.43	-	-	0.00	0.00	-	0.00

Sum 35.24

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BQ Noise sensitive point: (70)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	911	915	35.49	105.4	0.00	70.23	-	-	0.00	0.00	-	0.00

Sum 35.49

- Data undefined due to calculation with octave data

Noise sensitive area: BR Noise sensitive point: (71)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	866	870	36.02	105.4	0.00	69.79	-	-	0.00	0.00	-	0.00

Sum 36.02

- Data undefined due to calculation with octave data

Noise sensitive area: BS Noise sensitive point: (72)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	874	878	35.92	105.4	0.00	69.87	-	-	0.00	0.00	-	0.00

Sum 35.92

- Data undefined due to calculation with octave data

Noise sensitive area: BT Noise sensitive point: (73)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	938	942	35.18	105.4	0.00	70.48	-	-	0.00	0.00	-	0.00

Sum 35.18

- Data undefined due to calculation with octave data

Noise sensitive area: BU Noise sensitive point: (74)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	900	905	35.61	105.4	0.00	70.13	-	-	0.00	0.00	-	0.00

Sum 35.61

- Data undefined due to calculation with octave data

Noise sensitive area: BV Noise sensitive point: (75)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	818	823	36.61	105.4	0.00	69.31	-	-	0.00	0.00	-	0.00

Sum 36.61

- Data undefined due to calculation with octave data

Noise sensitive area: BW Noise sensitive point: (76)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	839	843	36.36	105.4	0.00	69.52	-	-	0.00	0.00	-	0.00

Sum 36.36

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BX Noise sensitive point: (77)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	958	962	34.95	105.4	0.00	70.66	-	-	0.00	0.00	-	0.00

Sum 34.95

- Data undefined due to calculation with octave data

Noise sensitive area: BY Noise sensitive point: (78)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	980	984	34.71	105.4	0.00	70.86	-	-	0.00	0.00	-	0.00

Sum 34.71

- Data undefined due to calculation with octave data

Noise sensitive area: BZ Noise sensitive point: (79)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,009	1,013	34.40	105.4	0.00	71.11	-	-	0.00	0.00	-	0.00

Sum 34.40

- Data undefined due to calculation with octave data

Noise sensitive area: CA Noise sensitive point: (80)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	995	999	34.55	105.4	0.00	70.99	-	-	0.00	0.00	-	0.00

Sum 34.55

- Data undefined due to calculation with octave data

Noise sensitive area: CB Noise sensitive point: (81)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	975	979	34.77	105.4	0.00	70.81	-	-	0.00	0.00	-	0.00

Sum 34.77

- Data undefined due to calculation with octave data

Noise sensitive area: CC Noise sensitive point: (82)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	988	992	34.62	105.4	0.00	70.93	-	-	0.00	0.00	-	0.00

Sum 34.62

- Data undefined due to calculation with octave data

Noise sensitive area: CD Noise sensitive point: (83)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	998	1,001	34.52	105.4	0.00	71.01	-	-	0.00	0.00	-	0.00

Sum 34.52

- Data undefined due to calculation with octave data

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Calculated:

06/07/2016 10:54 AM/3.0.651

DECIBEL - Detailed results

Calculation: Option 1 890 New Victoria Sound hard groundNoise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: CE Noise sensitive point: (84)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,012	1,016	34.36	105.4	0.00	71.14	-	-	0.00	0.00	-	0.00

Sum 34.36

- Data undefined due to calculation with octave data

Noise sensitive area: CF Noise sensitive point: (85)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	791	796	36.96	105.4	0.00	69.02	-	-	0.00	0.00	-	0.00

Sum 36.96

- Data undefined due to calculation with octave data

Noise sensitive area: CG Noise sensitive point: (86)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	939	943	35.16	105.4	0.00	70.49	-	-	0.00	0.00	-	0.00

Sum 35.16

- Data undefined due to calculation with octave data

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise calculation model:

ISO 9613-2 General

Wind speed:

7.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.0

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

1: WTG noise is compared to demand (DK, DE, SE, NL etc.)

Noise values in calculation:

All noise values are mean values (Lwa) (Normal)

Pure tones:

Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

1.5 m Allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

Octave data required

Air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: ENERCON E-92 2,3 MW 2350 92.0 !-!

Noise: Muller-BBM

Source Source/Date Creator Edited

Test 31/05/2016 USER 31/05/2016 4:52 PM

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data							
					63	125	250	500	1000	2000	4000	8000
					[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
From Windcat	98.4	7.0	105.4	No	87.4	95.8	96.5	99.0	100.4	97.2	91.3	81.0

NSA: Noise sensitive point: (1)-A

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (2)-B

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (3)-C

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (4)-D

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (5)-E

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (6)-F

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (7)-G

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (8)-H

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (9)-I

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (10)-J

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (11)-K

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (12)-L

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (13)-M

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (14)-N

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (15)-O

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (16)-P

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (17)-Q

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (18)-R

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (19)-S

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (20)-T

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (21)-U

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (22)-V

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (24)-W

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (25)-X

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (26)-Y

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (27)-Z

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (28)-AA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (29)-AB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (30)-AC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (31)-AD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (32)-AE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (33)-AF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (34)-AG

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (35)-AH

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (36)-AI

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (37)-AJ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (38)-AK

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (39)-AL

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (40)-AM

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (41)-AN

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (42)-AO

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (43)-AP

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (44)-AQ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (45)-AR

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (46)-AS

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (47)-AT

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (48)-AU

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (49)-AV

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (50)-AW

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (51)-AX

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (52)-AY

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (53)-AZ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (54)-BA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (55)-BB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (56)-BC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (57)-BD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (58)-BE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (59)-BF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (60)-BG

Predefined calculation standard:

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (61)-BH

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (62)-BI

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (63)-BJ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (64)-BK

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (65)-BL

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (66)-BM

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (67)-BN

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (68)-BO

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (69)-BP

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (70)-BQ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (71)-BR

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (72)-BS

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (73)-BT

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (74)-BU

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (75)-BV

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (76)-BW

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (77)-BX

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

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Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

06/07/2016 10:54 AM/3.0.651

DECIBEL - Assumptions for noise calculation

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (78)-BY

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (79)-BZ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (80)-CA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (81)-CB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (82)-CC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (83)-CD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (84)-CE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (85)-CF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (86)-CG

Predefined calculation standard:

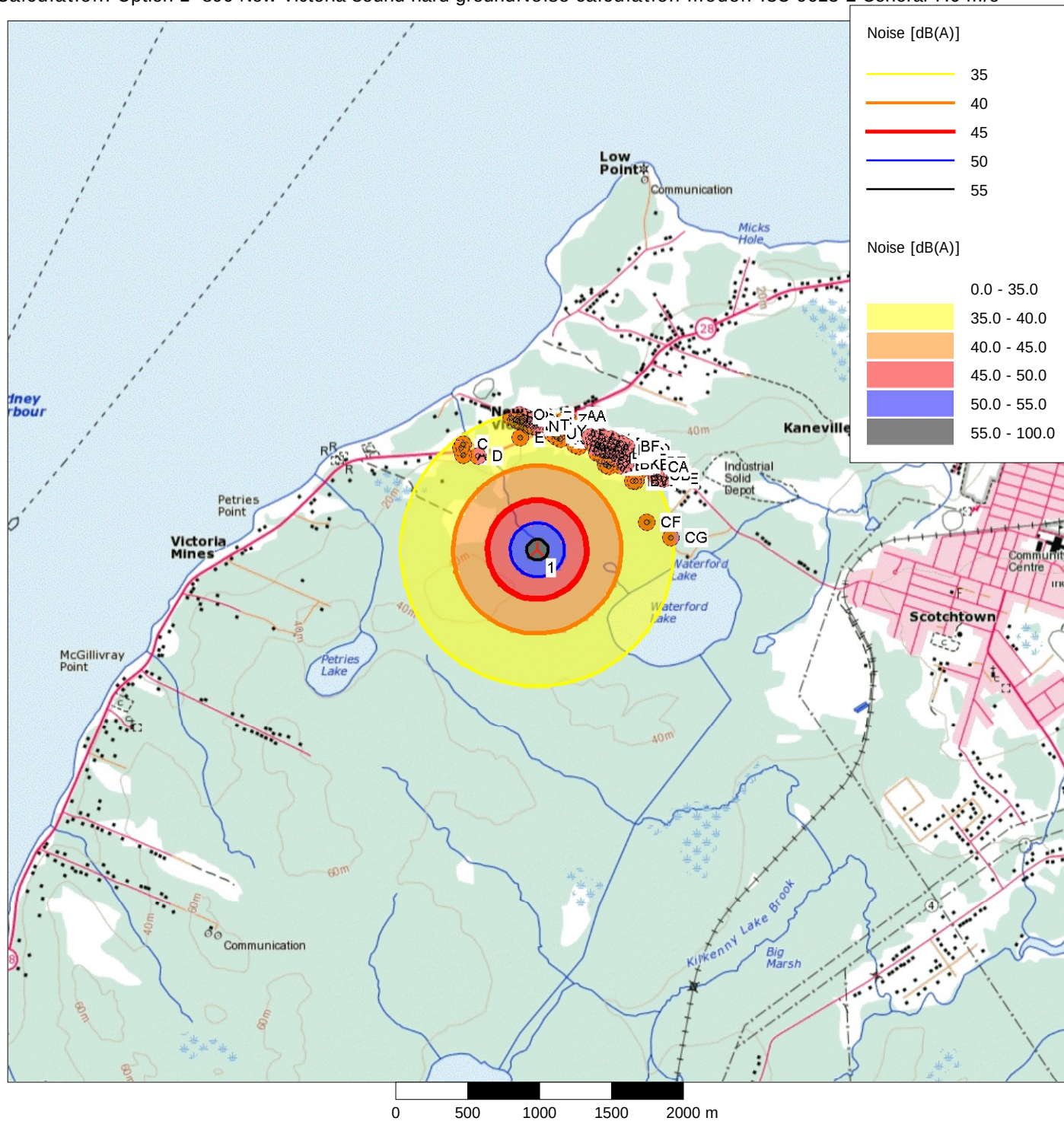
Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

DECIBEL - Map 7.0 m/s

Calculation: Option 1 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s



New WTG

Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 7.0 m/s
Height above sea level from active line object

DECIBEL - Main Result

Calculation: Option 2 890 New Victoria Sound hard ground

Noise calculation model:

ISO 9613-2 General

Wind speed:

7.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.0

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

1: WTG noise is compared to demand (DK, DE, SE, NL etc.)

Noise values in calculation:

All noise values are mean values (Lwa) (Normal)

Pure tones:

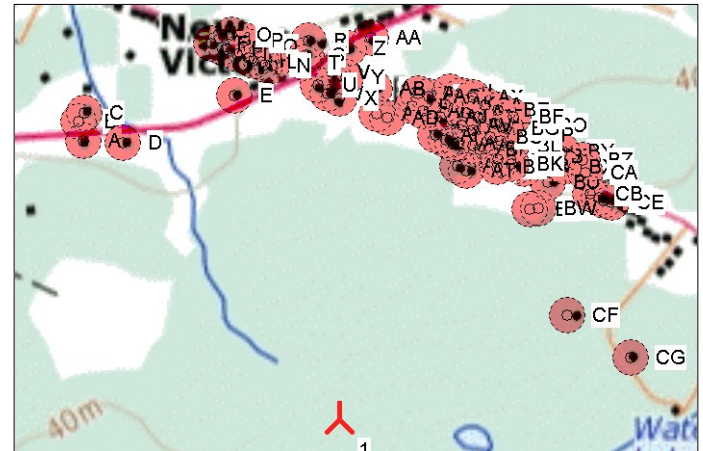
Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

1.5 m Allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)



▲ New WTG

● Noise sensitive area

WTGs

Easting	Northing	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
				Valid	Manufact.	Type-generator				Creator	Name			
1	720,882	5,125,008	32.0 ENERCON E-92 2,3 M...	Yes	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	98.4	USER	Muller-BBM	7.0	105.4	No

Calculation Results

Sound Level

Noise sensitive area

No.	Name	Easting	Northing	Z [m]	Imission height [m]	Demands		Sound Level		Distance to noise demand [m]	Demands fulfilled ?
						Noise [dB(A)]	From WTGs [dB(A)]				
A	Noise sensitive point: (1)	720,203	5,125,744	20.5	1.5	40.0	34.5			417	Yes
B	Noise sensitive point: (2)	720,190	5,125,795	20.5	1.5	40.0	34.0			464	Yes
C	Noise sensitive point: (3)	720,206	5,125,820	20.0	1.5	40.0	33.9			471	Yes
D	Noise sensitive point: (4)	720,308	5,125,739	21.4	1.5	40.0	35.2			344	Yes
E	Noise sensitive point: (5)	720,604	5,125,865	25.4	1.5	40.0	35.6			317	Yes
F	Noise sensitive point: (6)	720,543	5,126,003	23.9	1.5	40.0	33.9			467	Yes
G	Noise sensitive point: (7)	720,570	5,125,992	24.1	1.5	40.0	34.1			448	Yes
H	Noise sensitive point: (8)	720,584	5,125,987	24.2	1.5	40.0	34.2			439	Yes
I	Noise sensitive point: (9)	720,613	5,125,976	24.4	1.5	40.0	34.4			420	Yes
J	Noise sensitive point: (10)	720,643	5,125,963	24.7	1.5	40.0	34.6			400	Yes
K	Noise sensitive point: (11)	720,655	5,125,956	24.8	1.5	40.0	34.7			391	Yes
L	Noise sensitive point: (12)	720,674	5,125,953	24.9	1.5	40.0	34.8			383	Yes
M	Noise sensitive point: (13)	720,684	5,125,946	25.1	1.5	40.0	34.9			375	Yes
N	Noise sensitive point: (14)	720,703	5,125,943	25.2	1.5	40.0	35.0			368	Yes
O	Noise sensitive point: (15)	720,597	5,126,024	24.0	1.5	40.0	33.9			472	Yes
P	Noise sensitive point: (16)	720,633	5,126,011	24.0	1.5	40.0	34.1			449	Yes
Q	Noise sensitive point: (17)	720,666	5,125,996	24.4	1.5	40.0	34.4			427	Yes
R	Noise sensitive point: (18)	720,801	5,126,011	24.7	1.5	40.0	34.4			422	Yes
S	Noise sensitive point: (19)	720,796	5,125,973	25.2	1.5	40.0	34.8			385	Yes
T	Noise sensitive point: (20)	720,786	5,125,953	25.5	1.5	40.0	35.0			365	Yes
U	Noise sensitive point: (21)	720,826	5,125,892	25.7	1.5	40.0	35.8			301	Yes
V	Noise sensitive point: (22)	720,865	5,125,925	25.3	1.5	40.0	35.4			333	Yes
W	Noise sensitive point: (24)	720,852	5,125,871	25.8	1.5	40.0	36.0			279	Yes
X	Noise sensitive point: (25)	720,883	5,125,858	25.8	1.5	40.0	36.2			264	Yes
Y	Noise sensitive point: (26)	720,899	5,125,914	25.2	1.5	40.0	35.5			320	Yes
Z	Noise sensitive point: (27)	720,906	5,125,990	24.6	1.5	40.0	34.7			396	Yes
AA	Noise sensitive point: (28)	720,967	5,126,017	24.1	1.5	40.0	34.3			427	Yes

To be continued on next page...

DECIBEL - Main Result

Calculation: Option 2 890 New Victoria Sound hard ground

...continued from previous page

Noise sensitive area

No.	Name	Easting	Northing	Z [m]	Imission height [m]	Demands Noise [dB(A)]	Sound Level From WTGs [dB(A)]	Distance to noise demand [m]	Demands fulfilled ? Noise
AB	Noise sensitive point: (29)	720,977	5,125,883	25.2	1.5	40.0	35.8	295	Yes
AC	Noise sensitive point: (30)	720,982	5,125,817	25.7	1.5	40.0	36.6	229	Yes
AD	Noise sensitive point: (31)	721,010	5,125,807	25.8	1.5	40.0	36.7	223	Yes
AE	Noise sensitive point: (32)	721,076	5,125,836	25.8	1.5	40.0	36.2	264	Yes
AF	Noise sensitive point: (33)	721,091	5,125,871	25.4	1.5	40.0	35.7	301	Yes
AG	Noise sensitive point: (34)	721,119	5,125,861	25.8	1.5	40.0	35.8	299	Yes
AH	Noise sensitive point: (35)	721,105	5,125,825	26.6	1.5	40.0	36.2	260	Yes
AI	Noise sensitive point: (36)	721,137	5,125,760	29.4	1.5	40.0	36.9	208	Yes
AJ	Noise sensitive point: (37)	721,151	5,125,808	28.4	1.5	40.0	36.3	257	Yes
AK	Noise sensitive point: (38)	721,163	5,125,842	27.6	1.5	40.0	35.8	294	Yes
AL	Noise sensitive point: (39)	721,176	5,125,874	26.8	1.5	40.0	35.4	328	Yes
AM	Noise sensitive point: (40)	721,207	5,125,864	28.1	1.5	40.0	35.4	329	Yes
AN	Noise sensitive point: (41)	721,193	5,125,830	29.1	1.5	40.0	35.8	293	Yes
AO	Noise sensitive point: (42)	721,182	5,125,798	29.9	1.5	40.0	36.3	259	Yes
AP	Noise sensitive point: (43)	721,166	5,125,747	30.6	1.5	40.0	36.9	205	Yes
AQ	Noise sensitive point: (44)	721,182	5,125,738	31.5	1.5	40.0	37.0	203	Yes
AR	Noise sensitive point: (45)	721,198	5,125,740	32.4	1.5	40.0	36.9	211	Yes
AS	Noise sensitive point: (46)	721,196	5,125,677	34.0	1.5	40.0	37.6	153	Yes
AT	Noise sensitive point: (47)	721,220	5,125,667	34.3	1.5	40.0	37.6	154	Yes
AU	Noise sensitive point: (48)	721,237	5,125,733	34.2	1.5	40.0	36.7	221	Yes
AV	Noise sensitive point: (49)	721,208	5,125,786	31.4	1.5	40.0	36.3	257	Yes
AW	Noise sensitive point: (50)	721,219	5,125,818	30.4	1.5	40.0	35.9	291	Yes
AX	Noise sensitive point: (51)	721,237	5,125,858	29.2	1.5	40.0	35.3	335	Yes
AY	Noise sensitive point: (52)	721,270	5,125,839	31.2	1.5	40.0	35.4	330	Yes
AZ	Noise sensitive point: (53)	721,249	5,125,810	31.8	1.5	40.0	35.8	295	Yes
BA	Noise sensitive point: (54)	721,236	5,125,773	32.9	1.5	40.0	36.3	256	Yes
BB	Noise sensitive point: (55)	721,254	5,125,723	35.0	1.5	40.0	36.8	219	Yes
BC	Noise sensitive point: (56)	721,283	5,125,755	35.2	1.5	40.0	36.2	261	Yes
BD	Noise sensitive point: (57)	721,295	5,125,790	34.3	1.5	40.0	35.8	298	Yes
BE	Noise sensitive point: (58)	721,304	5,125,827	33.0	1.5	40.0	35.4	334	Yes
BF	Noise sensitive point: (59)	721,344	5,125,807	35.5	1.5	40.0	35.3	336	Yes
BG	Noise sensitive point: (60)	721,323	5,125,779	35.8	1.5	40.0	35.7	301	Yes
BH	Noise sensitive point: (61)	721,310	5,125,745	36.3	1.5	40.0	36.2	265	Yes
BI	Noise sensitive point: (62)	721,303	5,125,697	36.9	1.5	40.0	36.7	220	Yes
BJ	Noise sensitive point: (63)	721,300	5,125,675	36.9	1.5	40.0	37.0	201	Yes
BK	Noise sensitive point: (64)	721,339	5,125,684	37.9	1.5	40.0	36.6	229	Yes
BL	Noise sensitive point: (65)	721,338	5,125,733	37.5	1.5	40.0	36.1	270	Yes
BM	Noise sensitive point: (66)	721,346	5,125,767	37.4	1.5	40.0	35.7	302	Yes
BN	Noise sensitive point: (67)	721,366	5,125,799	37.2	1.5	40.0	35.3	340	Yes
BO	Noise sensitive point: (68)	721,397	5,125,787	39.3	1.5	40.0	35.2	346	Yes
BP	Noise sensitive point: (69)	721,366	5,125,761	38.1	1.5	40.0	35.7	308	Yes
BQ	Noise sensitive point: (70)	721,365	5,125,732	38.4	1.5	40.0	36.0	283	Yes
BR	Noise sensitive point: (71)	721,355	5,125,678	38.5	1.5	40.0	36.6	233	Yes
BS	Noise sensitive point: (72)	721,371	5,125,672	40.0	1.5	40.0	36.5	238	Yes
BT	Noise sensitive point: (73)	721,427	5,125,705	40.0	1.5	40.0	35.8	297	Yes
BU	Noise sensitive point: (74)	721,435	5,125,636	40.0	1.5	40.0	36.4	250	Yes
BV	Noise sensitive point: (75)	721,386	5,125,564	40.0	1.5	40.0	37.5	164	Yes
BW	Noise sensitive point: (76)	721,410	5,125,565	40.0	1.5	40.0	37.3	180	Yes
BX	Noise sensitive point: (77)	721,476	5,125,677	40.0	1.5	40.0	35.7	308	Yes
BY	Noise sensitive point: (78)	721,473	5,125,716	40.0	1.5	40.0	35.4	335	Yes
BZ	Noise sensitive point: (79)	721,527	5,125,695	40.0	1.5	40.0	35.1	355	Yes
CA	Noise sensitive point: (80)	721,534	5,125,661	40.0	1.5	40.0	35.3	335	Yes
CB	Noise sensitive point: (81)	721,547	5,125,605	40.3	1.5	40.0	35.7	307	Yes
CC	Noise sensitive point: (82)	721,570	5,125,594	41.6	1.5	40.0	35.6	316	Yes
CD	Noise sensitive point: (83)	721,584	5,125,588	42.0	1.5	40.0	35.5	323	Yes
CE	Noise sensitive point: (84)	721,604	5,125,582	42.0	1.5	40.0	35.4	336	Yes
CF	Noise sensitive point: (85)	721,487	5,125,283	41.2	1.5	40.0	38.7	77	Yes
CG	Noise sensitive point: (86)	721,655	5,125,171	32.8	1.5	40.0	37.0	203	Yes

Project:

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Calculated:

31/05/2016 4:52 PM/3.0.651

DECIBEL - Main Result

Calculation: Option 2 890 New Victoria Sound hard ground

Distances (m)

	WTG
NSA	1
A	1001
B	1048
C	1056
D	929
E	901
F	1051
G	1032
H	1023
I	1004
J	985
K	975
L	967
M	959
N	952
O	1056
P	1033
Q	1011
R	1007
S	969
T	949
U	885
V	918
W	864
X	850
Y	906
Z	983
AA	1013
AB	881
AC	815
AD	809
AE	851
AF	887
AG	885
AH	847
AI	794
AJ	844
AK	880
AL	915
AM	915
AN	879
AO	845
AP	792
AQ	790
AR	797
AS	740
AT	740
AU	808
AV	843
AW	877
AX	922
AY	917
AZ	882
BA	843
BB	806
BC	848
BD	885
BE	921
BF	923
BG	888

To be continued on next page...

