

Project: Borkowo-Falenta	Printed/Page: 2014-07-03 13:14 / 1
	Licensed user: Enerko Przedsiębiorstwo Rozwoju Energii Odnawialnej Michal Kubecki ul. Armii Krajowej 47a PL-26060 Chęciny +48 41 301 00 23 ENERKO / biuro@enerko.pl
	Calculated: 2014-07-03 13:10/2.8.552

DECIBEL - Main Result

Calculation: V100

Noise calculation model:

ISO 9613-2 General

Wind speed:

8,0 m/s

Ground attenuation:

General, Ground factor: 0,0

Meteorological coefficient, C0:

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

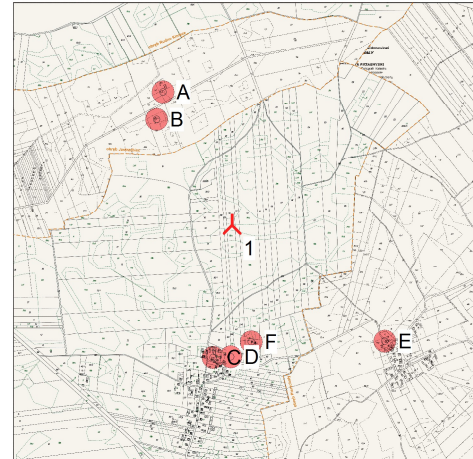
Height above ground level, when no value in NSA object:

4,0 m Don't 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

Geo [deg,min,sec]-WGS84		Z [m]	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	Status	LwA,ref [dB(A)]	Pure tones
Longitude	Latitude			Valid	Manufact.	Type-generator				Creator	Name				
1	20°45'46,56" East	53°05'29,53" North	158,2	VESTAS V100-2.0 2000	100,0	100,0	2 000	100,0	90,0	EMD	Level 0 - Mode 0 - - 07-2013	8,0	User value	105,8	0 dB h

h) Generic octave distribution used

Calculation Results

Sound Level

Noise sensitive area No.	Name	Geo [deg,min,sec]-WGS84		Z	Imission height	Demands Noise	Sound Level From WTGs	Demands fulfilled ? Noise
		Longitude	Latitude	[m]	[m]	[dB(A)]	[dB(A)]	
A	Noise sensitive point: (1)	20°45'26,79" East	53°05'52,60" North	160,0	4,0	45,0	37,3	Yes
B	Noise sensitive point: (2)	20°45'25,01" East	53°05'47,80" North	160,0	4,0	45,0	38,8	Yes
C	Noise sensitive point: (3)	20°45'41,13" East	53°05'06,59" North	150,0	4,0	45,0	38,4	Yes
D	Noise sensitive point: (4)	20°45'46,17" East	53°05'06,67" North	150,0	4,0	45,0	38,6	Yes
E	Noise sensitive point: (5)	20°46'30,10" East	53°05'09,53" North	150,0	4,0	45,0	34,7	Yes
F	Noise sensitive point: (7)	20°45'52,07" East	53°05'09,27" North	150,0	4,0	45,0	39,6	Yes

Distances (m)

NSA	WTG	Distance (m)
1	1	802
A	1	692
B	1	716
C	1	707
D	1	1019
E	1	634
F	1	

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DECIBEL - Detailed results**Calculation: V100Noise calculation model: ISO 9613-2 General 8,0 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: 8,0 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	802	806	37,27	105,8	0,00	69,13	-	-	0,00	0,00	-	0,00
Sum	37,27											

- Data undefined due to calculation with octave data

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

WTG		Wind speed: 8,0 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	692	697	38,77	105,8	0,00	67,87	-	-	0,00	0,00	-	0,00
Sum	38,77											

- Data undefined due to calculation with octave data

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

WTG		Wind speed: 8,0 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	716	722	38,41	105,8	0,00	68,18	-	-	0,00	0,00	-	0,00
Sum	38,41											

- Data undefined due to calculation with octave data

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

WTG		Wind speed: 8,0 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	707	713	38,55	105,8	0,00	68,06	-	-	0,00	0,00	-	0,00
Sum	38,55											

- Data undefined due to calculation with octave data

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

WTG		Wind speed: 8,0 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	1 019	1 023	34,73	105,8	0,00	71,20	-	-	0,00	0,00	-	0,00
Sum	34,73											

- Data undefined due to calculation with octave data

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DECIBEL - Detailed results**Calculation: V100Noise calculation model: ISO 9613-2 General 8,0 m/s****Noise sensitive area: F Noise sensitive point: (7)****WTG****Wind speed: 8,0 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	634	641	39,64	105,8	0,00	67,14	-	-	0,00	0,00	-	0,00

Sum 39,64

- Data undefined due to calculation with octave data

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DECIBEL - Assumptions for noise calculation**Calculation:** V100Noise calculation model: ISO 9613-2 General 8,0 m/s**Noise calculation model:**

ISO 9613-2 General

Wind speed:

8,0 m/s

Ground attenuation:

General, Ground factor: 0,0

Meteorological coefficient, C0:

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:

4,0 m Don't 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: VESTAS V100-2.0 2000 100.0 !O!**Noise:** Level 0 - Mode 0 - - 07-2013

Source	Source/Date	Creator	Edited
Manufacturer	2013-07-12	EMD	2013-08-19 13:48

Based on Document no.: 0035-8703 V02 2013-07-12.