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31/05/2016 4:52 PM/3.0.651

DECIBEL - Main Result

Calculation: Option 2 890 New Victoria Sound hard ground

...continued from previous page

WTG

NSA	1
BH	852
BI	807
BJ	788
BK	816
BL	857
BM	889
BN	927
BO	934
BP	895
BQ	870
BR	820
BS	824
BT	885
BU	837
BV	751
BW	768
BX	894
BY	922
BZ	942
CA	923
CB	894
CC	903
CD	911
CE	922
CF	665
CG	790

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Assumptions

Calculated L(DW) = LWA,ref + K + Dc - (Adiv + Aatm + Agr + Abar + Amisc) - Cmet
(when calculated with ground attenuation, then Dc = Domega)

LWA,ref:	Sound pressure level at WTG
K:	Pure tone
Dc:	Directivity correction
Adiv:	the attenuation due to geometrical divergence
Aatm:	the attenuation due to atmospheric absorption
Agr:	the attenuation due to ground effect
Abar:	the attenuation due to a barrier
Amisc:	the attenuation due to miscellaneous other effects
Cmet:	Meteorological correction

Calculation Results

Noise sensitive area: A Noise sensitive point: (1)

WTG		Wind speed: 7.0 m/s										
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1,001	1,007	34.46	105.4	0.00	71.06	-	-	0.00	0.00	-	0.00
Sum		34.46										

- Data undefined due to calculation with octave data

Noise sensitive area: B Noise sensitive point: (2)

WTG		Wind speed: 7.0 m/s										
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1,048	1,054	33.96	105.4	0.00	71.46	-	-	0.00	0.00	-	0.00
Sum		33.96										

- Data undefined due to calculation with octave data

Noise sensitive area: C Noise sensitive point: (3)

WTG		Wind speed: 7.0 m/s										
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1,056	1,062	33.88	105.4	0.00	71.52	-	-	0.00	0.00	-	0.00
Sum		33.88										

- Data undefined due to calculation with octave data

Noise sensitive area: D Noise sensitive point: (4)

WTG		Wind speed: 7.0 m/s										
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	929	936	35.25	105.4	0.00	70.42	-	-	0.00	0.00	-	0.00
Sum		35.25										

- Data undefined due to calculation with octave data

Noise sensitive area: E Noise sensitive point: (5)

WTG		Wind speed: 7.0 m/s										
No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	901	907	35.58	105.4	0.00	70.16	-	-	0.00	0.00	-	0.00
Sum		35.58										

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: F Noise sensitive point: (6)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,051	1,057	33.94	105.4	0.00	71.48	-	-	0.00	0.00	-	0.00

Sum 33.94

- Data undefined due to calculation with octave data

Noise sensitive area: G Noise sensitive point: (7)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,032	1,037	34.14	105.4	0.00	71.32	-	-	0.00	0.00	-	0.00

Sum 34.14

- Data undefined due to calculation with octave data

Noise sensitive area: H Noise sensitive point: (8)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,023	1,029	34.23	105.4	0.00	71.25	-	-	0.00	0.00	-	0.00

Sum 34.23

- Data undefined due to calculation with octave data

Noise sensitive area: I Noise sensitive point: (9)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,004	1,010	34.43	105.4	0.00	71.09	-	-	0.00	0.00	-	0.00

Sum 34.43

- Data undefined due to calculation with octave data

Noise sensitive area: J Noise sensitive point: (10)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	985	990	34.64	105.4	0.00	70.91	-	-	0.00	0.00	-	0.00

Sum 34.64

- Data undefined due to calculation with octave data

Noise sensitive area: K Noise sensitive point: (11)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	975	981	34.74	105.4	0.00	70.83	-	-	0.00	0.00	-	0.00

Sum 34.74

- Data undefined due to calculation with octave data

Noise sensitive area: L Noise sensitive point: (12)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	967	973	34.83	105.4	0.00	70.76	-	-	0.00	0.00	-	0.00

Sum 34.83

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: M Noise sensitive point: (13)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	959	964	34.93	105.4	0.00	70.68	-	-	0.00	0.00	-	0.00

Sum 34.93

- Data undefined due to calculation with octave data

Noise sensitive area: N Noise sensitive point: (14)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	952	958	35.00	105.4	0.00	70.63	-	-	0.00	0.00	-	0.00

Sum 35.00

- Data undefined due to calculation with octave data

Noise sensitive area: O Noise sensitive point: (15)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,056	1,061	33.90	105.4	0.00	71.51	-	-	0.00	0.00	-	0.00

Sum 33.90

- Data undefined due to calculation with octave data

Noise sensitive area: P Noise sensitive point: (16)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,033	1,039	34.12	105.4	0.00	71.33	-	-	0.00	0.00	-	0.00

Sum 34.12

- Data undefined due to calculation with octave data

Noise sensitive area: Q Noise sensitive point: (17)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,011	1,016	34.36	105.4	0.00	71.14	-	-	0.00	0.00	-	0.00

Sum 34.36

- Data undefined due to calculation with octave data

Noise sensitive area: R Noise sensitive point: (18)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,007	1,012	34.41	105.4	0.00	71.10	-	-	0.00	0.00	-	0.00

Sum 34.41

- Data undefined due to calculation with octave data

Noise sensitive area: S Noise sensitive point: (19)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	969	974	34.81	105.4	0.00	70.78	-	-	0.00	0.00	-	0.00

Sum 34.81

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: T Noise sensitive point: (20)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	949	955	35.03	105.4	0.00	70.60	-	-	0.00	0.00	-	0.00

Sum 35.03

- Data undefined due to calculation with octave data

Noise sensitive area: U Noise sensitive point: (21)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	885	891	35.77	105.4	0.00	70.00	-	-	0.00	0.00	-	0.00

Sum 35.77

- Data undefined due to calculation with octave data

Noise sensitive area: V Noise sensitive point: (22)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	918	923	35.39	105.4	0.00	70.31	-	-	0.00	0.00	-	0.00

Sum 35.39

- Data undefined due to calculation with octave data

Noise sensitive area: W Noise sensitive point: (24)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	864	870	36.03	105.4	0.00	69.79	-	-	0.00	0.00	-	0.00

Sum 36.03

- Data undefined due to calculation with octave data

Noise sensitive area: X Noise sensitive point: (25)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	850	856	36.19	105.4	0.00	69.65	-	-	0.00	0.00	-	0.00

Sum 36.19

- Data undefined due to calculation with octave data

Noise sensitive area: Y Noise sensitive point: (26)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	906	912	35.52	105.4	0.00	70.20	-	-	0.00	0.00	-	0.00

Sum 35.52

- Data undefined due to calculation with octave data

Noise sensitive area: Z Noise sensitive point: (27)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	983	988	34.66	105.4	0.00	70.90	-	-	0.00	0.00	-	0.00

Sum 34.66

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AA Noise sensitive point: (28)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	1,013	1,018	34.34	105.4	0.00	71.16	-	-	0.00	0.00	-	0.00

Sum 34.34

- Data undefined due to calculation with octave data

Noise sensitive area: AB Noise sensitive point: (29)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	881	887	35.82	105.4	0.00	69.96	-	-	0.00	0.00	-	0.00

Sum 35.82

- Data undefined due to calculation with octave data

Noise sensitive area: AC Noise sensitive point: (30)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	815	822	36.62	105.4	0.00	69.30	-	-	0.00	0.00	-	0.00

Sum 36.62

- Data undefined due to calculation with octave data

Noise sensitive area: AD Noise sensitive point: (31)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	809	815	36.71	105.4	0.00	69.23	-	-	0.00	0.00	-	0.00

Sum 36.71

- Data undefined due to calculation with octave data

Noise sensitive area: AE Noise sensitive point: (32)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	851	857	36.18	105.4	0.00	69.66	-	-	0.00	0.00	-	0.00

Sum 36.18

- Data undefined due to calculation with octave data

Noise sensitive area: AF Noise sensitive point: (33)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	887	894	35.74	105.4	0.00	70.02	-	-	0.00	0.00	-	0.00

Sum 35.74

- Data undefined due to calculation with octave data

Noise sensitive area: AG Noise sensitive point: (34)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	885	891	35.76	105.4	0.00	70.00	-	-	0.00	0.00	-	0.00

Sum 35.76

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AH Noise sensitive point: (35)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	847	853	36.23	105.4	0.00	69.62	-	-	0.00	0.00	-	0.00

Sum 36.23

- Data undefined due to calculation with octave data

Noise sensitive area: AI Noise sensitive point: (36)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	794	801	36.90	105.4	0.00	69.07	-	-	0.00	0.00	-	0.00

Sum 36.90

- Data undefined due to calculation with octave data

Noise sensitive area: AJ Noise sensitive point: (37)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	844	850	36.27	105.4	0.00	69.58	-	-	0.00	0.00	-	0.00

Sum 36.27

- Data undefined due to calculation with octave data

Noise sensitive area: AK Noise sensitive point: (38)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	880	886	35.83	105.4	0.00	69.95	-	-	0.00	0.00	-	0.00

Sum 35.83

- Data undefined due to calculation with octave data

Noise sensitive area: AL Noise sensitive point: (39)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	915	920	35.42	105.4	0.00	70.28	-	-	0.00	0.00	-	0.00

Sum 35.42

- Data undefined due to calculation with octave data

Noise sensitive area: AM Noise sensitive point: (40)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	915	921	35.42	105.4	0.00	70.28	-	-	0.00	0.00	-	0.00

Sum 35.42

- Data undefined due to calculation with octave data

Noise sensitive area: AN Noise sensitive point: (41)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	879	885	35.84	105.4	0.00	69.94	-	-	0.00	0.00	-	0.00

Sum 35.84

- Data undefined due to calculation with octave data

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Calculated:

31/05/2016 4:52 PM/3.0.651

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard groundNoise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AO Noise sensitive point: (42)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	845	851	36.26	105.4	0.00	69.60	-	-	0.00	0.00	-	0.00

Sum 36.26

- Data undefined due to calculation with octave data

Noise sensitive area: AP Noise sensitive point: (43)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	792	798	36.94	105.4	0.00	69.04	-	-	0.00	0.00	-	0.00

Sum 36.94

- Data undefined due to calculation with octave data

Noise sensitive area: AQ Noise sensitive point: (44)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	790	796	36.97	105.4	0.00	69.01	-	-	0.00	0.00	-	0.00

Sum 36.97

- Data undefined due to calculation with octave data

Noise sensitive area: AR Noise sensitive point: (45)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	797	803	36.87	105.4	0.00	69.09	-	-	0.00	0.00	-	0.00

Sum 36.87

- Data undefined due to calculation with octave data

Noise sensitive area: AS Noise sensitive point: (46)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	740	746	37.64	105.4	0.00	68.45	-	-	0.00	0.00	-	0.00

Sum 37.64

- Data undefined due to calculation with octave data

Noise sensitive area: AT Noise sensitive point: (47)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	740	746	37.63	105.4	0.00	68.46	-	-	0.00	0.00	-	0.00

Sum 37.63

- Data undefined due to calculation with octave data

Noise sensitive area: AU Noise sensitive point: (48)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	808	813	36.74	105.4	0.00	69.20	-	-	0.00	0.00	-	0.00

Sum 36.74

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: AV Noise sensitive point: (49)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	843	849	36.28	105.4	0.00	69.58	-	-	0.00	0.00	-	0.00

Sum 36.28

- Data undefined due to calculation with octave data

Noise sensitive area: AW Noise sensitive point: (50)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	877	883	35.87	105.4	0.00	69.92	-	-	0.00	0.00	-	0.00

Sum 35.87

- Data undefined due to calculation with octave data

Noise sensitive area: AX Noise sensitive point: (51)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	922	927	35.35	105.4	0.00	70.34	-	-	0.00	0.00	-	0.00

Sum 35.35

- Data undefined due to calculation with octave data

Noise sensitive area: AY Noise sensitive point: (52)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	917	922	35.40	105.4	0.00	70.30	-	-	0.00	0.00	-	0.00

Sum 35.40

- Data undefined due to calculation with octave data

Noise sensitive area: AZ Noise sensitive point: (53)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	882	887	35.82	105.4	0.00	69.96	-	-	0.00	0.00	-	0.00

Sum 35.82

- Data undefined due to calculation with octave data

Noise sensitive area: BA Noise sensitive point: (54)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	843	849	36.29	105.4	0.00	69.57	-	-	0.00	0.00	-	0.00

Sum 36.29

- Data undefined due to calculation with octave data

Noise sensitive area: BB Noise sensitive point: (55)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	806	811	36.76	105.4	0.00	69.18	-	-	0.00	0.00	-	0.00

Sum 36.76

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BC Noise sensitive point: (56)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	848	853	36.23	105.4	0.00	69.62	-	-	0.00	0.00	-	0.00

Sum 36.23

- Data undefined due to calculation with octave data

Noise sensitive area: BD Noise sensitive point: (57)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	885	890	35.78	105.4	0.00	69.99	-	-	0.00	0.00	-	0.00

Sum 35.78

- Data undefined due to calculation with octave data

Noise sensitive area: BE Noise sensitive point: (58)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	921	926	35.36	105.4	0.00	70.33	-	-	0.00	0.00	-	0.00

Sum 35.36

- Data undefined due to calculation with octave data

Noise sensitive area: BF Noise sensitive point: (59)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	923	928	35.34	105.4	0.00	70.35	-	-	0.00	0.00	-	0.00

Sum 35.34

- Data undefined due to calculation with octave data

Noise sensitive area: BG Noise sensitive point: (60)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	888	893	35.74	105.4	0.00	70.02	-	-	0.00	0.00	-	0.00

Sum 35.74

- Data undefined due to calculation with octave data

Noise sensitive area: BH Noise sensitive point: (61)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	852	857	36.18	105.4	0.00	69.66	-	-	0.00	0.00	-	0.00

Sum 36.18

- Data undefined due to calculation with octave data

Noise sensitive area: BI Noise sensitive point: (62)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	807	812	36.75	105.4	0.00	69.19	-	-	0.00	0.00	-	0.00

Sum 36.75

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BJ Noise sensitive point: (63)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	788	793	37.00	105.4	0.00	68.98	-	-	0.00	0.00	-	0.00

Sum 37.00

- Data undefined due to calculation with octave data

Noise sensitive area: BK Noise sensitive point: (64)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	816	821	36.63	105.4	0.00	69.29	-	-	0.00	0.00	-	0.00

Sum 36.63

- Data undefined due to calculation with octave data

Noise sensitive area: BL Noise sensitive point: (65)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	857	862	36.13	105.4	0.00	69.71	-	-	0.00	0.00	-	0.00

Sum 36.13

- Data undefined due to calculation with octave data

Noise sensitive area: BM Noise sensitive point: (66)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	889	894	35.73	105.4	0.00	70.03	-	-	0.00	0.00	-	0.00

Sum 35.73

- Data undefined due to calculation with octave data

Noise sensitive area: BN Noise sensitive point: (67)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	927	932	35.29	105.4	0.00	70.39	-	-	0.00	0.00	-	0.00

Sum 35.29

- Data undefined due to calculation with octave data

Noise sensitive area: BO Noise sensitive point: (68)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	934	938	35.22	105.4	0.00	70.44	-	-	0.00	0.00	-	0.00

Sum 35.22

- Data undefined due to calculation with octave data

Noise sensitive area: BP Noise sensitive point: (69)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	895	900	35.67	105.4	0.00	70.08	-	-	0.00	0.00	-	0.00

Sum 35.67

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BQ Noise sensitive point: (70)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	870	875	35.96	105.4	0.00	69.84	-	-	0.00	0.00	-	0.00

Sum 35.96

- Data undefined due to calculation with octave data

Noise sensitive area: BR Noise sensitive point: (71)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	820	825	36.59	105.4	0.00	69.33	-	-	0.00	0.00	-	0.00

Sum 36.59

- Data undefined due to calculation with octave data

Noise sensitive area: BS Noise sensitive point: (72)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	824	829	36.53	105.4	0.00	69.37	-	-	0.00	0.00	-	0.00

Sum 36.53

- Data undefined due to calculation with octave data

Noise sensitive area: BT Noise sensitive point: (73)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	885	889	35.79	105.4	0.00	69.98	-	-	0.00	0.00	-	0.00

Sum 35.79

- Data undefined due to calculation with octave data

Noise sensitive area: BU Noise sensitive point: (74)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	837	842	36.37	105.4	0.00	69.50	-	-	0.00	0.00	-	0.00

Sum 36.37

- Data undefined due to calculation with octave data

Noise sensitive area: BV Noise sensitive point: (75)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	751	756	37.50	105.4	0.00	68.57	-	-	0.00	0.00	-	0.00

Sum 37.50

- Data undefined due to calculation with octave data

Noise sensitive area: BW Noise sensitive point: (76)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	768	773	37.27	105.4	0.00	68.76	-	-	0.00	0.00	-	0.00

Sum 37.27

- Data undefined due to calculation with octave data

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: BX Noise sensitive point: (77)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	894	899	35.68	105.4	0.00	70.07	-	-	0.00	0.00	-	0.00

Sum 35.68

- Data undefined due to calculation with octave data

Noise sensitive area: BY Noise sensitive point: (78)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	922	926	35.35	105.4	0.00	70.34	-	-	0.00	0.00	-	0.00

Sum 35.35

- Data undefined due to calculation with octave data

Noise sensitive area: BZ Noise sensitive point: (79)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	942	946	35.13	105.4	0.00	70.52	-	-	0.00	0.00	-	0.00

Sum 35.13

- Data undefined due to calculation with octave data

Noise sensitive area: CA Noise sensitive point: (80)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	923	927	35.35	105.4	0.00	70.34	-	-	0.00	0.00	-	0.00

Sum 35.35

- Data undefined due to calculation with octave data

Noise sensitive area: CB Noise sensitive point: (81)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	894	898	35.68	105.4	0.00	70.07	-	-	0.00	0.00	-	0.00

Sum 35.68

- Data undefined due to calculation with octave data

Noise sensitive area: CC Noise sensitive point: (82)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	903	908	35.57	105.4	0.00	70.16	-	-	0.00	0.00	-	0.00

Sum 35.57

- Data undefined due to calculation with octave data

Noise sensitive area: CD Noise sensitive point: (83)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	911	915	35.49	105.4	0.00	70.23	-	-	0.00	0.00	-	0.00

Sum 35.49

- Data undefined due to calculation with octave data

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Calculated:

31/05/2016 4:52 PM/3.0.651

DECIBEL - Detailed results

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise sensitive area: CE Noise sensitive point: (84)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	922	927	35.35	105.4	0.00	70.34	-	-	0.00	0.00	-	0.00

Sum 35.35

- Data undefined due to calculation with octave data

Noise sensitive area: CF Noise sensitive point: (85)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	665	670	38.75	105.4	0.00	67.53	-	-	0.00	0.00	-	0.00

Sum 38.75

- Data undefined due to calculation with octave data

Noise sensitive area: CG Noise sensitive point: (86)

WTG		Wind speed: 7.0 m/s										
No.	Distance	Sound distance	Calculated	LwA,ref	Dc	Adiv	Aatm	Agr	Abar	Amisc	A	Cmet
	[m]	[m]	[dB(A)]	[dB(A)]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
1	790	796	36.96	105.4	0.00	69.02	-	-	0.00	0.00	-	0.00

Sum 36.96

- Data undefined due to calculation with octave data

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Calculated:

31/05/2016 4:52 PM/3.0.651

DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

Noise calculation model:

ISO 9613-2 General

Wind speed:

7.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.0

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

1: WTG noise is compared to demand (DK, DE, SE, NL etc.)

Noise values in calculation:

All noise values are mean values (Lwa) (Normal)

Pure tones:

Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

1.5 m Allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

Octave data required

Air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: ENERCON E-92 2,3 MW 2350 92.0 !-!

Noise: Muller-BBM

Source Source/Date Creator Edited

Test 31/05/2016 USER 31/05/2016 4:52 PM

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data							
					63	125	250	500	1000	2000	4000	8000
					[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
From Windcat	98.4	7.0	105.4	No	87.4	95.8	96.5	99.0	100.4	97.2	91.3	81.0

NSA: Noise sensitive point: (1)-A

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (2)-B

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (3)-C

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (4)-D

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

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Licensed user:

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Calculated:

31/05/2016 4:52 PM/3.0.651

DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (5)-E

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (6)-F

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (7)-G

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (8)-H

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (9)-I

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (10)-J

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (11)-K

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (12)-L

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (13)-M

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (14)-N

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (15)-O

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (16)-P

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (17)-Q

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (18)-R

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (19)-S

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (20)-T

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (21)-U

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (22)-V

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (24)-W

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (25)-X

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (26)-Y

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (27)-Z

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (28)-AA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (29)-AB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (30)-AC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (31)-AD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (32)-AE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (33)-AF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (34)-AG

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (35)-AH

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (36)-AI

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (37)-AJ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (38)-AK

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (39)-AL

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (40)-AM

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (41)-AN

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (42)-AO

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (43)-AP

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (44)-AQ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (45)-AR

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (46)-AS

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (47)-AT

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (48)-AU

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (49)-AV

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (50)-AW

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (51)-AX

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (52)-AY

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (53)-AZ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (54)-BA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (55)-BB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (56)-BC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (57)-BD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (58)-BE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (59)-BF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (60)-BG

Predefined calculation standard:

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (61)-BH

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (62)-BI

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (63)-BJ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (64)-BK

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (65)-BL

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (66)-BM

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (67)-BN

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (68)-BO

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (69)-BP

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (70)-BQ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (71)-BR

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (72)-BS

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (73)-BT

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (74)-BU

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (75)-BV

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (76)-BW

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (77)-BX

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

Project:

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DECIBEL - Assumptions for noise calculation

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s

NSA: Noise sensitive point: (78)-BY

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (79)-BZ

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (80)-CA

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (81)-CB

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (82)-CC

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (83)-CD

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (84)-CE

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (85)-CF

Predefined calculation standard:

Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

NSA: Noise sensitive point: (86)-CG

Predefined calculation standard:

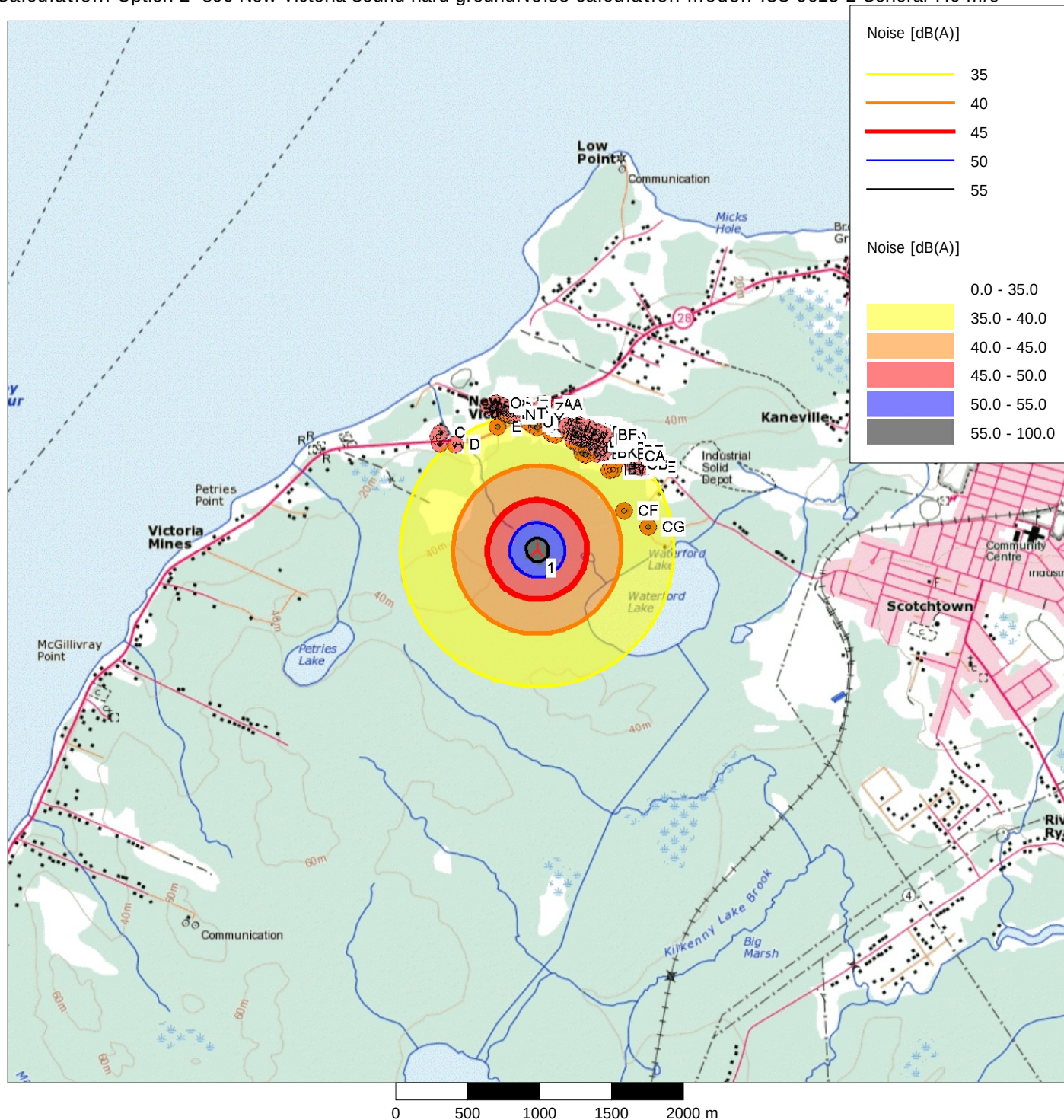
Imission height(a.g.l.): 1.5 m

Noise demand: 40.0 dB(A)

No distance demand

DECIBEL - Map 7.0 m/s

Calculation: Option 2 890 New Victoria Sound hard ground Noise calculation model: ISO 9613-2 General 7.0 m/s



SHADOW - Main Result

Calculation: Option 1 Hours per Year worst case DEM

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

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

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

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

The WTG is always operating

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values.

A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: 890 Contour.wpo (3)

Obstacles not used in calculation

Eye height: 1.5 m

Grid resolution: 10.0 m

Topographic shadow included in calculation

All coordinates are in

UTM (north)-NAD83 (US+CA) Zone: 20



Scale 1:20,000

➤ New WTG

● Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
1	720,720	5,125,089	29.9	ENERCON E-92 2,3 MW 2350 92.0 Opti...	Yes	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	98.4	1,516	16.0

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
A	Shadow Receptor 1	720,203	5,125,744	20.1	1.0	1.0	1.0	0.0	90.0	"Green house mode"
B	Shadow Receptor 45	721,196	5,125,677	33.4	1.0	1.0	1.0	0.0	90.0	"Green house mode"
C	Shadow Receptor 46	721,220	5,125,667	34.6	1.0	1.0	1.0	0.0	90.0	"Green house mode"
D	Shadow Receptor 61	721,303	5,125,697	36.2	1.0	1.0	1.0	0.0	90.0	"Green house mode"
E	Shadow Receptor 63	721,339	5,125,684	36.9	1.0	1.0	1.0	0.0	90.0	"Green house mode"
F	Shadow Receptor 70	721,355	5,125,678	37.3	1.0	1.0	1.0	0.0	90.0	"Green house mode"
G	Shadow Receptor 71	721,371	5,125,672	37.6	1.0	1.0	1.0	0.0	90.0	"Green house mode"
H	Shadow Receptor 75	721,410	5,125,565	39.5	1.0	1.0	1.0	0.0	90.0	"Green house mode"
I	Shadow Receptor 84	721,487	5,125,283	40.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"
J	Shadow Receptor 85	721,655	5,125,171	32.6	1.0	1.0	1.0	0.0	90.0	"Green house mode"

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case		
		Shadow hours per year	Shadow days per year	Max shadow hours per day
		[h/year]	[days/year]	[h/day]
A	Shadow Receptor 1	0:00	0	0:00
B	Shadow Receptor 45	13:18	40	0:25
C	Shadow Receptor 46	19:02	48	0:29
D	Shadow Receptor 61	21:30	55	0:28

To be continued on next page...

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Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Main Result

Calculation: Option 1 Hours per Year worst case DEM

...continued from previous page

No.	Name	Shadow, worst case		
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
	E Shadow Receptor 63	25:47	64	0:27
	F Shadow Receptor 70	26:52	68	0:27
	G Shadow Receptor 71	26:50	72	0:26
	H Shadow Receptor 75	15:34	46	0:27
	I Shadow Receptor 84	12:01	35	0:27
	J Shadow Receptor 85	8:31	29	0:23

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

No.	Name	Worst case Expected	
		[h/year]	[h/year]
1	ENERCON E-92 2,3 MW 2350 92.0 Option 1	90:41	

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: A - Shadow Receptor 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	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:59 18:43	06:41 16:48	07:23 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:43 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	06:39 19:32	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:36	07:02 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:33 17:53	06:33 19:36	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:17	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	06:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:23	06:29 19:28	07:08 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:15 17:17	06:27 18:58	06:27 19:40	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:31 19:26	07:09 18:27	06:53 16:37	07:31 16:15
10	07:43 16:35	07:13 17:18	06:25 18:59	06:25 19:41	05:36 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	06:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:24	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	06:21 19:02	06:22 19:44	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 16:33	07:34 16:15
13	07:42 16:38	07:09 17:23	06:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:52	05:56 20:15	06:36 19:18	07:14 18:20	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	06:17 19:05	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	06:15 19:06	06:16 19:48	05:29 20:27	05:09 20:54	05:23 20:50	05:59 20:12	06:38 19:14	07:17 18:16	07:01 16:30	07:37 16:15
16	07:40 16:42	07:04 17:27	06:14 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:19 18:14	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	06:12 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:49	06:01 20:08	06:41 19:10	07:20 18:13	07:04 16:27	07:38 16:16
18	07:39 16:45	07:01 17:30	06:10 19:10	06:11 19:52	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	06:08 19:11	06:09 19:53	05:25 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	06:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 16:25	07:40 16:17
21	07:36 16:49	06:56 17:35	06:04 19:14	06:05 19:56	05:22 20:34	05:09 20:56	05:29 20:45	06:07 20:01	06:46 19:02	07:25 18:06	07:10 16:24	07:41 16:17
22	07:35 16:50	06:54 17:36	06:02 19:15	06:04 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 20:00	06:47 19:00	07:27 18:04	07:11 16:23	07:41 16:18
23	07:35 16:52	06:52 17:38	06:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22	07:42 16:18
24	07:34 16:53	06:51 17:39	06:00 19:18	06:00 19:59	05:20 20:37	05:10 20:57	05:33 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 16:21	07:42 16:19
25	07:33 16:55	06:49 17:41	06:00 19:19	06:00 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:15 16:21	07:43 16:19
26	07:32 16:56	06:47 17:42	06:00 19:21	06:00 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:00 19:22	06:00 20:03	05:17 20:40	05:11 20:57	05:36 20:39	06:14 19:51	06:53 18:50	07:34 17:56	07:18 16:19	07:43 16:21
28	07:30 16:59	06:43 17:45	06:00 19:23	06:00 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 18:48	07:35 17:54	07:19 16:19	07:43 16:21
29	07:29 17:00	06:42 19:25	06:00 19:25	06:00 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:47	07:37 17:52	07:20 16:18	07:44 16:22
30	07:27 17:02	06:40 19:26	06:00 19:26	06:00 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 18:45	07:38 17:51	07:21 16:18	07:44 16:23
31	07:26 17:03	06:40 19:28	06:00 19:28	06:00 20:07	05:14 20:44	05:11 20:57	05:41 20:34	06:19 19:43	06:57 17:49	07:40 17:49	07:21 16:24	07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case												

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: B - Shadow Receptor 45

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	07:44		14:57 (1)	07:25	06:42	06:42	05:49	05:13	05:13	05:42	06:20	06:58	06:41	07:22		
	16:25	22	15:19 (1)	17:05	17:46	19:29	20:09	20:45	20:57	20:32	19:41	18:43	16:48	16:17		
2	07:44		14:58 (1)	07:24	06:40	06:40	05:47	05:13	05:13	05:43	06:22	07:00	06:42	07:24		14:53 (1)
	16:26	21	15:19 (1)	17:06	17:48	19:30	20:10	20:46	20:56	20:31	19:39	18:41	16:46	16:17	3	14:56 (1)
3	07:44		14:59 (1)	07:23	06:38	06:38	05:46	05:12	05:14	05:44	06:23	07:01	06:44	07:25		14:50 (1)
	16:27	20	15:19 (1)	17:08	17:49	19:31	20:11	20:46	20:56	20:30	19:37	18:39	16:45	16:16	9	14:59 (1)
4	07:44		14:59 (1)	07:21	06:36	06:37	05:44	05:12	05:14	05:45	06:24	07:02	06:45	07:26		14:50 (1)
	16:28	19	15:18 (1)	17:09	17:51	19:33	20:13	20:47	20:56	20:28	19:36	18:37	16:43	16:16	12	15:02 (1)
5	07:44		15:00 (1)	07:20	06:34	06:35	05:43	05:11	05:15	05:47	06:25	07:04	06:47	07:27		14:49 (1)
	16:29	18	15:18 (1)	17:11	17:52	19:34	20:14	20:48	20:56	20:27	19:34	18:35	16:42	16:16	14	15:03 (1)
6	07:44		15:02 (1)	07:19	06:32	06:33	05:41	05:11	05:16	05:48	06:27	07:05	06:48	07:28		14:48 (1)
	16:30	16	15:18 (1)	17:12	17:53	19:35	20:15	20:49	20:55	20:25	19:32	18:33	16:41	16:15	16	15:04 (1)
7	07:44		15:03 (1)	07:17	06:31	06:31	05:40	05:10	05:17	05:49	06:28	07:06	06:50	07:29		14:47 (1)
	16:31	15	15:18 (1)	17:14	17:55	19:37	20:16	20:50	20:55	20:24	19:30	18:31	16:39	16:15	18	15:05 (1)
8	07:43		15:04 (1)	07:16	06:29	06:29	05:38	05:10	05:17	05:50	06:29	07:08	06:51	07:30		14:47 (1)
	16:32	13	15:17 (1)	17:15	18:56	19:38	20:18	20:50	20:54	20:22	19:28	18:29	16:38	16:15	19	15:06 (1)
9	07:43		15:07 (1)	07:14	06:27	06:27	05:37	05:10	05:18	05:51	06:30	07:09	06:53	07:31		14:47 (1)
	16:33	9	15:16 (1)	17:17	18:58	19:39	20:19	20:51	20:54	20:21	19:26	18:27	16:37	16:15	20	15:07 (1)
10	07:43		15:10 (1)	07:13	06:25	06:25	05:35	05:09	05:19	05:53	06:32	07:10	06:54	07:32		14:47 (1)
	16:34	4	15:14 (1)	17:18	18:59	19:41	20:20	20:52	20:53	20:19	19:24	18:25	16:35	16:15	21	15:08 (1)
11	07:42			07:12	06:23	06:23	05:34	05:09	05:20	05:54	06:33	07:12	06:55	07:33		14:47 (1)
	16:36			17:20	19:00	19:42	20:22	20:52	20:53	20:18	19:22	18:23	16:34	16:15	22	15:09 (1)
12	07:42			07:10	06:21	06:21	05:33	05:09	05:21	05:55	06:34	07:13	06:57	07:34		14:47 (1)
	16:37			17:21	19:02	19:43	20:23	20:53	20:52	20:16	19:20	18:22	16:33	16:15	23	15:10 (1)
13	07:41			07:09	06:20	06:20	05:32	05:09	05:21	05:56	06:35	07:14	06:58	07:35		14:48 (1)
	16:38			17:23	19:03	19:45	20:24	20:53	20:51	20:15	19:18	18:20	16:32	16:15	23	15:11 (1)
14	07:41			07:07	06:18	06:18	05:30	05:09	05:22	05:58	06:37	07:16	07:00	07:36		14:48 (1)
	16:39			17:24	19:04	19:46	20:25	20:54	20:51	20:13	19:16	18:18	16:31	16:15	24	15:12 (1)
15	07:40			07:05	06:16	06:16	05:29	05:09	05:23	05:59	06:38	07:17	07:01	07:37		14:47 (1)
	16:41			17:26	19:06	19:47	20:26	20:54	20:50	20:11	19:14	18:16	16:29	16:15	25	15:12 (1)
16	07:40			07:04	06:14	06:14	05:28	05:09	05:24	06:00	06:39	07:18	07:03	07:37		14:48 (1)
	16:42			17:27	19:07	19:49	20:28	20:55	20:49	20:10	19:12	18:14	16:28	16:15	24	15:12 (1)
17	07:39			07:02	06:12	06:12	05:27	05:09	05:25	06:01	06:41	07:20	07:04	07:38		14:49 (1)
	16:43			17:29	19:09	19:50	20:29	20:55	20:48	20:08	19:10	18:13	16:27	16:16	24	15:13 (1)
18	07:38			07:01	06:10	06:11	05:26	05:09	05:26	06:03	06:42	07:21	07:05	07:39		14:49 (1)
	16:45			17:30	19:10	19:51	20:30	20:56	20:48	20:06	19:08	18:11	16:26	16:16	25	15:14 (1)
19	07:38			06:59	06:08	06:09	05:24	05:09	05:27	06:04	06:43	07:23	07:07	07:39		14:49 (1)
	16:46			17:32	19:11	19:53	20:31	20:56	20:47	20:05	19:06	18:09	16:25	16:16	25	15:14 (1)
20	07:37			06:57	06:06	06:07	05:23	05:09	05:28	06:05	06:44	07:24	07:08	07:40		14:50 (1)
	16:47			17:33	19:13	19:54	20:32	20:56	20:46	20:03	19:04	18:07	16:24	16:17	25	15:15 (1)
21	07:36			06:56	06:05	06:05	05:22	05:09	05:29	06:06	06:46	07:25	07:10	07:41		14:50 (1)
	16:49			17:35	19:14	19:55	20:33	20:56	20:45	20:01	19:02	18:05	16:24	16:17	25	15:15 (1)
22	07:35			06:54	06:02	06:03	05:21	05:09	05:30	06:08	06:47	07:27	07:11	07:41		14:51 (1)
	16:50			17:36	19:15	19:57	20:35	20:57	20:44	20:00	19:00	18:04	16:23	16:18	25	15:16 (1)
23	07:34			06:52	06:00	06:02	05:20	05:09	05:31	06:09	06:48	07:28	07:12	07:42		14:51 (1)
	16:52			17:38	19:17	19:58	20:36	20:57	20:43	19:58	18:58	18:02	16:22	16:18	25	15:16 (1)
24	07:34			06:51	06:58	06:00	05:19	05:10	05:32	06:10	06:49	07:30	07:14	07:42		14:51 (1)
	16:53			17:39	19:18	19:59	20:37	20:57	20:42	19:56	18:56	18:00	16:21	16:19	25	15:16 (1)
25	07:33			06:49	06:56	05:58	05:19	05:10	05:34	06:12	06:51	07:31	07:15	07:42		14:52 (1)
	16:54			17:40	19:19	20:01	20:38	20:57	20:41	19:54	18:54	17:59	16:20	16:19	25	15:17 (1)
26	07:32			06:47	06:54	05:57	05:18	05:10	05:35	06:13	06:52	07:32	07:16	07:43		14:52 (1)
	16:56			17:42	19:21	20:02	20:39	20:57	20:40	19:52	18:52	17:57	16:20	16:20	25	15:17 (1)
27	07:31			06:45	06:52	05:55	05:17	05:11	05:36	06:14	06:53	07:34	07:17	07:43		14:53 (1)
	16:57			17:43	19:22	20:03	20:40	20:57	20:38	19:51	18:50	17:55	16:19	16:21	24	15:17 (1)
28	07:30			06:43	06:50	05:53	05:16	05:11	05:37	06:15	06:55	07:35	07:19	07:43		14:54 (1)
	16:59			17:45	19:23	20:05	20:41	20:57	20:37	19:49	18:48	17:54	16:19	16:21	24	15:18 (1)
29	07:28				06:48	05:52	05:15	05:12	05:38	06:17	06:56	07:37	07:20	07:44		14:55 (1)
	17:00				19:25	20:06	20:42	20:57	20:36	19:47	18:46	17:52	16:18	16:22	24	15:19 (1)
30	07:27				06:46	05:50	05:15	05:12	05:39	06:18	06:57	07:38	07:21	07:44		14:55 (1)
	17:02				19:26	20:07	20:43	20:57	20:35	19:45	18:45	17:51	16:17	16:23	24	15:19 (1)
31	07:26				06:44		05:14		05:41	06:19		07:40		07:44		14:56 (1)
	17:03				19:27		20:44		20:34	19:43		17:49		16:24	23	15:19 (1)
Potential sun hours	281		289	369	406	464	472	477	439	377	339	284	269	641		
Total, worst case	157															