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data								
					Generic data	63	125	250	500	1000	2000	4000	8000
User value	90,0	8,0	105,8	No	Generic data	87,4	94,4	97,8	100,4	100,2	97,3	92,5	83,0

NSA: Noise sensitive point: (1)-A**Predefined calculation standard:****Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** Noise sensitive point: (2)-B**Predefined calculation standard:****Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** Noise sensitive point: (3)-C**Predefined calculation standard:****Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** Noise sensitive point: (4)-D**Predefined calculation standard:****Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:**

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DECIBEL - Assumptions for noise calculation

Calculation: V100**Noise calculation model:** ISO 9613-2 General 8,0 m/s

NSA: Noise sensitive point: (5)-E

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

Distance demand:

NSA: Noise sensitive point: (7)-F

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

Distance demand:

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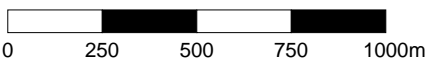
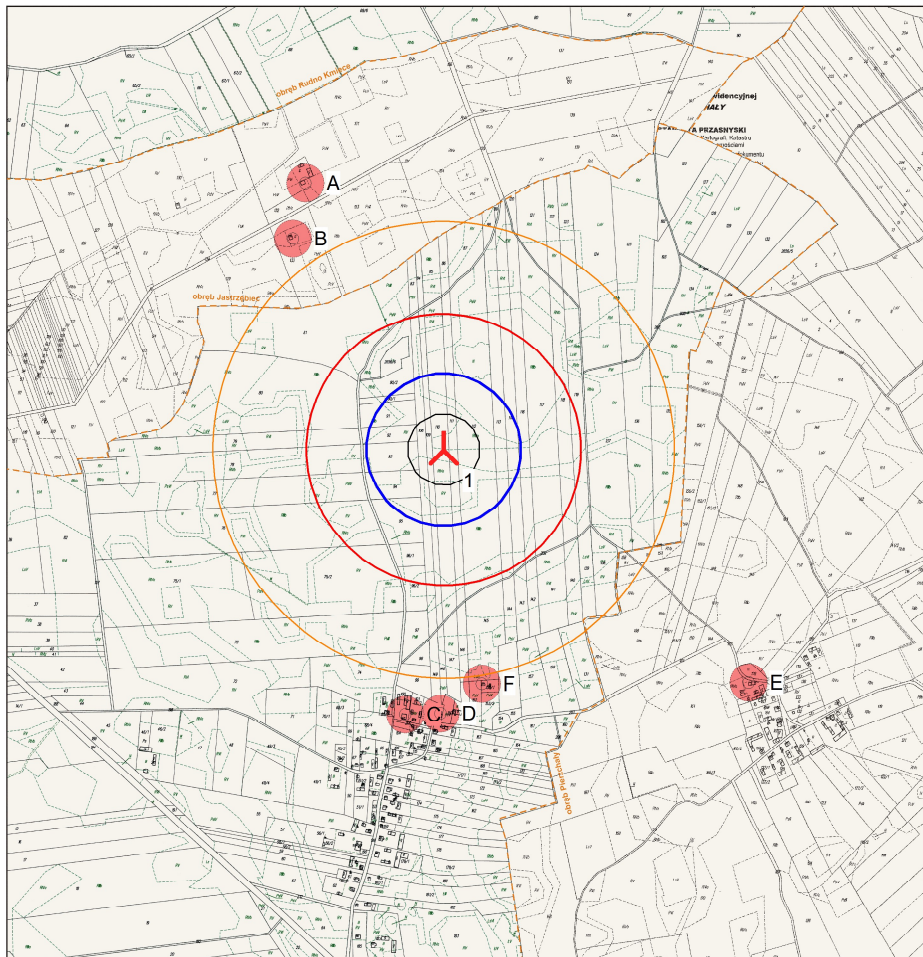
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DECIBEL - Map 8,0 m/s

Calculation: V100Noise calculation model: ISO 9613-2 General 8,0 m/s

Noise [dB(A)]

- 40 dB(A)
- 45 dB(A)
- 50 dB(A)
- 55 dB(A)



Map: mapa falenty , Print scale 1:20 000, Map center Geo WGS84 East: 20°45'46,63" East North: 53°05'29,51" North

New WTG

Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 8,0 m/s

Height above sea level from active line object