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: C - Shadow Receptor 46

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	07:44	15:02 (1)	07:25	06:42	06:42	05:49	05:13	05:13	05:42	06:20	06:58	06:41	07:22	14:53 (1)			
	16:25	27	15:29 (1)	17:05	17:46	19:29	20:09	20:45	20:57	20:32	19:41	18:43	16:48	16:17	17	15:10 (1)	
2	07:44	15:03 (1)	07:24	06:40	06:40	05:47	05:13	05:13	05:43	06:22	07:00	06:42	07:24	14:52 (1)			
	16:26	26	15:29 (1)	17:06	17:48	19:30	20:10	20:46	20:56	20:31	19:39	18:41	16:46	16:17	19	15:11 (1)	
3	07:44	15:04 (1)	07:23	06:38	06:38	05:46	05:12	05:14	05:44	06:23	07:01	06:44	07:25	14:52 (1)			
	16:27	25	15:29 (1)	17:08	17:49	19:31	20:11	20:46	20:56	20:30	19:37	18:39	16:45	16:16	20	15:12 (1)	
4	07:44	15:03 (1)	07:21	06:36	06:37	05:44	05:12	05:14	05:45	06:24	07:02	06:45	07:26	14:52 (1)			
	16:28	26	15:29 (1)	17:09	17:51	19:33	20:13	20:47	20:56	20:28	19:36	18:37	16:43	16:16	22	15:14 (1)	
5	07:44	15:04 (1)	07:20	06:34	06:35	05:43	05:11	05:15	05:47	06:25	07:04	06:47	07:27	14:52 (1)			
	16:29	25	15:29 (1)	17:11	17:52	19:34	20:14	20:48	20:56	20:27	19:34	18:35	16:42	16:16	23	15:15 (1)	
6	07:44	15:05 (1)	07:19	06:32	06:33	05:41	05:11	05:16	05:48	06:27	07:05	06:48	07:28	14:52 (1)			
	16:30	24	15:29 (1)	17:12	17:53	19:35	20:15	20:49	20:55	20:25	19:32	18:33	16:41	16:15	23	15:15 (1)	
7	07:44	15:07 (1)	07:17	06:31	06:31	05:40	05:10	05:17	05:49	06:28	07:06	06:50	07:29	14:51 (1)			
	16:31	23	15:30 (1)	17:14	17:55	19:37	20:16	20:50	20:55	20:24	19:30	18:31	16:39	16:15	25	15:16 (1)	
8	07:43	15:07 (1)	07:16	07:29	06:29	05:38	05:10	05:17	05:50	06:29	07:08	06:51	07:30	14:51 (1)			
	16:32	22	15:29 (1)	17:15	18:56	19:38	20:18	20:50	20:54	20:22	19:28	18:29	16:38	16:15	26	15:17 (1)	
9	07:43	15:08 (1)	07:14	07:27	06:27	05:37	05:10	05:18	05:51	06:30	07:09	06:53	07:31	14:52 (1)			
	16:33	21	15:29 (1)	17:17	18:58	19:39	20:19	20:51	20:54	20:21	19:26	18:27	16:37	16:15	25	15:17 (1)	
10	07:43	15:10 (1)	07:13	07:25	06:25	05:35	05:09	05:19	05:53	06:32	07:10	06:54	07:32	14:52 (1)			
	16:34	19	15:29 (1)	17:18	18:59	19:41	20:20	20:52	20:53	20:19	19:24	18:25	16:35	16:15	26	15:18 (1)	
11	07:42	15:11 (1)	07:12	07:23	06:23	05:34	05:09	05:20	05:54	06:33	07:12	06:55	07:33	14:52 (1)			
	16:36	17	15:28 (1)	17:20	19:00	19:42	20:22	20:52	20:53	20:18	19:22	18:23	16:34	16:15	27	15:19 (1)	
12	07:42	15:12 (1)	07:10	07:21	06:21	05:33	05:09	05:21	05:55	06:34	07:13	06:57	07:34	14:52 (1)			
	16:37	15	15:27 (1)	17:21	19:02	19:43	20:23	20:53	20:52	20:16	19:20	18:22	16:33	16:15	28	15:20 (1)	
13	07:41	15:14 (1)	07:09	07:19	06:20	05:32	05:09	05:21	05:56	06:35	07:14	06:58	07:35	14:53 (1)			
	16:38	13	15:27 (1)	17:23	19:03	19:45	20:24	20:53	20:51	20:15	19:18	18:20	16:32	16:15	27	15:20 (1)	
14	07:41	15:16 (1)	07:07	07:17	06:18	05:30	05:09	05:22	05:58	06:37	07:16	07:00	07:36	14:53 (1)			
	16:39	9	15:25 (1)	17:24	19:04	19:46	20:25	20:54	20:51	20:13	19:16	18:18	16:31	16:15	28	15:21 (1)	
15	07:40		07:05	07:15	06:16	05:29	05:09	05:23	05:59	06:38	07:17	07:01	07:37	14:53 (1)			
	16:41		17:26	19:06	19:47	20:26	20:54	20:50	20:11	19:14	18:16	16:29	16:15	28	15:21 (1)		
16	07:40		07:04	07:13	06:14	05:28	05:09	05:24	06:00	06:39	07:18	07:03	07:37	14:53 (1)			
	16:42		17:27	19:07	19:49	20:28	20:55	20:49	20:10	19:12	18:14	16:28	16:15	29	15:22 (1)		
17	07:39		07:02	07:12	06:12	05:27	05:09	05:25	06:01	06:41	07:20	07:04	07:38	14:54 (1)			
	16:43		17:29	19:09	19:50	20:29	20:55	20:48	20:08	19:10	18:13	16:27	16:16	28	15:22 (1)		
18	07:38		07:01	07:10	06:11	05:26	05:09	05:26	06:03	06:42	07:21	07:05	07:39	14:55 (1)			
	16:45		17:30	19:10	19:51	20:30	20:56	20:48	20:06	19:08	18:11	16:26	16:16	28	15:23 (1)		
19	07:38		06:59	07:08	06:09	05:24	05:09	05:27	06:04	06:43	07:23	07:07	07:39	14:55 (1)			
	16:46		17:32	19:11	19:53	20:31	20:56	20:47	20:05	19:06	18:09	16:25	16:16	28	15:23 (1)		
20	07:37		06:57	07:06	06:07	05:23	05:09	05:28	06:05	06:44	07:24	07:08	07:40	14:56 (1)			
	16:47		17:33	19:13	19:54	20:32	20:56	20:46	20:03	19:04	18:07	16:24	16:17	28	15:24 (1)		
21	07:36		06:56	07:04	06:05	05:22	05:09	05:29	06:06	06:46	07:25	07:10	07:41	14:55 (1)			
	16:49		17:35	19:14	19:55	20:33	20:56	20:45	20:01	19:02	18:05	16:24	16:17	29	15:24 (1)		
22	07:35		06:54	07:02	06:03	05:21	05:09	05:30	06:08	06:47	07:27	07:11	07:41	14:56 (1)			
	16:50		17:36	19:15	19:57	20:35	20:57	20:44	20:00	19:00	18:04	16:23	16:18	29	15:25 (1)		
23	07:34		06:52	07:00	06:02	05:20	05:09	05:31	06:09	06:48	07:28	07:12	07:42	14:57 (1)			
	16:52		17:38	19:17	19:58	20:36	20:57	20:43	19:58	18:58	18:02	16:22	16:18	28	15:25 (1)		
24	07:34		06:51	06:58	06:00	05:19	05:10	05:32	06:10	06:49	07:30	07:14	07:42	14:57 (1)			
	16:53		17:39	19:18	19:59	20:37	20:57	20:42	19:56	18:56	18:00	16:21	16:19	28	15:25 (1)		
25	07:33		06:49	06:56	05:58	05:19	05:10	05:34	06:12	06:51	07:31	07:15	07:42	14:58 (1)			
	16:54		17:40	19:19	20:01	20:38	20:57	20:41	19:54	18:54	17:59	16:20	16:19	28	15:26 (1)		
26	07:32		06:47	06:54	05:57	05:18	05:10	05:35	06:13	06:52	07:32	07:16	07:43	14:58 (1)			
	16:56		17:42	19:21	20:02	20:39	20:57	20:40	19:52	18:52	17:57	16:20	16:20	28	15:26 (1)		
27	07:31		06:45	06:52	05:55	05:17	05:11	05:36	06:14	06:53	07:34	07:17	07:43	14:58 (1)			
	16:57		17:43	19:22	20:03	20:40	20:57	20:38	19:51	18:50	17:55	16:19	16:21	28	15:26 (1)		
28	07:30		06:43	06:50	05:53	05:16	05:11	05:37	06:15	06:55	07:35	07:19		14:56 (1)	07:43	15:00 (1)	
	16:59		17:45	19:23	20:05	20:41	20:57	20:37	19:49	18:48	17:54	16:19	9	15:05 (1)	16:21	28	15:28 (1)
29	07:28			06:48	05:52	05:15	05:12	05:38	06:17	06:56	07:37	07:20		14:54 (1)	07:44	15:00 (1)	
	17:00			19:25	20:06	20:42	20:57	20:36	19:47	18:46	17:52	16:18	13	15:07 (1)	16:22	28	15:28 (1)
30	07:27			06:46	05:50	05:15	05:12	05:39	06:18	06:57	07:38	07:21		14:54 (1)	07:44	15:01 (1)	
	17:02			19:26	20:07	20:43	20:57	20:35	19:45	18:45	17:51	16:17	15	15:09 (1)	16:23	27	15:28 (1)
31	07:26			06:44		05:14		05:41	06:19		07:40			07:44	15:01 (1)		
	17:03			19:27		20:44		20:34	19:43		17:49			16:24	27	15:28 (1)	
Potential sun hours	281		289	369	406	464	472	477	439	377	339	284		269			
Total, worst case	292											37			813		

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

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

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: D - Shadow Receptor 61

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	07:44	15:14 (1)	07:25	06:42	06:42	05:49	05:13	05:13	05:42	06:20	06:58	06:41	07:22	15:03 (1)			
	16:25	27	15:41 (1)	17:05	17:46	19:29	20:09	20:45	20:57	20:32	19:41	18:43	16:48	16:17	22	15:25 (1)	
2	07:44	15:15 (1)	07:24	06:40	06:40	05:47	05:13	05:13	05:43	06:22	07:00	06:42	07:24	15:03 (1)			
	16:26	27	15:42 (1)	17:06	17:48	19:30	20:10	20:46	20:56	20:31	19:39	18:41	16:46	16:17	22	15:25 (1)	
3	07:44	15:16 (1)	07:23	06:38	06:38	05:46	05:12	05:14	05:44	06:23	07:01	06:44	07:25	15:02 (1)			
	16:27	26	15:42 (1)	17:08	17:49	19:31	20:11	20:46	20:56	20:30	19:37	18:39	16:45	16:16	24	15:26 (1)	
4	07:44	15:16 (1)	07:21	06:36	06:37	05:44	05:12	05:14	05:45	06:24	07:02	06:45	07:26	15:03 (1)			
	16:28	26	15:42 (1)	17:09	17:51	19:33	20:13	20:47	20:56	20:28	19:35	18:37	16:43	16:16	25	15:28 (1)	
5	07:44	15:16 (1)	07:20	06:34	06:35	05:43	05:11	05:15	05:47	06:25	07:04	06:47	07:27	15:03 (1)			
	16:29	26	15:42 (1)	17:11	17:52	19:34	20:14	20:48	20:56	20:27	19:34	18:35	16:42	16:16	25	15:28 (1)	
6	07:44	15:17 (1)	07:19	06:32	06:33	05:41	05:11	05:16	05:48	06:27	07:05	06:48	07:28	15:03 (1)			
	16:30	26	15:43 (1)	17:12	17:53	19:35	20:15	20:49	20:55	20:25	19:32	18:33	16:41	16:15	26	15:29 (1)	
7	07:44	15:18 (1)	07:17	06:31	06:31	05:40	05:10	05:17	05:49	06:28	07:06	06:50	07:29	15:03 (1)			
	16:31	25	15:43 (1)	17:14	17:55	19:37	20:16	20:50	20:55	20:24	19:30	18:31	16:39	16:15	26	15:29 (1)	
8	07:43	15:18 (1)	07:16	07:29	06:29	05:38	05:10	05:17	05:50	06:29	07:08	06:51	07:30	15:04 (1)			
	16:32	25	15:43 (1)	17:15	18:56	19:38	20:18	20:50	20:54	20:22	19:28	18:29	16:38	16:15	26	15:30 (1)	
9	07:43	15:19 (1)	07:14	07:27	06:27	05:37	05:10	05:18	05:51	06:30	07:09	06:53	07:31	15:04 (1)			
	16:33	24	15:43 (1)	17:17	18:58	19:39	20:19	20:51	20:54	20:21	19:26	18:27	16:37	16:15	26	15:30 (1)	
10	07:43	15:20 (1)	07:13	07:25	06:25	05:35	05:09	05:19	05:53	06:32	07:10	06:54	07:32	15:04 (1)			
	16:34	22	15:42 (1)	17:18	18:59	19:41	20:20	20:52	20:53	20:19	19:24	18:25	16:35	16:15	27	15:31 (1)	
11	07:42	15:21 (1)	07:12	07:23	06:23	05:34	05:09	05:20	05:54	06:33	07:12	06:55	07:33	15:05 (1)			
	16:36	22	15:43 (1)	17:20	19:00	19:42	20:22	20:52	20:53	20:18	19:22	18:23	16:34	16:15	26	15:31 (1)	
12	07:42	15:22 (1)	07:10	07:21	06:21	05:33	05:09	05:21	05:55	06:34	07:13	06:57	07:34	15:05 (1)			
	16:37	20	15:42 (1)	17:21	19:02	19:43	20:23	20:53	20:52	20:16	19:20	18:22	16:33	16:15	27	15:32 (1)	
13	07:41	15:23 (1)	07:09	07:19	06:20	05:32	05:09	05:21	05:56	06:35	07:14	06:58	07:35	15:06 (1)			
	16:38	20	15:43 (1)	17:23	19:03	19:45	20:24	20:53	20:51	20:15	19:18	18:20	16:32	16:15	27	15:33 (1)	
14	07:41	15:24 (1)	07:07	07:17	06:18	05:30	05:09	05:22	05:58	06:37	07:16	07:00	07:36	15:06 (1)			
	16:39	18	15:42 (1)	17:24	19:04	19:46	20:25	20:54	20:51	20:13	19:16	18:18	16:31	16:15	27	15:33 (1)	
15	07:40	15:26 (1)	07:05	07:15	06:16	05:29	05:09	05:23	05:59	06:38	07:17	07:01	07:37	15:06 (1)			
	16:41	16	15:42 (1)	17:26	19:06	19:47	20:26	20:54	20:50	20:11	19:14	18:16	16:29	16:15	27	15:33 (1)	
16	07:40	15:27 (1)	07:04	07:13	06:14	05:28	05:09	05:24	06:00	06:39	07:18	07:03	07:37	15:06 (1)			
	16:42	14	15:41 (1)	17:27	19:07	19:49	20:28	20:55	20:49	20:10	19:12	18:14	16:28	16:15	28	15:34 (1)	
17	07:39	15:29 (1)	07:02	07:12	06:12	05:27	05:09	05:25	06:01	06:41	07:20	07:04	07:38	15:07 (1)			
	16:43	10	15:39 (1)	17:29	19:09	19:50	20:29	20:55	20:48	20:08	19:10	18:12	16:27	16:16	27	15:34 (1)	
18	07:38	15:33 (1)	07:01	07:10	06:11	05:26	05:09	05:26	06:03	06:42	07:21	07:05	07:39	15:08 (1)			
	16:45	2	15:35 (1)	17:30	19:10	19:51	20:30	20:56	20:48	20:06	19:08	18:11	16:26	16:16	27	15:35 (1)	
19	07:38		06:59	07:08	06:09	05:24	05:09	05:27	06:04	06:43	07:23	07:07	07:39	15:08 (1)			
	16:46		17:32	19:11	19:53	20:31	20:56	20:47	20:05	19:06	18:09	16:25	16:16	27	15:35 (1)		
20	07:37		06:57	07:06	06:07	05:23	05:09	05:28	06:05	06:44	07:24	07:08	07:40	15:09 (1)			
	16:47		17:33	19:13	19:54	20:32	20:56	20:46	20:03	19:04	18:07	16:24	16:17	27	15:36 (1)		
21	07:36		06:56	07:04	06:05	05:22	05:09	05:29	06:06	06:46	07:25	07:10	07:41	15:09 (1)			
	16:49		17:35	19:14	19:55	20:33	20:56	20:45	20:01	19:02	18:05	16:24	16:17	27	15:36 (1)		
22	07:35		06:54	07:02	06:03	05:21	05:09	05:30	06:08	06:47	07:27	07:11	07:41	15:10 (1)			
	16:50		17:36	19:15	19:57	20:35	20:57	20:44	20:00	19:00	18:04	16:23	16:18	27	15:37 (1)		
23	07:34		06:52	07:00	06:02	05:20	05:09	05:31	06:09	06:48	07:28	07:12	07:42	15:10 (1)			
	16:52		17:38	19:17	19:58	20:36	20:57	20:43	19:58	18:58	18:02	16:22	16:18	27	15:37 (1)		
24	07:34		06:51	06:58	06:00	05:19	05:10	05:32	06:10	06:49	07:30	07:14	07:42	15:10 (1)			
	16:53		17:39	19:18	19:59	20:37	20:57	20:42	19:56	18:56	18:00	16:21	16:19	27	15:37 (1)		
25	07:33		06:49	06:56	05:58	05:19	05:10	05:34	06:12	06:51	07:31	07:15	10	15:07 (1)	07:42	15:11 (1)	
	16:54		17:40	19:19	20:01	20:38	20:57	20:41	19:54	18:54	17:59	16:20	10	15:17 (1)	16:19	27	15:38 (1)
26	07:32		06:47	06:54	05:57	05:18	05:10	05:35	06:13	06:52	07:32	07:16	15:06 (1)	07:43	15:11 (1)		
	16:56		17:42	19:21	20:02	20:39	20:57	20:40	19:52	18:52	17:57	16:20	13	15:19 (1)	16:20	27	15:38 (1)
27	07:31		06:45	06:52	05:55	05:17	05:11	05:36	06:14	06:53	07:34	07:17	15:05 (1)	07:43	15:11 (1)		
	16:57		17:43	19:22	20:03	20:40	20:57	20:38	19:51	18:50	17:55	16:19	16	15:21 (1)	16:21	28	15:39 (1)
28	07:30		06:43	06:50	05:53	05:16	05:11	05:37	06:15	06:55	07:35	07:19	15:04 (1)	07:43	15:13 (1)		
	16:59		17:45	19:23	20:05	20:41	20:57	20:37	19:49	18:48	17:54	16:19	18	15:22 (1)	16:21	27	15:40 (1)
29	07:28			06:48	05:52	05:15	05:12	05:38	06:17	06:56	07:37	07:20	15:03 (1)	07:44	15:13 (1)		
	17:00			19:25	20:06	20:42	20:57	20:36	19:47	18:46	17:52	16:18	20	15:23 (1)	16:22	27	15:40 (1)
30	07:27			06:46	05:50	05:15	05:12	05:39	06:18	06:57	07:38	07:21	15:04 (1)	07:44	15:13 (1)		
	17:02			19:26	20:07	20:43	20:57	20:35	19:45	18:44	17:51	16:17	20	15:24 (1)	16:23	27	15:40 (1)
31	07:26			06:44		05:14		05:40	06:19		07:40			07:44	15:14 (1)		
	17:03			19:27		20:44		20:34	19:43		17:49			16:24	27	15:41 (1)	
Potential sun hours	281		289	369	406	464	472	477	439	377	339	284		269			
Total, worst case	376										97			817			

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: E - Shadow Receptor 63

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	07:44 16:25	15:23 (1) 15:50 (1)	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48
2	07:44 16:26	15:24 (1) 15:51 (1)	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	06:42 18:41	06:42 16:46
3	07:44 16:27	15:24 (1) 15:51 (1)	07:23 17:08	06:38 17:49	06:38 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45
4	07:44 16:28	15:24 (1) 15:51 (1)	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:35	07:02 18:37	06:45 16:43
5	07:44 16:29	15:25 (1) 15:51 (1)	07:20 17:11	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42
6	07:44 16:30	15:25 (1) 15:52 (1)	07:19 17:12	06:32 17:53	06:33 19:35	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41
7	07:44 16:31	15:26 (1) 15:53 (1)	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:50 20:24	06:29 19:30	07:08 18:31	06:51 16:39
8	07:43 16:32	15:26 (1) 15:53 (1)	07:16 17:15	06:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:22	06:29 19:28	07:08 18:29	06:51 16:38
9	07:43 16:33	15:27 (1) 15:53 (1)	07:14 17:17	06:27 18:58	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:30 19:26	07:09 18:27	06:53 16:37
10	07:43 16:34	15:27 (1) 15:53 (1)	07:13 17:18	06:25 18:59	06:25 19:41	05:35 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 16:35
11	07:42 16:36	15:28 (1) 15:54 (1)	07:12 17:20	06:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:23	06:55 16:34
12	07:42 16:37	15:28 (1) 15:53 (1)	07:10 17:21	06:21 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 16:33
13	07:41 16:38	15:29 (1) 15:54 (1)	07:09 17:23	06:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:35 19:18	07:14 18:20	06:58 16:32
14	07:41 16:39	15:29 (1) 15:54 (1)	07:07 17:24	06:18 19:04	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 16:31
15	07:40 16:41	15:31 (1) 15:54 (1)	07:05 17:26	06:16 19:06	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 18:16	07:01 16:29
16	07:40 16:42	15:31 (1) 15:54 (1)	07:04 17:27	06:14 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:18 18:14	07:03 16:28
17	07:39 16:43	15:32 (1) 15:54 (1)	07:02 17:29	06:12 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:48	06:01 20:08	06:41 19:10	07:20 18:12	07:04 16:27
18	07:38 16:45	15:33 (1) 15:53 (1)	07:01 17:30	06:11 19:10	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 16:26
19	07:38 16:46	15:35 (1) 15:53 (1)	06:59 17:32	06:09 19:11	06:09 19:53	05:24 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 16:25
20	07:37 16:47	15:36 (1) 15:52 (1)	06:57 17:33	06:07 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 16:24
21	07:36 16:49	15:38 (1) 15:51 (1)	06:56 17:35	06:05 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:10 16:24
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23	07:34 16:52	15:41 (1) 15:51 (1)	06:52 17:38	06:02 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22
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31	07:26 17:03	15:49 (1) 15:59 (1)	06:39 17:39	05:49 19:26	05:49 20:08	05:14 20:44	05:14 20:58	05:40 20:34	06:19 19:43	06:58 18:43	07:40 17:49	07:22 16:16
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case	513									220		814

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

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

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: F - Shadow Receptor 70

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	07:44 16:25	15:28 (1) 15:53 (1)	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48
2	07:44 16:26	15:28 (1) 15:54 (1)	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:46
3	07:44 16:27	15:29 (1) 15:54 (1)	07:23 17:08	06:38 17:49	06:38 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45
4	07:44 16:28	15:28 (1) 15:54 (1)	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:35	07:02 18:37	06:45 16:43
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7	07:44 16:31	15:30 (1) 15:56 (1)	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:50 20:24	06:29 19:30	07:08 18:31	06:50 16:39
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21	07:36 16:49	15:39 (1) 15:58 (1)	06:56 17:35	06:05 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:10 16:24
22	07:35 16:50	15:40 (1) 15:57 (1)	06:54 17:36	06:03 19:15	06:03 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 20:00	06:47 19:00	07:27 18:04	07:11 16:23
23	07:34 16:52	15:42 (1) 15:56 (1)	06:52 17:38	06:02 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22
24	07:34 16:53	15:44 (1) 15:54 (1)	06:50 17:39	06:00 19:18	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 16:21
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Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case	563									277		772

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: G - Shadow Receptor 71

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	07:44 16:25	15:33 (1) 15:56 (1)	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48
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29	07:28 17:00	15:55 (1) 17:47	06:41 19:25	05:51 20:06	05:51 20:10	05:14 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:46	07:37 17:52	07:20 16:18
30	07:27 17:02	15:56 (1) 17:48	06:40 19:26	05:50 20:07	05:50 20:10	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 18:44	07:38 17:51	07:21 16:17
31	07:26 17:03	15:57 (1) 17:49	06:39 19:27	05:49 20:08	05:49 20:10	05:14 20:44	05:11 20:57	05:40 20:34	06:19 19:43	06:58 18:44	07:40 17:51	07:22 16:17
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case	599									329		682

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: H - Shadow Receptor 75

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	07:44 16:25	07:25 17:05	16:06 (1) 16:32 (1)	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 15:43 (1)
2	07:44 16:26	07:24 17:06	16:05 (1) 16:32 (1)	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 15:41 (1)
3	07:44 16:27	07:23 17:08	16:06 (1) 16:32 (1)	06:38 17:49	06:38 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 15:40 (1)
4	07:44 16:28	07:21 17:09	16:07 (1) 16:32 (1)	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:35	07:02 18:37	06:45 15:38 (1)
5	07:44 16:29	07:20 17:11	16:07 (1) 16:31 (1)	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 15:37 (1)
6	07:44 16:30	07:19 17:12	16:08 (1) 16:31 (1)	06:32 17:53	06:33 19:35	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 15:37 (1)
7	07:44 16:31	07:17 17:14	16:08 (1) 16:30 (1)	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 15:37 (1)
8	07:43 16:32	07:16 17:15	16:10 (1) 16:29 (1)	07:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:22	06:29 19:28	07:08 18:29	06:51 15:37 (1)
9	07:43 16:33	07:14 17:17	16:12 (1) 16:28 (1)	07:27 18:58	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:30 19:26	07:09 18:27	06:53 15:36 (1)
10	07:43 16:34	07:13 17:18	16:14 (1) 16:26 (1)	07:25 18:59	06:25 19:41	05:35 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 15:35 (1)
11	07:42 16:36	07:12 17:20	16:18 (1) 16:21 (1)	07:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:23	06:55 15:36 (1)
12	07:42 16:37	07:10 17:21	16:21 (1) 17:21	07:21 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 15:37 (1)
13	07:41 16:38	07:09 17:23	17:21 19:03	06:20 19:45	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:35 19:18	07:14 18:20	06:58 15:37 (1)
14	07:41 16:39	07:07 17:24	17:24 19:04	06:18 19:46	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 15:38 (1)
15	07:40 16:41	07:05 17:26	17:26 19:06	06:16 19:47	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 18:16	07:01 15:39 (1)
16	07:40 16:42	07:04 17:27	17:27 19:07	06:14 19:49	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:18 18:14	07:03 15:40 (1)
17	07:39 16:43	07:02 17:29	17:29 19:09	06:12 19:50	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:48	06:01 20:08	06:41 19:10	07:20 18:12	07:04 15:41 (1)
18	07:38 16:45	07:01 17:30	17:30 19:10	06:11 19:51	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 15:42 (1)
19	07:38 16:46	06:59 17:32	17:32 19:11	06:09 19:53	06:09 19:53	05:24 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 15:43 (1)
20	07:37 16:47	16:11 (1) 16:20 (1)	06:57 17:33	07:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 15:44 (1)
21	07:36 16:49	16:10 (1) 16:21 (1)	06:56 17:35	07:04 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:10 15:45 (1)
22	07:35 16:50	16:08 (1) 16:22 (1)	06:54 17:36	07:02 19:15	06:03 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 19:59	06:47 19:00	07:27 18:04	07:11 15:46 (1)
23	07:34 16:52	16:07 (1) 16:24 (1)	06:52 17:38	07:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 15:47 (1)
24	07:34 16:53	16:07 (1) 16:26 (1)	06:50 17:39	06:58 19:18	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 15:48 (1)
25	07:33 16:54	16:06 (1) 16:27 (1)	06:49 17:40	06:56 19:19	05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:15 15:49 (1)
26	07:32 16:56	16:06 (1) 16:29 (1)	06:47 17:42	06:54 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 15:50 (1)
27	07:31 16:57	16:06 (1) 16:30 (1)	06:45 17:43	06:52 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:51	06:53 18:50	07:34 17:55	07:17 15:51 (1)
28	07:30 16:59	16:06 (1) 16:31 (1)	06:43 17:45	06:50 19:23	05:53 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 18:48	07:35 17:54	07:19 15:52 (1)
29	07:28 17:00	16:05 (1) 16:31 (1)		06:48 19:25	05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:46	07:37 17:52	07:20 15:53 (1)
30	07:27 17:02	16:05 (1) 16:31 (1)		06:46 19:26	05:50 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 18:44	07:38 17:51	07:21 15:54 (1)
31	07:26 17:03	16:05 (1) 16:32 (1)		06:44 19:27		05:14 20:44		05:40 20:34	06:19 19:43		07:40 17:49	16:46 (1) 16:52 (1)
Potential sun hours	281	289	223	369	406	464	472	477	439	377	339	284
Total, worst case	242	223	369	406	464	472	477	439	377	339	284	269

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

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

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: I - Shadow Receptor 84

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	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	17:44 (1) 18:10 (1)	06:41 16:48	07:22 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	17:44 (1) 18:11 (1)	06:42 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	17:15 (1) 19:31	06:38 20:11	05:46 20:46	05:12 20:56	05:14 20:30	06:23 19:37	07:01 18:39	17:43 (1) 18:10 (1)	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	17:12 (1) 19:33	06:37 20:13	05:44 20:47	05:12 20:56	05:14 20:28	06:24 19:35	07:02 18:37	17:43 (1) 18:09 (1)	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	17:10 (1) 19:34	06:35 20:14	05:43 20:48	05:11 20:56	05:15 20:27	06:25 19:34	07:04 18:35	17:43 (1) 18:09 (1)	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:32 17:53	17:08 (1) 19:35	06:33 20:15	05:41 20:49	05:11 20:55	05:16 20:25	06:27 19:32	07:05 18:33	17:43 (1) 18:08 (1)	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	17:07 (1) 19:37	06:31 20:16	05:40 20:50	05:10 20:55	05:17 20:24	06:28 19:30	07:06 18:31	17:43 (1) 18:06 (1)	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	07:29 18:56	18:07 (1) 19:38	06:29 20:18	05:38 20:50	05:10 20:54	05:50 20:22	06:29 19:28	07:08 18:29	17:45 (1) 18:05 (1)	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:58	18:06 (1) 19:39	06:27 20:19	05:37 20:51	05:10 20:54	05:51 20:21	06:30 19:26	07:09 18:27	17:46 (1) 18:03 (1)	06:53 16:37	07:31 16:15
10	07:43 16:34	07:13 17:18	07:25 18:59	18:05 (1) 19:41	06:25 20:20	05:35 20:52	05:09 20:53	05:19 20:19	06:32 19:24	07:10 18:25	17:47 (1) 18:00 (1)	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	07:23 19:00	18:05 (1) 19:42	06:23 20:22	05:34 20:52	05:09 20:53	05:20 20:18	06:33 19:22	07:12 18:23	17:51 (1) 17:58 (1)	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	07:21 19:02	18:05 (1) 19:43	06:21 20:23	05:33 20:53	05:09 20:52	05:21 20:16	06:34 19:20	07:13 18:22	17:58 (1) 18:03 (1)	06:57 16:33	07:34 16:15
13	07:41 16:38	07:09 17:23	07:19 19:03	18:05 (1) 19:45	06:20 20:24	05:32 20:53	05:09 20:51	05:21 20:15	06:35 19:18	07:14 18:20	18:04 (1) 18:09 (1)	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	07:17 19:04	18:05 (1) 19:46	06:18 20:25	05:30 20:54	05:09 20:51	05:22 20:13	06:37 19:16	07:16 18:18	18:07 (1) 18:12 (1)	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	07:15 19:06	18:06 (1) 19:47	06:16 20:26	05:29 20:54	05:09 20:50	05:23 20:11	06:38 19:14	07:17 18:16	18:13 (1) 18:18 (1)	07:01 16:29	07:37 16:15
16	07:40 16:42	07:04 17:27	07:13 19:07	18:06 (1) 19:49	06:14 20:28	05:28 20:55	05:09 20:49	05:24 20:10	06:39 19:12	07:18 18:14	18:19 (1) 18:24 (1)	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	07:11 19:09	18:07 (1) 19:50	06:12 20:29	05:27 20:55	05:09 20:48	05:25 20:08	06:41 19:10	07:20 18:12	18:25 (1) 18:30 (1)	07:04 16:27	07:38 16:16
18	07:38 16:45	07:01 17:30	07:10 19:10	18:09 (1) 19:51	06:11 20:30	05:26 20:56	05:09 20:48	05:26 20:06	06:42 19:08	07:21 18:11	18:31 (1) 18:36 (1)	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	07:08 19:11	18:12 (1) 19:53	06:09 20:31	05:24 20:56	05:09 20:47	06:04 20:05	06:43 19:06	07:23 18:09	18:37 (1) 18:42 (1)	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	07:06 19:13	18:20 (1) 19:54	06:07 20:32	05:23 20:56	05:09 20:46	06:05 20:03	06:44 19:04	07:24 18:07	18:43 (1) 18:48 (1)	07:08 16:24	07:40 16:17
21	07:36 16:49	06:56 17:35	07:04 19:14	18:21 (1) 19:55	06:05 20:33	05:22 20:56	05:09 20:45	06:06 20:01	06:46 19:02	07:25 18:05	18:49 (1) 18:54 (1)	07:09 16:24	07:41 16:17
22	07:35 16:50	06:54 17:36	07:02 19:15	18:22 (1) 19:57	06:03 20:35	05:21 20:57	05:09 20:44	06:08 19:59	06:47 19:00	07:27 18:04	19:01 (1) 19:06 (1)	07:11 16:23	07:41 16:18
23	07:34 16:52	06:52 17:38	07:00 19:17	18:23 (1) 19:58	06:02 20:36	05:20 20:57	05:09 20:43	06:09 19:58	06:48 18:58	07:28 18:02	19:07 (1) 19:12 (1)	07:12 16:22	07:42 16:18
24	07:34 16:53	06:50 17:39	06:58 19:18	18:24 (1) 19:59	06:00 20:37	05:19 20:57	05:10 20:42	06:10 19:56	06:49 18:56	07:29 18:03	19:13 (1) 19:18 (1)	07:14 16:21	07:42 16:19
25	07:33 16:54	06:49 17:40	06:56 19:19	18:25 (1) 20:01	05:58 20:38	05:19 20:57	05:10 20:41	06:12 19:54	06:51 18:54	07:30 18:04	19:19 (1) 19:24 (1)	07:15 16:20	07:42 16:19
26	07:32 16:56	06:47 17:42	06:54 19:21	18:26 (1) 20:02	05:57 20:39	05:18 20:57	05:10 20:40	06:13 19:52	06:52 18:52	07:31 18:05	19:25 (1) 19:30 (1)	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22	18:27 (1) 20:03	05:55 20:40	05:17 20:57	05:11 20:38	06:14 19:50	06:53 18:50	07:32 18:06	19:31 (1) 19:36 (1)	07:17 16:21	07:43 16:21
28	07:30 16:59	06:43 17:45	06:50 19:23	18:28 (1) 20:05	05:53 20:41	05:16 20:57	05:11 20:37	06:15 19:49	06:55 18:48	07:33 18:07	19:37 (1) 19:42 (1)	07:19 16:21	07:43 16:21
29	07:28 17:00	06:48 17:25	06:48 19:25	18:29 (1) 20:06	05:52 20:42	05:15 20:57	05:12 20:36	06:17 19:47	06:56 18:46	07:34 18:10	19:39 (1) 19:44 (1)	07:20 16:22	07:44 16:22
30	07:27 17:02	06:46 17:26	06:46 19:26	18:30 (1) 20:07	05:50 20:43	05:15 20:57	05:12 20:35	06:18 19:45	06:57 18:44	07:35 18:10	19:45 (1) 19:50 (1)	07:21 16:17	07:44 16:23
31	07:26 17:03	06:44 17:27	06:44 19:27	18:31 (1) 20:08	05:14 20:44	05:14 20:58	05:14 20:34	06:19 19:43	07:36 18:45	07:36 18:11	19:49 (1) 19:54 (1)	07:40 16:24	07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269	
Total, worst case			360					124		237			

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:39 PM/3.0.651

SHADOW - Calendar

Calculation: Option 1 Hours per Year worst case DEMShadow receptor: J - Shadow Receptor 85

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

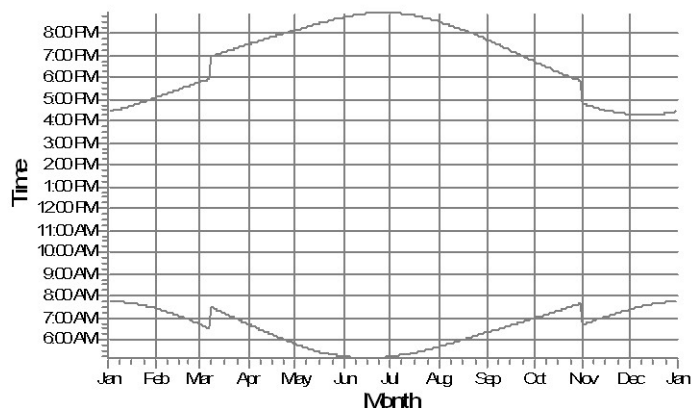
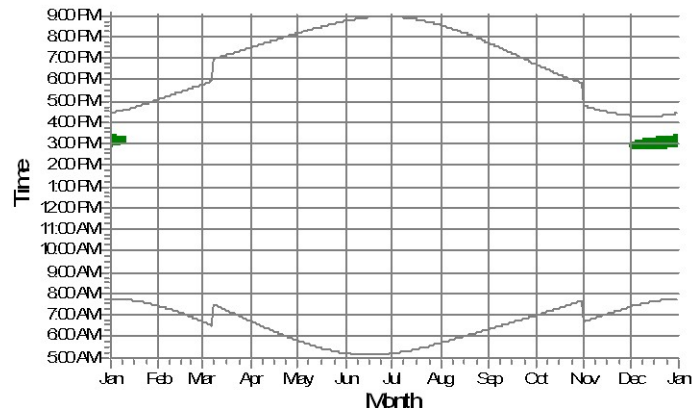
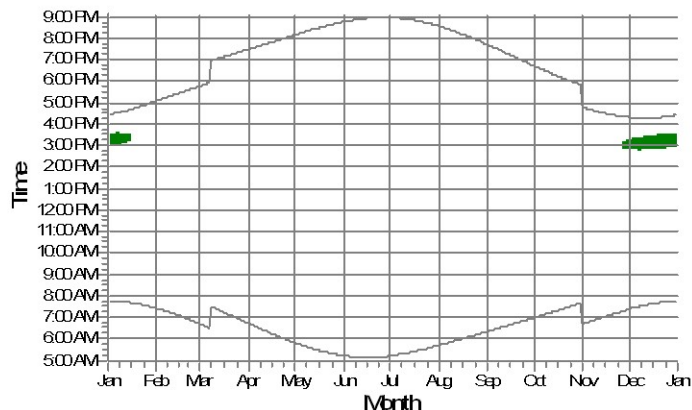
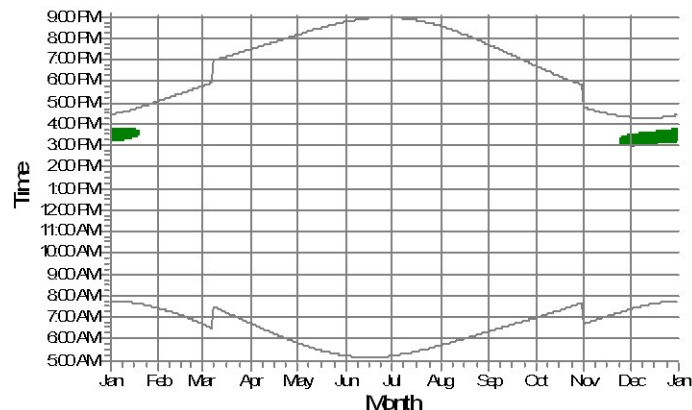
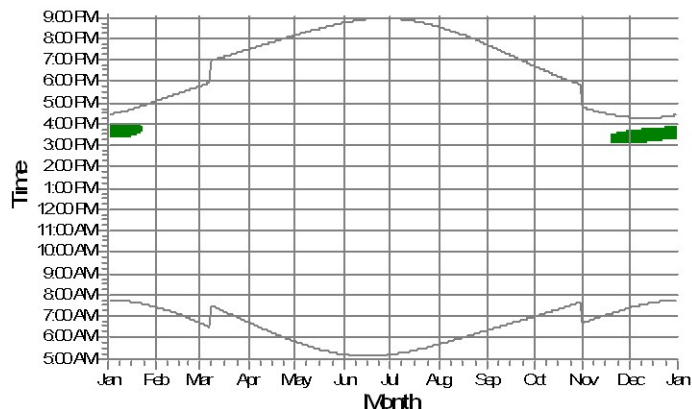
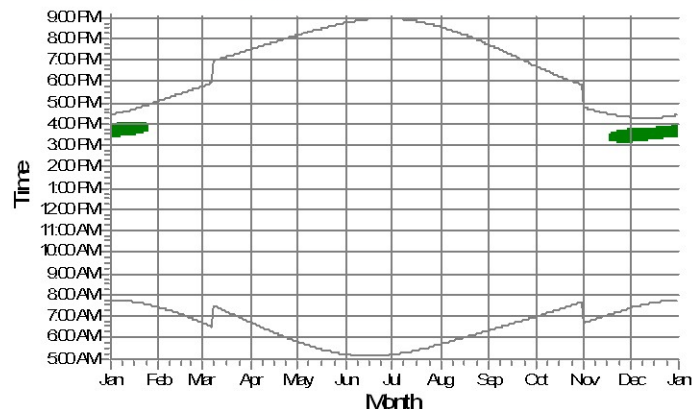
	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	18:35 (1) 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48	07:22 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	18:39 (1) 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	06:38 19:31	18:41 (1) 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:50	06:37 19:33		05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:35	07:02 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	06:35 19:34		05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:32 17:53	06:33 19:35		05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37		05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	07:29 18:56	06:29 19:38		05:38 20:50	05:10 20:54	05:50 20:22	06:29 19:28	07:08 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:58	06:27 19:39		05:37 20:51	05:10 20:54	05:51 20:21	06:30 19:26	07:09 18:27	06:53 16:37	07:31 16:15
10	07:43 16:34	07:13 17:18	07:25 18:59	06:25 19:41		05:35 20:52	05:09 20:53	05:19 20:19	05:53 19:24	07:10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	07:23 19:00	06:23 19:42		05:34 20:21	05:09 20:52	05:20 20:18	05:54 19:22	07:12 18:38 (1)	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	07:21 19:02	06:21 19:43		05:33 20:23	05:09 20:53	05:21 20:16	05:55 19:20	18:24 (1)	07:13 18:22	07:34 16:15
13	07:41 16:38	07:09 17:23	07:19 19:03	06:20 19:45		05:32 20:24	05:09 20:53	05:21 20:15	05:56 19:18	18:39 (1)	07:14 18:20	07:35 16:15
14	07:41 16:39	07:07 17:24	07:17 19:04	06:18 19:46		05:30 20:25	05:09 20:54	05:22 20:13	05:58 19:16	18:41 (1)	07:16 18:18	07:36 16:15
15	07:40 16:41	07:05 17:26	07:15 19:06	06:16 19:47		05:29 20:26	05:09 20:54	05:23 20:11	05:59 19:14	18:20 (1)	07:17 18:16	07:37 16:15
16	07:40 16:42	07:04 17:27	07:13 19:07	06:14 19:49		05:28 20:28	05:09 20:55	05:24 20:10	06:00 19:12	18:42 (1)	07:18 18:14	07:37 16:15
17	07:39 16:43	07:02 17:29	07:11 19:09	06:12 19:50		05:27 20:29	05:09 20:55	05:25 20:08	06:01 19:10	18:20 (1)	07:20 18:12	07:38 16:16
18	07:38 16:45	07:01 17:30	07:10 19:10	06:11 19:51		05:26 20:30	05:09 20:55	05:26 20:06	06:03 19:08	18:42 (1)	07:21 18:11	07:39 16:16
19	07:38 16:46	06:59 17:32	07:08 19:11	06:09 19:53	18:40 (1)	05:24 20:31	05:09 20:56	05:27 20:05	06:04 19:06	18:42 (1)	07:23 18:09	07:39 16:16
20	07:37 16:47	06:57 17:33	07:06 19:13	06:07 19:54	18:48 (1)	05:23 20:32	05:09 20:56	05:28 20:03	06:05 19:04	18:19 (1)	07:24 18:07	07:40 16:17
21	07:36 16:49	06:56 17:35	07:04 19:14	06:05 19:55	18:35 (1)	05:22 20:33	05:09 20:56	05:29 20:01	06:06 19:02	18:41 (1)	07:25 18:05	07:41 16:17
22	07:35 16:50	06:54 17:36	07:02 19:15	06:03 19:57	18:51 (1)	05:21 20:35	05:09 20:57	05:30 20:44	06:08 19:59	18:20 (1)	07:27 18:04	07:41 16:18
23	07:34 16:52	06:52 17:38	07:00 19:17	06:02 19:58	18:33 (1)	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	18:37 (1)	07:28 18:02	07:42 16:18
24	07:34 16:53	06:50 17:39	06:58 19:18	06:00 19:59	18:32 (1)	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	18:21 (1)	07:29 18:00	07:42 16:19
25	07:33 16:54	06:49 17:40	06:56 19:19	05:58 20:01	18:53 (1)	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	18:34 (1)	07:31 18:03	07:42 16:19
26	07:32 16:56	06:47 17:42	06:54 19:21	05:57 20:02	18:23 (1)	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	18:23 (1)	07:32 18:00	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22	05:55 20:03	18:34 (1)	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:50	18:42 (1)	07:34 18:05	07:43 16:21
28	07:30 16:59	06:43 17:45	06:50 19:23	05:53 20:05	18:31 (1)	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	18:34 (1)	07:35 18:06	07:43 16:21
29	07:28 17:00		06:48 19:25	05:52 20:06	18:53 (1)	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	18:42 (1)	07:37 18:07	07:44 16:22
30	07:27 17:02		06:46 19:26	05:50 20:07	18:32 (1)	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	18:44	07:38 18:08	07:44 16:23
31	07:26 17:03		06:44 19:27	18:33 (1)	18:48 (1)	05:14 20:44		05:40 20:34	06:19 19:43		07:40 18:09	07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case			241	13					257			

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

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

SHADOW - Calendar, graphical

Calculation: Option 1 Hours per Year worst case DEM

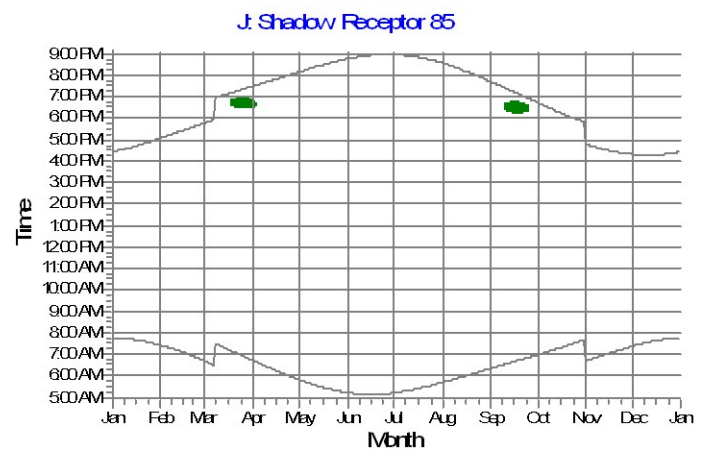
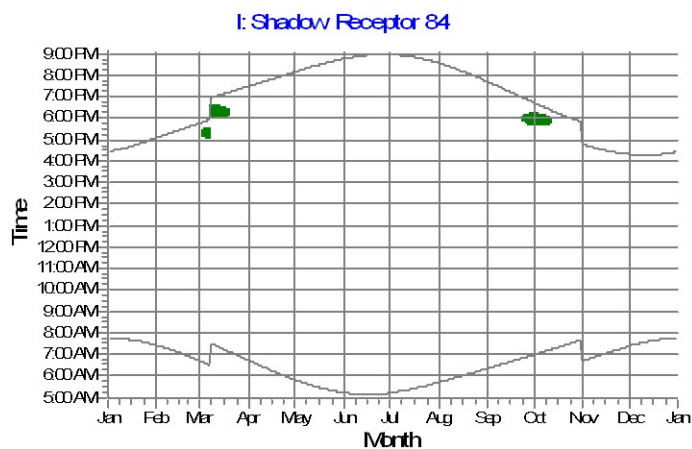
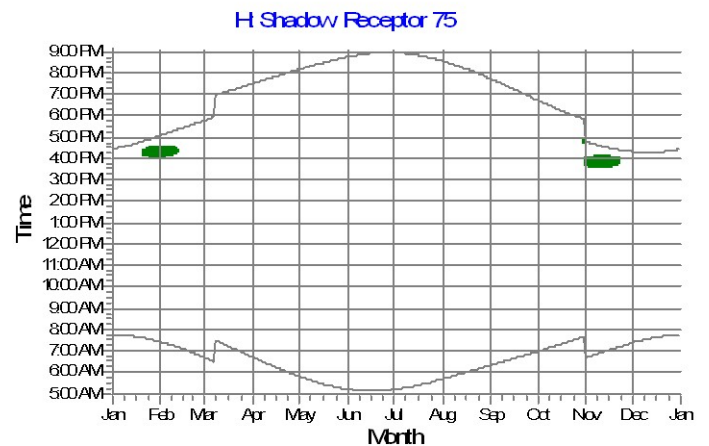
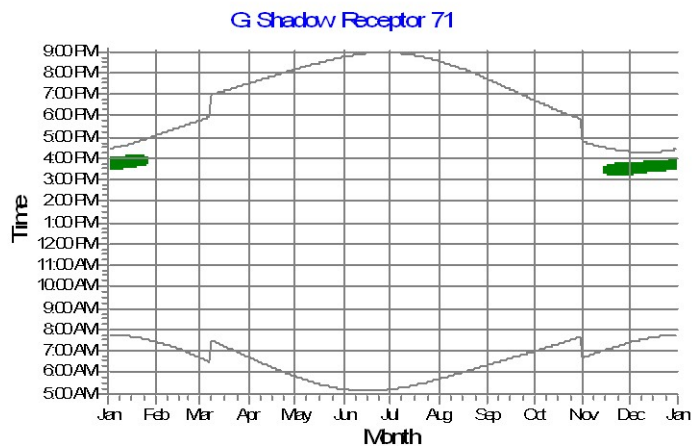
A: Shadow Receptor 1**B: Shadow Receptor 45****C: Shadow Receptor 46****D: Shadow Receptor 61****E: Shadow Receptor 63****F: Shadow Receptor 70**

WTGs

1: ENERCON E-92 2,3 MW 2350 92.0 Option 1

SHADOW - Calendar, graphical

Calculation: Option 1 Hours per Year worst case DEM



WTGs

1: ENERCON E-92 2,3 MW 2350 92.0 Option 1

SHADOW - Calendar per WTG

Calculation: Option 1 Hours per Year worst case DEMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 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	
1	07:44	14:57-15:56/59	07:25	16:06-16:32/26	06:42		06:42	18:35-18:46/11	05:49		05:13	
	16:25		17:05		17:46		19:29		20:09		20:45	
2	07:44	14:58-15:56/58	07:24	16:05-16:32/27	06:40		06:40	18:39-18:41/2	05:47		05:13	
	16:26		17:06		17:48		19:30		20:10		20:46	
3	07:44	14:59-15:57/58	07:23	16:06-16:32/26	06:38	17:15-17:26/11	06:39		05:46		05:12	
	16:27		17:08		17:49		19:31		20:11		20:46	
4	07:44	14:59-15:57/58	07:21	16:07-16:32/25	06:36	17:12-17:27/15	06:37		05:44		05:12	
	16:28		17:09		17:51		19:33		20:13		20:47	
5	07:44	15:00-15:58/58	07:20	16:07-16:31/24	06:34	17:10-17:28/18	06:35		05:43		05:11	
	16:29		17:11		17:52		19:34		20:14		20:48	
6	07:44	15:02-15:59/57	07:19	16:08-16:31/23	06:32	17:08-17:30/22	06:33		05:41		05:11	
	16:30		17:12		17:53		19:36		20:15		20:49	
7	07:44	15:03-16:00/57	07:17	16:08-16:30/22	06:31	17:07-17:31/24	06:31		05:40		05:10	
	16:31		17:14		17:55		19:37		20:16		20:50	
8	07:43	15:04-15:59/55	07:16	16:10-16:29/19	07:29	18:07-18:32/25	06:29		05:38		05:10	
	16:32		17:15		18:56		19:38		20:18		20:50	
9	07:43	15:07-16:00/53	07:14	16:12-16:28/16	07:27	18:06-18:32/26	06:27		05:37		05:10	
	16:33		17:17		18:58		19:40		20:19		20:51	
10	07:43	15:10-16:00/50	07:13	16:14-16:26/12	07:25	18:05-18:32/27	06:25		05:36		05:09	
	16:35		17:18		18:59		19:41		20:20		20:52	
11	07:42	15:11-16:01/50	07:12	16:18-16:21/3	07:23	18:05-18:32/27	06:23		05:34		05:09	
	16:36		17:20		19:00		19:42		20:22		20:52	
12	07:42	15:12-16:01/49	07:10		07:21	18:05-18:32/27	06:21		05:33		05:09	
	16:37		17:21		19:02		19:44		20:23		20:53	
13	07:41	15:14-16:02/48	07:09		07:19	18:05-18:31/26	06:20		05:32		05:09	
	16:38		17:23		19:03		19:45		20:24		20:53	
14	07:41	15:16-16:02/46	07:07		07:17	18:05-18:30/25	06:18		05:30		05:09	
	16:39		17:24		19:05		19:46		20:25		20:54	
15	07:40	15:26-16:03/37	07:05		07:15	18:06-18:29/23	06:16		05:29		05:09	
	16:41		17:26		19:06		19:48		20:26		20:54	
16	07:40	15:27-16:03/36	07:04		07:13	18:06-18:28/22	06:14		05:28		05:09	
	16:42		17:27		19:07		19:49		20:28		20:55	
17	07:39	15:29-16:03/34	07:02		07:12	18:07-18:26/19	06:12		05:27		05:09	
	16:43		17:29		19:09		19:50		20:29		20:55	
18	07:38	15:33-16:03/30	07:01		07:10	18:09-18:24/15	06:11		05:26		05:09	
	16:45		17:30		19:10		19:51		20:30		20:56	
19	07:38	15:35-16:03/28	06:59		07:08	18:12-18:20/8	06:09		05:25		05:09	
	16:46		17:32		19:11	18:40-18:48/8	19:53		20:31		20:56	
20	07:37	15:36-16:03/27	06:57		07:06	18:37-18:49/12	06:07		05:23		05:09	
	16:47	16:11-16:20/9	17:33		19:13		19:54		20:32		20:56	
21	07:36	15:38-16:03/25	06:56		07:04	18:35-18:51/16	06:05		05:22		05:09	
	16:49	16:10-16:21/11	17:35		19:14		19:55		20:33		20:56	
22	07:35	15:40-16:02/22	06:54		07:02	18:33-18:52/19	06:04		05:21		05:09	
	16:50	16:08-16:22/14	17:36		19:15		19:57		20:35		20:57	
23	07:35	15:42-16:02/20	06:52		07:00	18:32-18:53/21	06:02		05:20		05:09	
	16:52	16:07-16:24/17	17:38		19:17		19:58		20:36		20:57	
24	07:34	15:44-16:01/17	06:51		06:58	18:31-18:53/22	06:00		05:20		05:10	
	16:53	16:07-16:26/19	17:39		19:18		19:59		20:37		20:57	
25	07:33	15:46-16:00/14	06:49		06:56	18:31-18:53/22	05:58		05:19		05:10	
	16:55	16:06-16:27/21	17:41		19:19		20:01		20:38		20:57	
26	07:32	15:49-15:58/9	06:47		06:54	18:31-18:54/23	05:57		05:18		05:10	
	16:56	16:06-16:29/23	17:42		19:21		20:02		20:39		20:57	
27	07:31	16:06-16:30/24	06:45		06:52	18:31-18:53/22	05:55		05:17		05:11	
	16:57		17:43		19:22		20:03		20:40		20:57	
28	07:30	16:06-16:31/25	06:43		06:50	18:31-18:53/22	05:53		05:16		05:11	
	16:59		17:45		19:23		20:05		20:41		20:57	
29	07:28	16:05-16:31/26			06:48	18:31-18:52/21	05:52		05:15		05:12	
	17:00				19:25		20:06		20:42		20:57	
30	07:27	16:05-16:31/26			06:46	18:32-18:50/18	05:50		05:15		05:12	
	17:02				19:26		20:07		20:43		20:57	
31	07:26	16:05-16:32/27			06:44	18:33-18:48/15			05:14			
	17:03				19:27				20:44			
Potential sun hours	281		289		369		406		464		472	
Sum of minutes with flicker	1297		223		601		13		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: Option 1 Hours per Year worst case DEMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 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

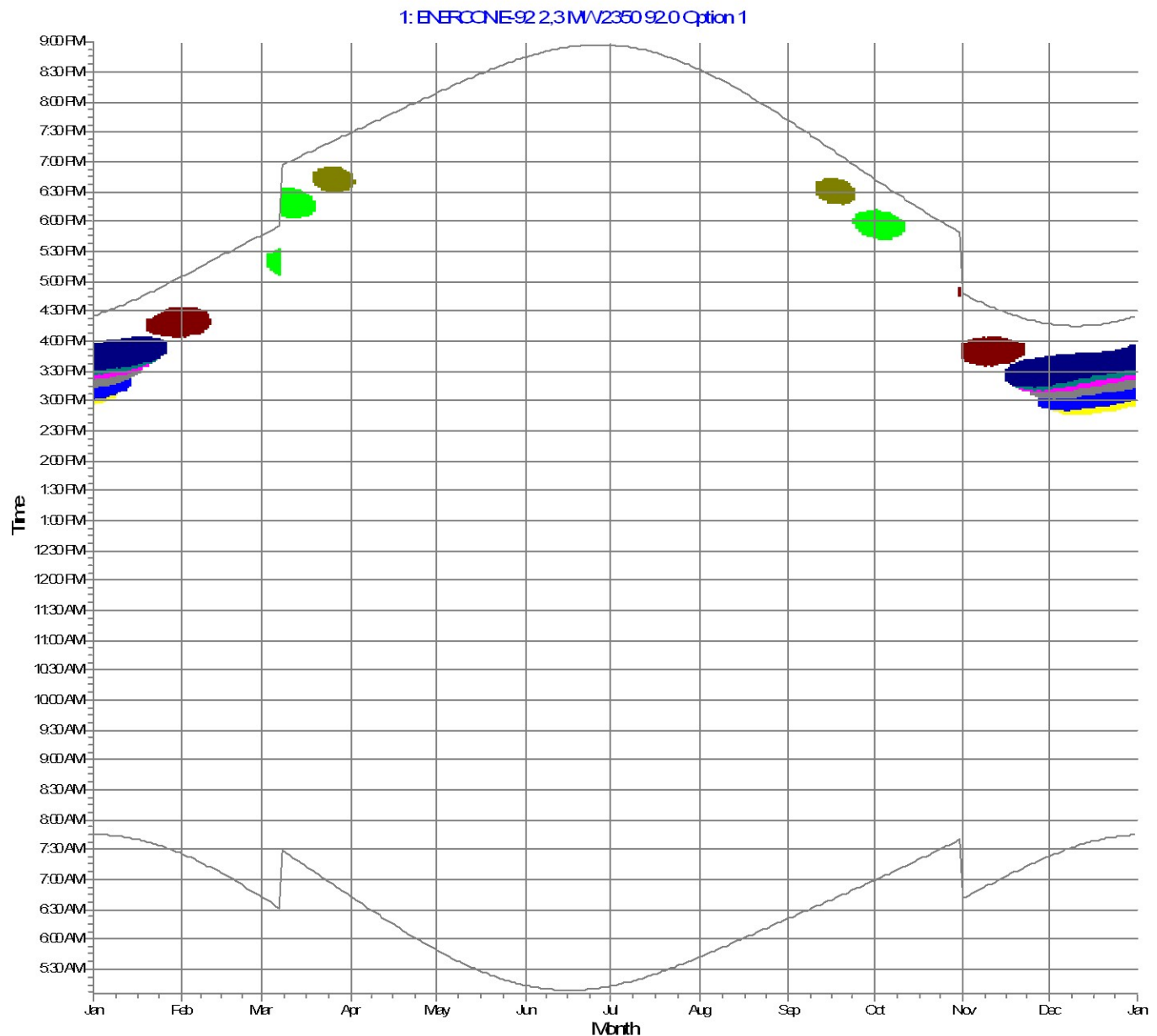
	July	August	September	October	November	December
1	05:13 20:57	05:42 20:32	06:20 19:41	06:58 17:44-18:10/26 18:43	06:41 15:43-15:56/13 16:48	07:22 14:53-15:43/50 16:17
2	05:13 20:56	05:43 20:31	06:22 19:39	07:00 17:44-18:11/27 18:41	06:42 15:41-15:57/16 16:46	07:24 14:52-15:43/51 16:17
3	05:14 20:56	05:44 20:30	06:23 19:37	07:01 17:43-18:10/27 18:39	06:44 15:40-15:59/19 16:45	07:25 14:50-15:43/53 16:16
4	05:14 20:56	05:45 20:28	06:24 19:36	07:02 17:43-18:09/26 18:37	06:45 15:38-16:00/22 16:43	07:26 14:50-15:45/55 16:16
5	05:15 20:56	05:47 20:27	06:25 19:34	07:04 17:43-18:09/26 18:35	06:47 15:38-16:01/23 16:42	07:27 14:49-15:45/56 16:16
6	05:16 20:55	05:48 20:25	06:27 19:32	07:05 17:43-18:08/25 18:33	06:48 15:37-16:01/24 16:41	07:28 14:48-15:45/57 16:15
7	05:17 20:55	05:49 20:24	06:28 19:30	07:06 17:43-18:06/23 18:31	06:50 15:37-16:02/25 16:39	07:29 14:47-15:45/58 16:15
8	05:17 20:54	05:50 20:22	06:29 19:28	07:08 17:45-18:05/20 18:29	06:51 15:37-16:03/26 16:38	07:30 14:47-15:45/58 16:15
9	05:18 20:54	05:51 20:21	06:30 19:26	07:09 17:46-18:03/17 18:27	06:53 15:36-16:02/26 16:37	07:31 14:47-15:45/58 16:15
10	05:19 20:53	05:53 20:19	06:32 19:24	07:10 17:47-18:00/13 18:25	06:54 15:37-16:03/26 16:35	07:32 14:47-15:45/58 16:15
11	05:20 20:53	05:54 20:18	06:33 18:27-18:38/11 19:22	07:12 17:51-17:58/7 18:23	06:55 15:36-16:03/27 16:34	07:33 14:47-15:46/59 16:15
12	05:21 20:52	05:55 20:16	06:34 18:24-18:39/15 19:20	07:13 18:22	06:57 15:37-16:03/26 16:33	07:34 14:47-15:46/59 16:15
13	05:21 20:51	05:56 20:15	06:36 18:23-18:41/18 19:18	07:14 18:20	06:58 15:37-16:03/26 16:32	07:35 14:48-15:46/58 16:15
14	05:22 20:51	05:58 20:13	06:37 18:22-18:42/20 19:16	07:16 18:18	07:00 15:38-16:03/25 16:31	07:36 14:48-15:46/58 16:15
15	05:23 20:50	05:59 20:11	06:38 18:20-18:42/22 19:14	07:17 18:16	07:01 15:38-16:02/24 16:30	07:37 14:47-15:46/59 16:15
16	05:24 20:49	06:00 20:10	06:39 18:19-18:42/23 19:12	07:19 18:14	07:03 15:21-15:31/10 16:28	07:37 14:48-15:46/58 16:15
17	05:25 20:48	06:01 20:08	06:41 18:20-18:42/22 19:10	07:20 18:13	07:04 15:19-15:33/14 16:27	07:38 14:49-15:47/58 16:16
18	05:26 20:48	06:03 20:06	06:42 18:19-18:42/23 19:08	07:21 18:11	07:05 15:18-15:35/17 16:26	07:39 14:49-15:47/58 16:16
19	05:27 20:47	06:04 20:05	06:43 18:19-18:41/22 19:06	07:23 18:09	07:07 15:16-15:36/20 16:25	07:39 14:49-15:47/58 16:16
20	05:28 20:46	06:05 20:03	06:44 18:18-18:40/22 19:04	07:24 18:07	07:08 15:15-15:37/22 16:25	07:40 14:50-15:48/58 16:17
21	05:29 20:45	06:07 20:01	06:46 18:19-18:39/20 19:02	07:25 18:06	07:10 15:13-15:38/25 16:24	07:41 14:50-15:48/58 16:17
22	05:30 20:44	06:08 20:00	06:47 18:20-18:37/17 19:00	07:27 18:04	07:11 15:12-15:39/27 16:23	07:41 14:51-15:49/58 16:18
23	05:31 20:43	06:09 19:58	06:48 18:21-18:34/13 18:58	07:28 18:02	07:12 15:11-15:40/29 16:22	07:42 14:51-15:49/58 16:18
24	05:33 20:42	06:10 19:56	06:49 17:58-18:01/3 18:56	07:30 18:00	07:14 15:11-15:41/30 16:21	07:42 14:51-15:49/58 16:19
25	05:34 20:41	06:12 19:54	06:51 17:54-18:06/12 18:54	07:31 17:59	07:15 15:07-15:41/34 16:21	07:42 14:52-15:50/58 16:19
26	05:35 20:40	06:13 19:52	06:52 17:51-18:08/17 18:52	07:32 17:57	07:16 15:06-15:41/35 16:20	07:43 14:52-15:50/58 16:20
27	05:36 20:39	06:14 19:51	06:53 17:48-18:09/21 18:50	07:34 17:56	07:17 15:05-15:42/37 16:19	07:43 14:53-15:51/58 16:21
28	05:37 20:37	06:15 19:49	06:55 17:47-18:09/22 18:48	07:35 17:54	07:19 14:56-15:42/46 16:19	07:43 14:54-15:52/58 16:21
29	05:38 20:36	06:17 19:47	06:56 17:46-18:10/24 18:46	07:37 17:52	07:20 14:54-15:42/48 16:18	07:44 14:55-15:53/58 16:22
30	05:39 20:35	06:18 19:45	06:57 17:45-18:10/25 18:45	07:38 17:51	07:21 14:54-15:43/49 16:18	07:44 14:55-15:54/59 16:23
31	05:41 20:34	06:19 19:43		07:40 16:46-16:52/6 17:49		07:44 14:56-15:55/59 16:24
Potential sun hours	477	439	377	339	284	269
Sum of minutes with flicker	0	0	381	243	906	1777

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: Option 1 Hours per Year worst case DEMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 1



Shadow receptors

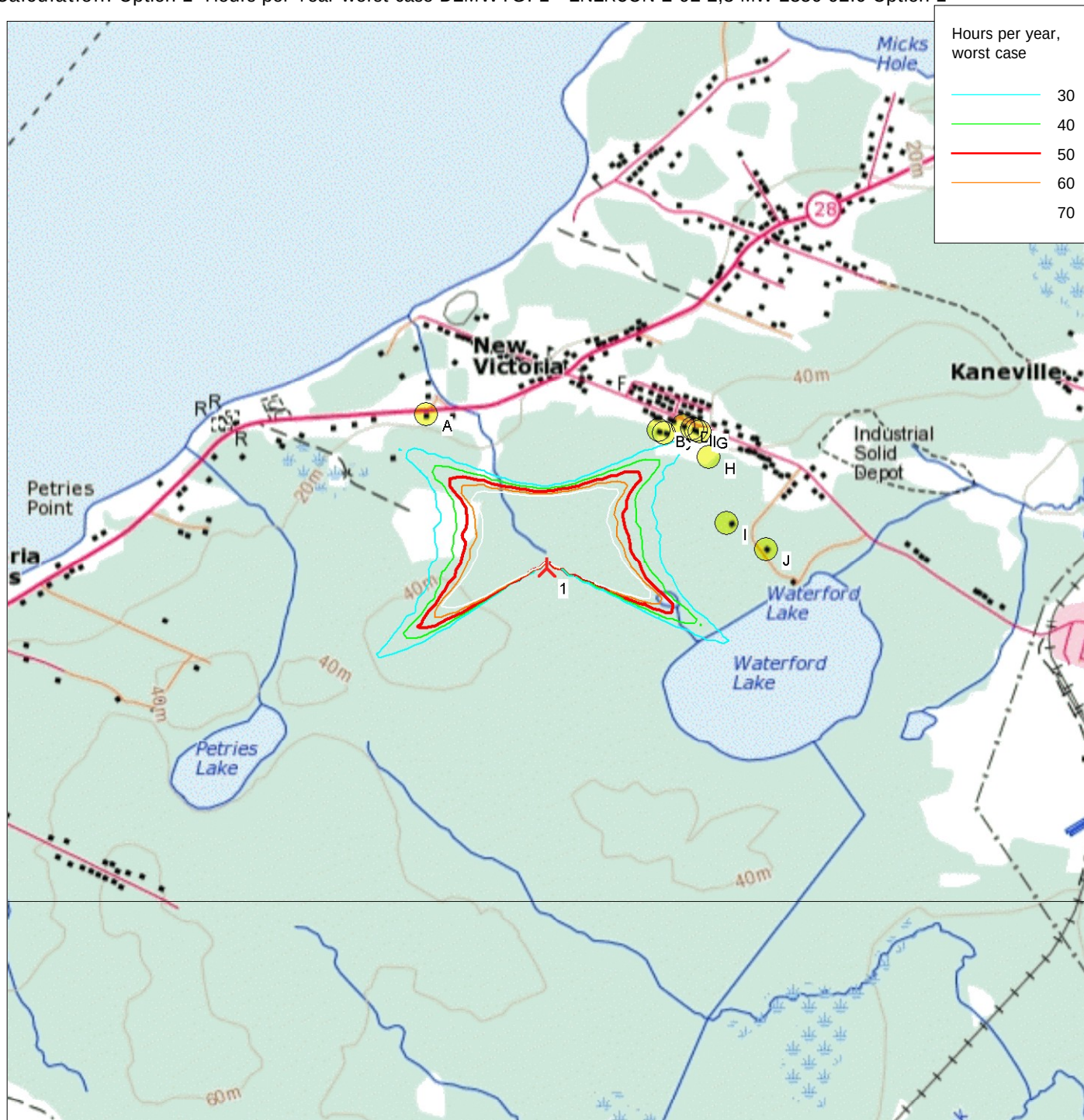
B: Shadow Receptor 45
C: Shadow Receptor 46
D: Shadow Receptor 61

E: Shadow Receptor 63
F: Shadow Receptor 70
G: Shadow Receptor 71

H: Shadow Receptor 75
I: Shadow Receptor 84
J: Shadow Receptor 85

SHADOW - Map

Calculation: Option 1 Hours per Year worst case DEMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 1



Map: 890 Topo , Print scale 1:25,000, Map center UTM (north)-NAD83 (US+CA) Zone: 20 East: 720,720 North: 5,125,080
New WTG

Shadow receptor

Flicker map level: Height Contours: 890 Contour.wpo (3)

SHADOW - Main Result

Calculation: Option 2 Hours per Year worst case DSM

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

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

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

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

The WTG is always operating

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values.

A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: DSM_contour 2 w laydown holem.wpo

Obstacles not used in calculation

Eye height: 1.5 m

Grid resolution: 10.0 m

Topographic shadow included in calculation

All coordinates are in

UTM (north)-NAD83 (US+CA) Zone: 20



New WTG

Scale 1:20,000
Shadow receptor

WTGs

Easting	Northing	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
				Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
1	720,882	5,125,008	32.0 ENERCON E-92 2,3 MW 2350 92.0 Opti...	Yes	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	98.4	1,516	16.0

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
A	Shadow Receptor 1	720,203	5,125,744	20.5	1.0	1.0	1.0	0.0	90.0	"Green house mode"
B	Shadow Receptor 45	721,196	5,125,677	34.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"
C	Shadow Receptor 46	721,220	5,125,667	34.3	1.0	1.0	1.0	0.0	90.0	"Green house mode"
D	Shadow Receptor 61	721,303	5,125,697	36.9	1.0	1.0	1.0	0.0	90.0	"Green house mode"
E	Shadow Receptor 63	721,339	5,125,684	37.9	1.0	1.0	1.0	0.0	90.0	"Green house mode"
F	Shadow Receptor 70	721,355	5,125,678	38.5	1.0	1.0	1.0	0.0	90.0	"Green house mode"
G	Shadow Receptor 71	721,371	5,125,672	40.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"
H	Shadow Receptor 75	721,410	5,125,565	40.0	1.0	1.0	1.0	0.0	90.0	"Green house mode"
I	Shadow Receptor 84	721,487	5,125,283	41.2	1.0	1.0	1.0	0.0	90.0	"Green house mode"
J	Shadow Receptor 85	721,655	5,125,171	32.8	1.0	1.0	1.0	0.0	90.0	"Green house mode"

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case		
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
A	Shadow Receptor 1	0:00	0	0:00
B	Shadow Receptor 45	0:00	0	0:00
C	Shadow Receptor 46	0:00	0	0:00
D	Shadow Receptor 61	0:00	0	0:00

To be continued on next page...

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:31 PM/3.0.651

SHADOW - Main Result

Calculation: Option 2 Hours per Year worst case DSM

...continued from previous page

No.	Name	Shadow, worst case		
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
E	Shadow Receptor 63	0:00	0	0:00
F	Shadow Receptor 70	0:00	0	0:00
G	Shadow Receptor 71	0:00	0	0:00
H	Shadow Receptor 75	0:00	0	0:00
I	Shadow Receptor 84	3:02	25	0:11
J	Shadow Receptor 85	10:45	34	0:27

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

No.	Name	Worst case Expected	
		[h/year]	[h/year]
1	ENERCON E-92 2,3 MW 2350 92.0 Option 2	13:47	

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMS shadow receptor: A - Shadow Receptor 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	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:59 18:43	06:41 16:48	07:23 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:43 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	06:39 19:32	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:36	07:02 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:33 17:53	06:33 19:36	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:17	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	06:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:23	06:29 19:28	07:08 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:15 17:17	06:27 18:58	06:27 19:40	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:31 19:26	07:09 18:27	06:53 16:37	07:31 16:15
10	07:43 16:35	07:13 17:18	06:25 18:59	06:25 19:41	05:36 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	06:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:24	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	06:21 19:02	06:22 19:44	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 16:33	07:34 16:15
13	07:42 16:38	07:09 17:23	06:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:52	05:56 20:15	06:36 19:18	07:14 18:20	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	06:17 19:05	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	06:15 19:06	06:16 19:48	05:29 20:27	05:09 20:54	05:23 20:50	05:59 20:12	06:38 19:14	07:17 18:16	07:01 16:30	07:37 16:15
16	07:40 16:42	07:04 17:27	06:14 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:19 18:14	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	06:12 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:49	06:01 20:08	06:41 19:10	07:20 18:13	07:04 16:27	07:38 16:16
18	07:39 16:45	07:01 17:30	06:10 19:10	06:11 19:52	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	06:08 19:11	06:09 19:53	05:25 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	06:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 16:25	07:40 16:17
21	07:36 16:49	06:56 17:35	06:04 19:14	06:05 19:56	05:22 20:34	05:09 20:56	05:29 20:45	06:07 20:01	06:46 19:02	07:25 18:06	07:10 16:24	07:41 16:17
22	07:35 16:50	06:54 17:36	06:02 19:15	06:04 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 20:00	06:47 19:00	07:27 18:04	07:11 16:23	07:41 16:18
23	07:35 16:52	06:52 17:38	06:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22	07:42 16:18
24	07:34 16:53	06:51 17:39	06:00 19:18	06:00 19:59	05:20 20:37	05:10 20:57	05:33 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 16:21	07:42 16:19
25	07:33 16:55	06:49 17:41	06:00 19:19	06:00 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:15 16:21	07:43 16:19
26	07:32 16:56	06:47 17:42	06:00 19:21	06:00 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:00 19:22	06:00 20:03	05:17 20:40	05:11 20:57	05:36 20:39	06:14 19:51	06:53 18:50	07:34 17:56	07:18 16:19	07:43 16:21
28	07:30 16:59	06:43 17:45	06:00 19:23	06:00 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 18:48	07:35 17:54	07:19 16:19	07:43 16:21
29	07:29 17:00	06:42 19:25	06:00 19:25	06:00 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:47	07:37 17:52	07:20 16:18	07:44 16:22
30	07:27 17:02	06:40 19:26	06:00 19:26	06:00 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 18:45	07:38 17:51	07:21 16:18	07:44 16:23
31	07:26 17:03	06:40 19:28	06:00 19:28	06:00 20:07	05:14 20:44	05:11 20:57	05:41 20:34	06:19 19:43	06:57 17:49	07:40 17:49	07:21 16:24	07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case												

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

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

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMSHadow receptor: B - Shadow Receptor 45

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	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48	07:22 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	06:38 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:36	07:02 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:32 17:53	06:33 19:35	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	07:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:22	06:29 19:28	07:08 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:58	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:30 19:26	07:09 18:27	06:53 16:37	07:31 16:15
10	07:43 16:34	07:13 17:18	07:25 18:59	06:25 19:41	05:35 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	07:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:23	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	07:21 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 16:33	07:34 16:15
13	07:41 16:38	07:09 17:23	07:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:35 19:18	07:14 18:20	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	07:17 19:04	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	07:15 19:06	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 18:16	07:01 16:29	07:37 16:15
16	07:40 16:42	07:04 17:27	07:13 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:18 18:14	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	07:12 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:48	06:01 20:08	06:41 19:10	07:20 18:13	07:04 16:27	07:38 16:16
18	07:38 16:45	07:01 17:30	07:10 19:10	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	07:08 19:11	06:09 19:53	05:24 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	07:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 16:24	07:40 16:17
21	07:36 16:49	06:56 17:35	07:04 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:10 16:24	07:41 16:17
22	07:35 16:50	06:54 17:36	07:02 19:15	06:03 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 20:00	06:47 19:00	07:27 18:04	07:11 16:23	07:41 16:18
23	07:34 16:52	06:52 17:38	07:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22	07:42 16:18
24	07:34 16:53	06:51 17:39	06:58 19:18	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 16:21	07:42 16:19
25	07:33 16:54	06:49 17:40	06:56 19:19	05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:15 16:20	07:42 16:19
26	07:32 16:56	06:47 17:42	06:54 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:51	06:53 18:50	07:34 17:55	07:17 16:19	07:43 16:21
28	07:30 16:59	06:43 17:45	06:50 19:23	05:53 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 18:48	07:35 17:54	07:19 16:19	07:43 16:21
29	07:28 17:00		06:48 19:25	05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:46	07:37 17:52	07:20 16:18	07:44 16:22
30	07:27 17:02		06:46 19:26	05:50 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 18:45	07:38 17:51	07:21 16:17	07:44 16:23
31	07:26 17:03		06:44 19:27		05:14 20:44		05:41 20:34	06:19 19:43		07:40 17:49		07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case												

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

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

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMS shadow receptor: C - Shadow Receptor 46

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	07:44 16:25	07:25 17:05	06:42 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:48	07:22 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	06:38 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:36	07:02 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:32 17:53	06:33 19:35	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	07:29 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:22	06:29 19:28	07:08 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:58	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:30 19:26	07:09 18:27	06:53 16:37	07:31 16:15
10	07:43 16:34	07:13 17:18	07:25 18:59	06:25 19:41	05:35 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	07:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:23	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	07:21 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	06:57 16:33	07:34 16:15
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31	07:26 17:03		06:44 19:27		05:14 20:44		05:41 20:34	06:19 19:43		07:40 17:49		07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case												

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

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMSHadow receptor: D - Shadow Receptor 61

Assumptions for shadow calculations

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

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

The WTG is always operating

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26	07:32 16:56	06:47 17:42	06:54 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:51	06:53 18:50	07:34 17:55	07:17 16:19	07:43 16:21
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31	07:26 17:03		06:44 19:27		05:14 20:44		05:40 20:34	06:19 19:43		07:40 17:49		07:44 16:24
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SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMSHadow receptor: E - Shadow Receptor 63

Assumptions for shadow calculations

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	16:25	17:05	17:46	19:29	20:09	20:45	20:57	20:32	19:41	18:43	16:48	16:17
2	07:44	07:24	06:40	06:40	05:47	05:13	05:13	05:43	06:22	07:00	06:42	07:24
	16:26	17:06	17:48	19:30	20:10	20:46	20:56	20:31	19:39	18:41	16:46	16:17
3	07:44	07:23	06:38	06:38	05:46	05:12	05:14	05:44	06:23	07:01	06:44	07:25
	16:27	17:08	17:49	19:31	20:11	20:46	20:56	20:30	19:37	18:39	16:45	16:16
4	07:44	07:21	06:36	06:37	05:44	05:12	05:14	05:45	06:24	07:02	06:45	07:26
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	16:49	17:35	19:14	19:55	20:33	20:56	20:45	20:01	19:02	18:05	16:24	16:17
22	07:35	06:54	07:02	06:03	05:21	05:09	05:30	06:08	06:47	07:27	07:11	07:41
	16:50	17:36	19:15	19:57	20:35	20:57	20:44	20:00	19:00	18:04	16:23	16:18
23	07:34	06:52	07:00	06:02	05:20	05:09	05:31	06:09	06:48	07:28	07:12	07:42
	16:52	17:38	19:17	19:58	20:36	20:57	20:43	19:58	18:58	18:02	16:22	16:18
24	07:34	06:50	06:58	06:00	05:19	05:10	05:32	06:10	06:49	07:30	07:14	07:42
	16:53	17:39	19:18	19:59	20:37	20:57	20:42	19:56	18:56	18:00	16:21	16:19
25	07:33	06:49	06:56	05:58	05:19	05:10	05:34	06:12	06:51	07:31	07:15	07:42
	16:54	17:40	19:19	20:01	20:38	20:57	20:41	19:54	18:54	17:59	16:20	16:19
26	07:32	06:47	06:54	05:57	05:18	05:10	05:35	06:13	06:52	07:32	07:16	07:43
	16:56	17:42	19:21	20:02	20:39	20:57	20:40	19:52	18:52	17:57	16:20	16:20
27	07:31	06:45	06:52	05:55	05:17	05:11	05:36	06:14	06:53	07:34	07:17	07:43
	16:57	17:43	19:22	20:03	20:40	20:57	20:38	19:51	18:50	17:55	16:19	16:21
28	07:30	06:43	06:50	05:53	05:16	05:11	05:37	06:15	06:55	07:35	07:19	07:43
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	17:02		19:26	20:07	20:43	20:57	20:35	19:45	18:44	17:51	16:17	16:23
31	07:26		06:44		05:14		05:40	06:19		07:40		07:44
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SHADOW - Calendar

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2	07:44 16:26	07:24 17:06	06:40 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:46	07:24 16:17
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4	07:44 16:28	07:21 17:09	06:36 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:35	07:02 18:37	06:45 16:43	07:26 16:16
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SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMS shadow receptor: G - Shadow Receptor 71

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13	07:41 16:38	07:09 17:23	07:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:35 19:18	07:14 18:20	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	07:17 19:04	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	07:15 19:06	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 18:16	07:01 16:29	07:37 16:15
16	07:40 16:42	07:04 17:27	07:13 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:18 18:14	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	07:12 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:48	06:01 20:08	06:41 19:10	07:20 18:12	07:04 16:27	07:38 16:16
18	07:38 16:45	07:01 17:30	07:10 19:10	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	07:08 19:11	06:09 19:53	05:24 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	07:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:08 16:24	07:40 16:17
21	07:36 16:49	06:56 17:35	07:04 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:10 16:24	07:41 16:17
22	07:35 16:50	06:54 17:36	07:02 19:15	06:03 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 19:59	06:47 19:00	07:27 18:04	07:11 16:23	07:41 16:18
23	07:34 16:52	06:52 17:38	07:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:12 16:22	07:42 16:18
24	07:34 16:53	06:50 17:39	06:58 19:18	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:14 16:21	07:42 16:19
25	07:33 16:54	06:49 17:40	06:56 19:19	05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:15 16:20	07:42 16:19
26	07:32 16:56	06:47 17:42	06:54 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:51	06:53 18:50	07:34 17:55	07:17 16:19	07:43 16:21
28	07:30 16:59	06:43 17:45	06:50 19:23	05:53 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 18:48	07:35 17:54	07:19 16:19	07:43 16:21
29	07:28 17:00		06:48 19:25	05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:46	07:37 17:52	07:20 16:18	07:44 16:22
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31	07:26 17:03		06:44 19:27		05:14 20:44		05:40 20:34	06:19 19:43		07:40 17:49		07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case												

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

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

Project:

890 New Victoria Kirk

Licensed user:

AL-PRO GmbH & Co.KG

Dorfstraße 100

DE-26532 Großheide

+49 (0) 4936 6986-0

Kirk Schmidt / kirk.schmidt@al-pro.ca

Calculated:

05/07/2016 2:31 PM/3.0.651

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMShadow receptor: I - Shadow Receptor 84

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	07:44 16:25	07:25 17:05	06:42 17:46	16:33 (1) 19:29	06:42 20:09	05:49 20:45	05:13 20:57	05:13 20:32	05:42 20:32	06:20 19:41	06:58 18:43	06:41 16:17
2	07:44 16:26	07:24 17:06	06:40 17:48	16:34 (1) 19:30	06:40 20:10	05:47 20:46	05:13 20:56	05:13 20:31	05:43 20:31	06:22 19:39	07:00 18:41	06:42 16:17
3	07:44 16:27	07:23 17:08	06:38 17:49	16:35 (1) 19:31	06:38 20:11	05:46 20:46	05:12 20:56	05:14 20:30	05:44 20:30	06:23 19:37	07:01 18:39	06:44 16:16
4	07:44 16:28	07:21 17:09	06:36 17:51	16:36 (1) 19:33	06:37 20:13	05:44 20:47	05:12 20:56	05:14 20:28	05:45 20:28	06:24 19:35	07:02 18:37	06:45 16:16
5	07:44 16:29	07:20 17:11	06:34 17:52	16:39 (1) 19:34	06:35 20:14	05:43 20:48	05:11 20:56	05:15 20:27	05:47 20:27	06:25 19:34	07:04 18:35	06:47 16:16
6	07:44 16:30	07:19 17:12	06:32 17:53	16:43 (1) 19:35	06:33 20:15	05:41 20:49	05:11 20:55	05:16 20:25	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	16:48 (1) 19:37	06:31 20:16	05:40 20:50	05:10 20:55	05:17 20:24	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:15
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10	07:43 16:34	07:13 17:18	07:25 18:59	06:25 19:41	05:35 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 18:25	07:10 17:10 (1)	06:54 16:15
11	07:42 16:36	07:12 17:20	07:23 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 18:23	07:12 17:19 (1)	06:55 16:15
12	07:42 16:37	07:10 17:21	07:21 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 18:22	07:13 17:16 (1)	06:57 16:15
13	07:41 16:38	07:09 17:23	07:19 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:35 19:18	07:14 18:20	07:14 17:15 (1)	06:58 16:15
14	07:41 16:39	07:07 17:24	07:17 19:04	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 18:18	07:16 17:05 (1)	06:59 16:15
15	07:40 16:41	07:05 17:26	07:15 19:06	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 18:16	07:17 17:11 (1)	06:59 16:15
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18	07:38 16:45	07:01 17:30	07:10 19:10	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 18:11	07:21 17:03 (1)	06:59 16:15
19	07:38 16:46	06:59 17:32	07:08 19:11	06:09 19:53	05:24 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 19:06	07:23 18:09	07:23 17:04 (1)	06:59 16:16
20	07:37 16:47	06:57 17:33	07:06 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 19:04	07:24 18:07	07:24 17:04 (1)	06:59 16:16
21	07:36 16:49	06:56 17:35	07:04 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:06 20:01	06:46 19:02	07:25 18:05	07:25 17:02 (1)	06:59 16:16
22	07:35 16:50	06:54 17:36	07:02 19:15	06:03 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 19:59	06:47 19:00	07:27 18:04	07:27 17:01 (1)	06:59 16:16
23	07:34 16:52	06:52 17:38	07:00 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 18:58	07:28 18:02	07:28 17:01 (1)	06:59 16:16
24	07:34 16:53	06:50 17:39	06:58 19:18	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 19:56	06:49 18:56	07:30 18:00	07:30 17:01 (1)	06:59 16:16
25	07:33 16:54	06:49 17:40	06:56 19:19	05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 18:54	07:31 17:59	07:31 17:01 (1)	06:59 16:16
26	07:32 16:56	06:47 17:42	06:54 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 18:52	07:32 17:57	07:32 17:01 (1)	06:59 16:16
27	07:31 16:57	06:45 17:43	06:52 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:50	06:53 18:50	07:34 17:55	07:34 17:01 (1)	06:59 16:16
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29	07:28 17:00		06:48 19:25	05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 18:46	07:37 17:52	07:37 17:01 (1)	06:59 16:16
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31	07:26 17:03		06:44 19:27		05:14 20:44	05:10 20:57	05:40 20:34	06:19 19:43	07:40 17:49			06:59 16:16
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Total, worst case		37	53							92		

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

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

SHADOW - Calendar

Calculation: Option 2 Hours per Year worst case DSMShadow receptor: J - Shadow Receptor 85

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

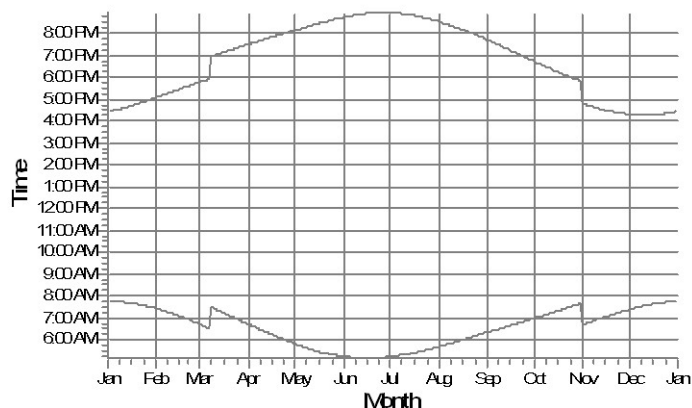
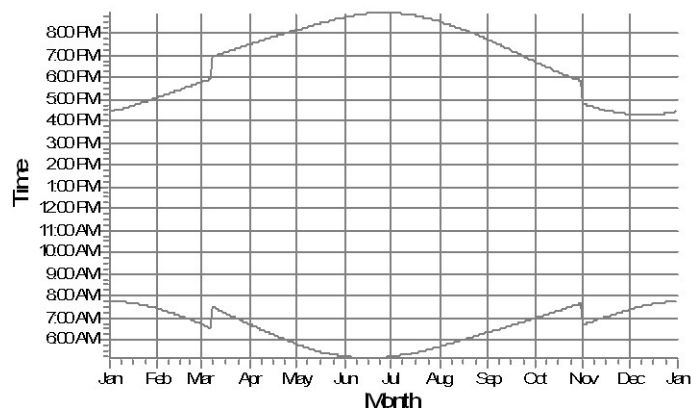
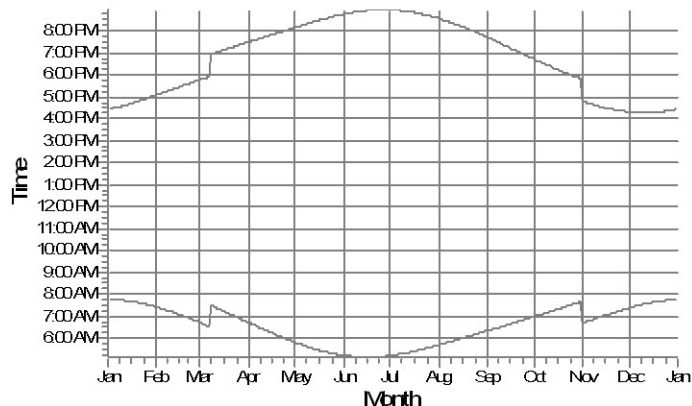
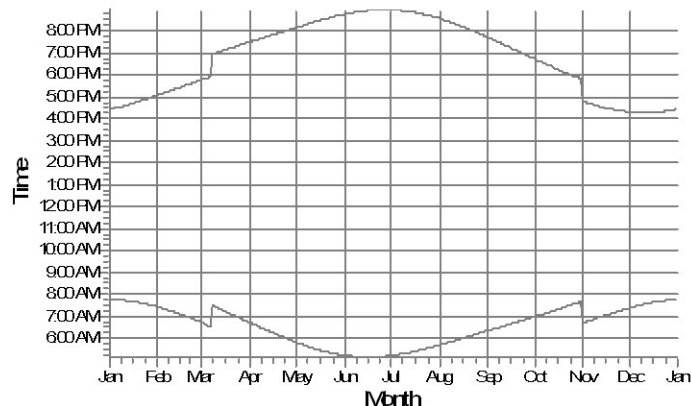
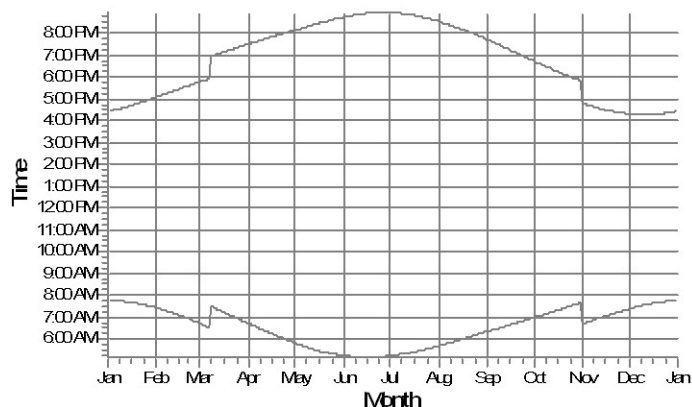
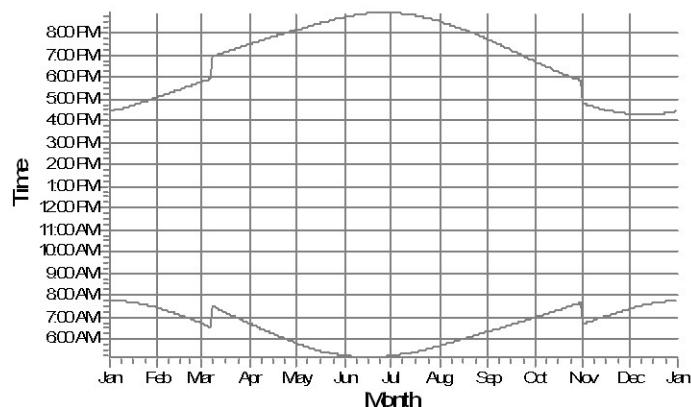
	January	February	March		April	May	June	July	August	September		October		November	December
1	07:44 16:25	07:25 17:05	06:42 17:46		06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41		06:58 18:43	17:50 (1) 18:09 (1)	06:41 16:48	07:22 16:17
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8	07:43 16:32	07:16 17:15	07:29 18:56	8	18:20 (1) 18:28 (1)	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	06:29 20:22		07:08 18:29	18:06 (1)	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:58	9	18:17 (1) 18:26 (1)	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	06:30 20:21		07:09 18:27	18:07 (1)	06:53 16:37	07:31 16:15
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23	07:34 16:52	06:52 17:38	07:00 19:17	15	18:12 (1) 18:27 (1)	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:48 20:09	23	17:53 (1) 18:16 (1)	18:07 (1)	07:12 16:22	07:42 16:18
24	07:34 16:53	06:50 17:39	06:58 19:18	9	18:15 (1) 18:24 (1)	06:00 19:59	05:19 20:37	05:10 20:57	05:32 20:42	06:10 20:06	25	17:52 (1) 18:17 (1)	18:08 (1)	07:14 16:21	07:42 16:19
25	07:33 16:54	06:49 17:40	06:56 19:19		05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 20:54	06:51 20:09	26	17:51 (1) 18:18 (1)	18:09 (1)	07:15 16:20	07:42 16:19
26	07:32 16:56	06:47 17:42	06:54 19:21		05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 20:52	06:52 20:08	26	17:51 (1) 17:50 (1)	18:05 (1)	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 17:43	06:52 19:22		05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 20:50	06:53 20:09	26	17:50 (1) 17:49 (1)	18:04 (1)	07:17 16:19	07:43 16:21
28	07:30 16:59	06:43 17:45	06:50 19:23		05:53 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 20:49	06:55 20:08	25	17:49 (1) 18:14 (1)	18:03 (1)	07:19 16:19	07:43 16:21
29	07:28 17:00		06:48 19:25		05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 20:47	06:56 20:09	22	17:50 (1) 18:12 (1)	18:02 (1)	07:20 16:18	07:44 16:22
30	07:27 17:02		06:46 19:26		05:50 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 20:45	06:57 20:09	20	17:50 (1) 18:10 (1)	18:03 (1)	07:21 16:17	07:44 16:23
31	07:26 17:03		06:44 19:27		05:14 20:44		05:40 20:34	06:19 20:43	06:19 20:43	07:40 20:43		07:40 17:49	18:04 (1)	07:22 16:16	07:44 16:24
Potential sun hours	281	289	369		406	464	472	477	439	377		339	284	269	
Total, worst case			320						253	72					

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

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

SHADOW - Calendar, graphical

Calculation: Option 2 Hours per Year worst case DSM

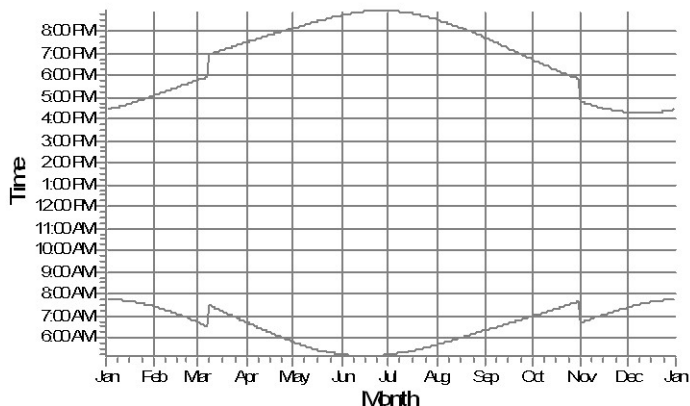
A: Shadow Receptor 1**B: Shadow Receptor 45****C: Shadow Receptor 46****D: Shadow Receptor 61****E: Shadow Receptor 63****F: Shadow Receptor 70**

WTGs

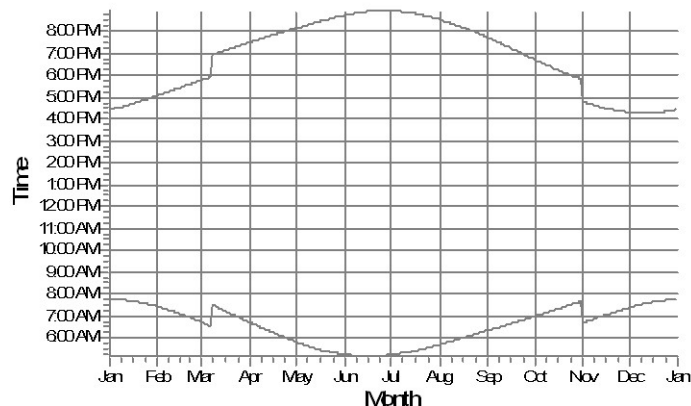
SHADOW - Calendar, graphical

Calculation: Option 2 Hours per Year worst case DSM

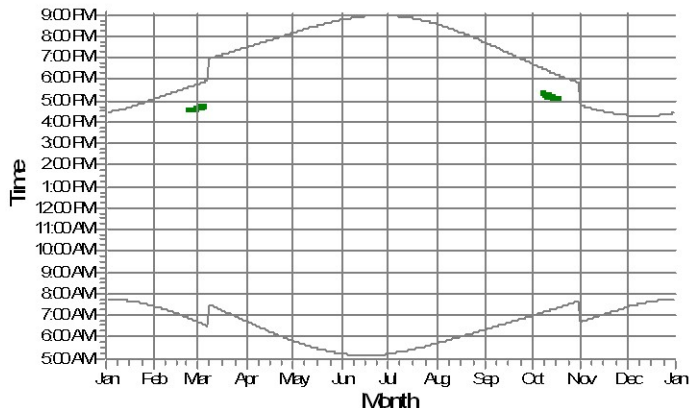
G Shadow Receptor 71



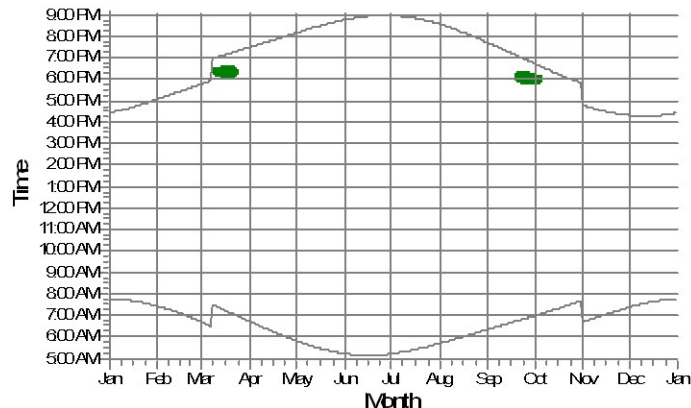
H Shadow Receptor 75



I: Shadow Receptor 84



J: Shadow Receptor 85



WTGs

1: ENERCON E-92 2,3 MW 2350 92.0 Option 2

SHADOW - Calendar per WTG

Calculation: Option 2 Hours per Year worst case DSMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 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

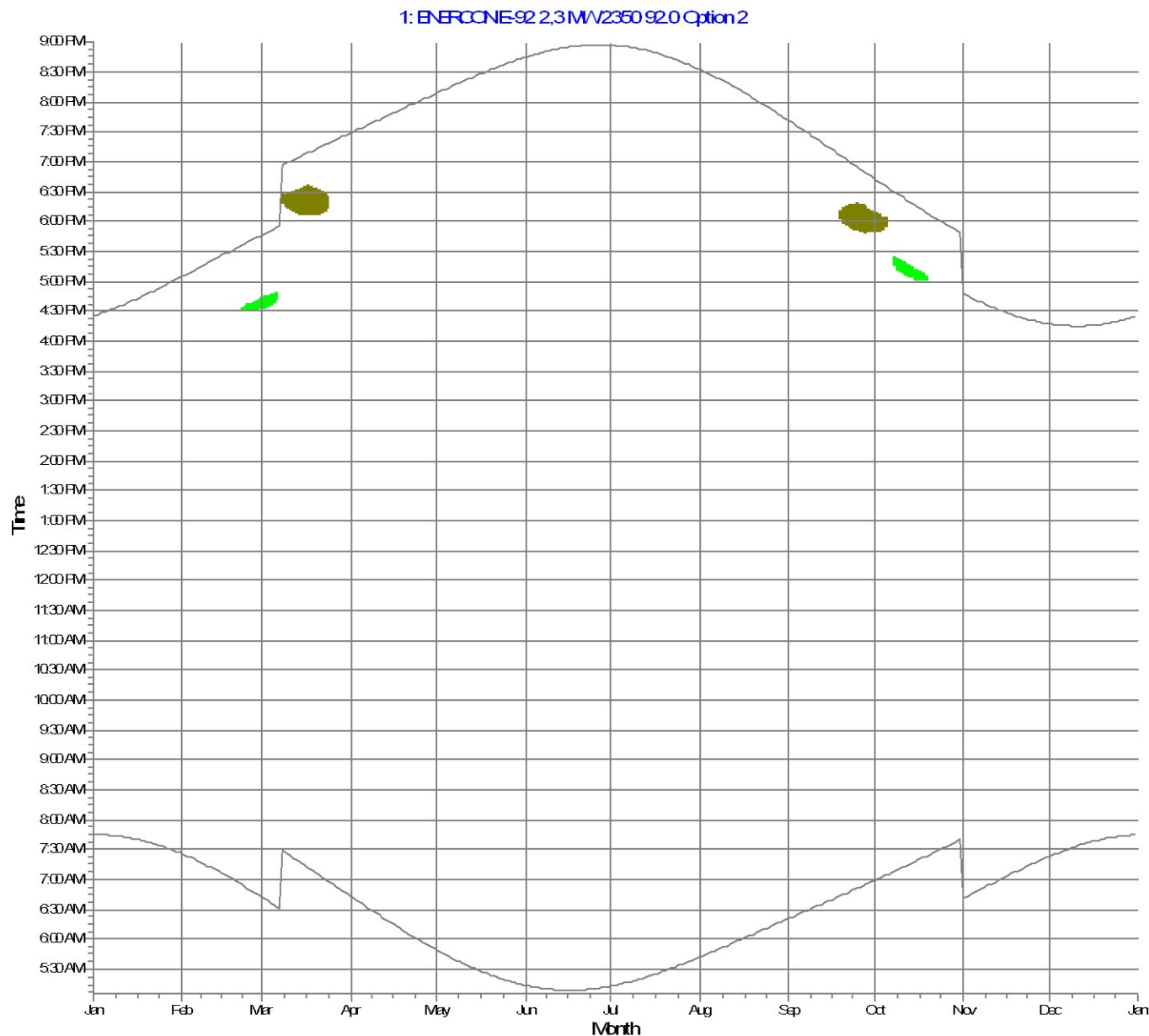
	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44 16:25	07:25 17:05	06:42 16:33-16:43/10 17:46	06:42 19:29	05:49 20:09	05:13 20:45	05:13 20:57	05:42 20:32	06:20 19:41	06:58 17:50-18:09/19 18:43	06:41 16:48	07:22 16:17
2	07:44 16:26	07:24 17:06	06:40 16:34-16:44/10 17:48	06:40 19:30	05:47 20:10	05:13 20:46	05:13 20:56	05:43 20:31	06:22 19:39	07:00 17:51-18:08/17 18:41	06:42 16:46	07:24 16:17
3	07:44 16:27	07:23 17:08	06:38 16:35-16:45/10 17:49	06:39 19:31	05:46 20:11	05:12 20:46	05:14 20:56	05:44 20:30	06:23 19:37	07:01 17:51-18:06/15 18:39	06:44 16:45	07:25 16:16
4	07:44 16:28	07:21 17:09	06:36 16:36-16:46/10 17:51	06:37 19:33	05:44 20:13	05:12 20:47	05:14 20:56	05:45 20:28	06:24 19:36	07:02 17:52-18:04/12 18:37	06:45 16:43	07:26 16:16
5	07:44 16:29	07:20 17:11	06:34 16:39-16:47/8 17:52	06:35 19:34	05:43 20:14	05:11 20:48	05:15 20:56	05:47 20:27	06:25 19:34	07:04 17:55-18:04/9 18:35	06:47 16:42	07:27 16:16
6	07:44 16:30	07:19 17:12	06:32 16:43-16:48/5 17:53	06:33 19:35	05:41 20:15	05:11 20:49	05:16 20:55	05:48 20:25	06:27 19:32	07:05 18:33	06:48 16:41	07:28 16:15
7	07:44 16:31	07:17 17:14	06:31 17:55	06:31 19:37	05:40 20:16	05:10 20:50	05:17 20:55	05:49 20:24	06:28 19:30	07:06 18:31	06:50 16:39	07:29 16:15
8	07:43 16:32	07:16 17:15	07:29 18:20-18:28/8 18:56	06:29 19:38	05:38 20:18	05:10 20:50	05:17 20:54	05:50 20:22	06:29 19:28	07:08 17:16-17:24/8 18:29	06:51 16:38	07:30 16:15
9	07:43 16:33	07:14 17:17	07:27 18:17-18:26/9 18:58	06:27 19:39	05:37 20:19	05:10 20:51	05:18 20:54	05:51 20:21	06:30 19:26	07:09 17:12-17:22/10 18:27	06:53 16:37	07:31 16:15
10	07:43 16:35	07:13 17:18	07:25 18:14-18:27/13 18:59	06:25 19:41	05:36 20:20	05:09 20:52	05:19 20:53	05:53 20:19	06:32 19:24	07:10 17:10-17:20/10 18:25	06:54 16:35	07:32 16:15
11	07:42 16:36	07:12 17:20	07:23 18:13-18:28/15 19:00	06:23 19:42	05:34 20:22	05:09 20:52	05:20 20:53	05:54 20:18	06:33 19:22	07:12 17:08-17:19/11 18:23	06:55 16:34	07:33 16:15
12	07:42 16:37	07:10 17:21	07:21 18:11-18:29/18 19:02	06:21 19:43	05:33 20:23	05:09 20:53	05:21 20:52	05:55 20:16	06:34 19:20	07:13 17:07-17:16/9 18:22	06:57 16:33	07:34 16:15
13	07:41 16:38	07:09 17:23	07:19 18:10-18:30/20 19:03	06:20 19:45	05:32 20:24	05:09 20:53	05:21 20:51	05:56 20:15	06:36 19:18	07:14 17:06-17:15/9 18:20	06:58 16:32	07:35 16:15
14	07:41 16:39	07:07 17:24	07:17 18:09-18:31/22 19:04	06:18 19:46	05:30 20:25	05:09 20:54	05:22 20:51	05:58 20:13	06:37 19:16	07:16 17:05-17:13/8 18:18	07:00 16:31	07:36 16:15
15	07:40 16:41	07:05 17:26	07:15 18:09-18:32/23 19:06	06:16 19:47	05:29 20:26	05:09 20:54	05:23 20:50	05:59 20:11	06:38 19:14	07:17 17:03-17:11/8 18:16	07:01 16:30	07:37 16:15
16	07:40 16:42	07:04 17:27	07:13 18:08-18:34/26 19:07	06:14 19:49	05:28 20:28	05:09 20:55	05:24 20:49	06:00 20:10	06:39 19:12	07:18 17:03-17:10/7 18:14	07:03 16:28	07:37 16:15
17	07:39 16:43	07:02 17:29	07:12 18:08-18:35/27 19:09	06:12 19:50	05:27 20:29	05:09 20:55	05:25 20:48	06:01 20:08	06:41 19:10	07:20 17:02-17:08/6 18:13	07:04 16:27	07:38 16:16
18	07:38 16:45	07:01 17:30	07:10 18:08-18:34/26 19:10	06:11 19:51	05:26 20:30	05:09 20:56	05:26 20:48	06:03 20:06	06:42 19:08	07:21 17:03-17:07/4 18:11	07:05 16:26	07:39 16:16
19	07:38 16:46	06:59 17:32	07:08 18:08-18:33/25 19:11	06:09 19:53	05:25 20:31	05:09 20:56	05:27 20:47	06:04 20:05	06:43 18:03-18:10/7 19:06	07:23 17:02-17:04/2 18:09	07:07 16:25	07:39 16:16
20	07:37 16:47	06:57 17:33	07:06 18:09-18:32/23 19:13	06:07 19:54	05:23 20:32	05:09 20:56	05:28 20:46	06:05 20:03	06:44 17:59-18:13/14 19:04	07:24 18:07 18:07	07:08 16:25	07:40 16:17
21	07:36 16:49	06:56 17:35	07:04 18:09-18:31/22 19:14	06:05 19:55	05:22 20:33	05:09 20:56	05:29 20:45	06:07 20:01	06:46 17:57-18:15/18 19:02	07:25 18:06 18:06	07:10 16:24	07:41 16:17
22	07:35 16:50	06:54 16:31-16:32/1 17:36	07:02 18:10-18:29/19 19:15	06:04 19:57	05:21 20:35	05:09 20:57	05:30 20:44	06:08 20:00	06:47 17:55-18:16/21 19:00	07:27 18:04 18:04	07:11 16:23	07:41 16:18
23	07:34 16:52	06:52 16:32-16:34/2 17:38	07:00 18:12-18:27/15 19:17	06:02 19:58	05:20 20:36	05:09 20:57	05:31 20:43	06:09 19:58	06:48 17:53-18:16/23 18:58	07:28 18:02 18:02	07:12 16:22	07:42 16:18
24	07:34 16:53	06:51 16:31-16:36/5 17:39	06:58 18:15-18:24/9 19:18	06:00 19:59	05:20 20:37	05:10 20:57	05:33 20:42	06:10 19:56	06:49 17:52-18:17/25 18:56	07:30 18:00 18:00	07:14 16:21	07:42 16:19
25	07:33 16:55	06:49 16:31-16:37/6 17:41	06:56 19:19 19:19	05:58 20:01	05:19 20:38	05:10 20:57	05:34 20:41	06:12 19:54	06:51 17:52-18:18/26 18:54	07:31 17:59 17:59	07:15 16:21	07:42 16:19
26	07:32 16:56	06:47 16:31-16:38/7 17:42	06:54 19:21 19:21	05:57 20:02	05:18 20:39	05:10 20:57	05:35 20:40	06:13 19:52	06:52 17:51-18:17/26 18:52	07:32 17:57 17:57	07:16 16:20	07:43 16:20
27	07:31 16:57	06:45 16:31-16:39/8 17:43	06:52 19:22 19:22	05:55 20:03	05:17 20:40	05:11 20:57	05:36 20:38	06:14 19:51	06:53 17:50-18:16/26 18:50	07:34 17:56 17:56	07:17 16:19	07:43 16:21
28	07:30 16:59	06:43 16:33-16:41/8 17:45	06:50 19:23 19:23	05:53 20:05	05:16 20:41	05:11 20:57	05:37 20:37	06:15 19:49	06:55 17:49-18:14/25 18:48	07:35 17:54 17:54	07:19 16:21	07:43 16:21
29	07:28 17:00		06:48 19:25 19:25	05:52 20:06	05:15 20:42	05:12 20:57	05:38 20:36	06:17 19:47	06:56 17:50-18:12/22 18:46	07:37 17:52 17:52	07:20 16:18	07:44 16:22
30	07:27 17:02		06:46 19:26 19:26	05:50 20:07	05:15 20:43	05:12 20:57	05:39 20:35	06:18 19:45	06:57 17:50-18:10/20 18:45	07:38 17:51 17:51	07:21 16:18	07:44 16:23
31	07:26 17:03		06:44 19:27 19:27		05:14 20:44		05:41 20:34	06:19 19:43		07:40 17:49 17:49		07:44 16:24
Potential sun hours	281	289	369	406	464	472	477	439	377	339	284	269
Sum of minutes with flicker	0	37	373	0	0	0	0	0	253	164	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: Option 2 Hours per Year worst case DSMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 2



Shadow receptors



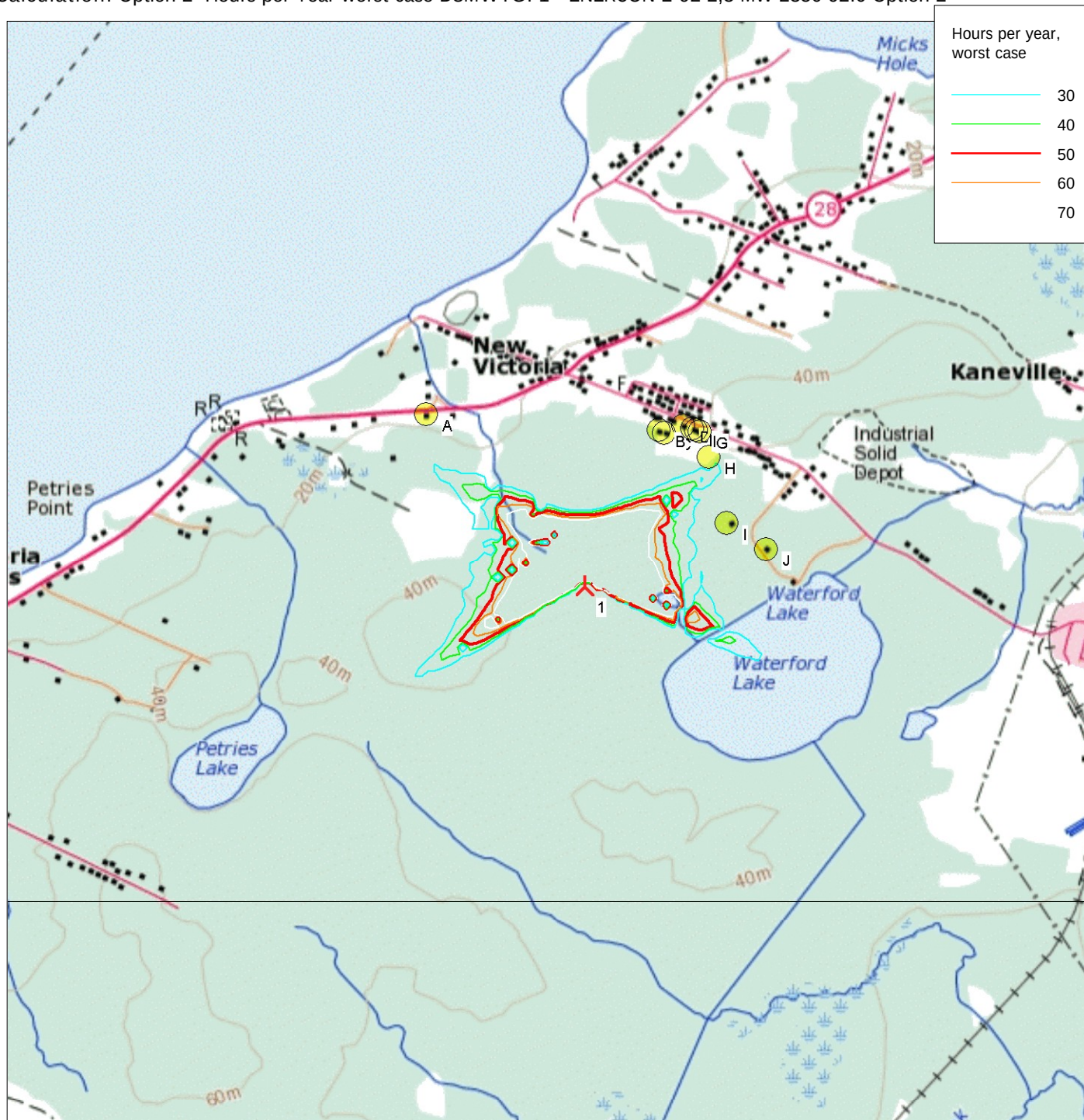
I: Shadow Receptor 84



J: Shadow Receptor 85

SHADOW - Map

Calculation: Option 2 Hours per Year worst case DSMWTG: 1 - ENERCON E-92 2,3 MW 2350 92.0 Option 2



New WTG

Shadow receptor

Flicker map level: Height Contours: DSM_contour 2 w laydown holem.wpo (6)