

Project:

Borkowo-Falenta

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Enerko Przedsiębiorstwo Rozwoju Energii Odnawialnej Michal Kubecki

ul. Armii Krajowej 47a

PL-26060 Chęciny

+48 41 301 00 23

ENERKO / biuro@enerko.pl

Calculated:

2014-03-24 15:42/2.8.552

DECIBEL - Main Result**Calculation:** V112 poprawione**Noise calculation model:**

ISO 9613-2 General

Wind speed:

8,0 m/s

Ground attenuation:

General, Ground factor: 0,9

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:

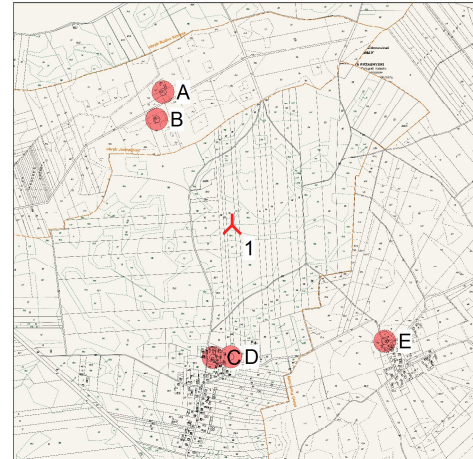
Pure and Impulse tone penalty are added to WTG source noise

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)



Scale 1:40 000

New WTG

Noise sensitive area

WTGs

Geo [deg,min,sec]-WGS84 Longitude	Latitude	Z [m]	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 0 dB h
				Valid	Manufact.	Type-generator				Creator	Name			
1 20°45'46,56" East	53°05'29,53" North	158,2	VESTAS V112 3000 112,0 IO...	Yes	VESTAS	V112-3 000	3 000	112,0	119,0	EMD	Level 0 - Mode 0 - - 08-2010	8,0	106,5	0 dB h

Calculation Results**Sound Level**

Noise sensitive area No.	Name	Geo [deg,min,sec]-WGS84		Z [m]	Emission height [m]	Demands Noise [dB(A)]	Sound Level From WTGs [dB(A)]	Demands fulfilled ? Noise
		Longitude	Latitude					
A Noise sensitive point: (1)		20°45'26,79" East	53°05'52,60" North	160,0	4,0	45,0	34,7	Yes
B Noise sensitive point: (2)		20°45'25,01" East	53°05'47,80" North	160,0	4,0	45,0	36,2	Yes
C Noise sensitive point: (3)		20°45'41,13" East	53°05'06,59" North	150,0	4,0	45,0	35,8	Yes
D Noise sensitive point: (4)		20°45'46,17" East	53°05'06,67" North	150,0	4,0	45,0	36,0	Yes
E Noise sensitive point: (5)		20°46'30,10" East	53°05'09,53" North	150,0	4,0	45,0	32,1	Yes

Distances (m)

NSA	WTG
1	
A	802
B	692
C	716
D	707
E	1019

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DECIBEL - Detailed results**Calculation:** V112 poprawione **Noise 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	810	34,66	106,5	0,00	69,17	-	-	0,00	0,00	-	0,00
Sum	34,66											

- 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	702	36,18	106,5	0,00	67,92	-	-	0,00	0,00	-	0,00
Sum	36,18											

- 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	727	35,81	106,5	0,00	68,23	-	-	0,00	0,00	-	0,00
Sum	35,81											

- 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	717	35,95	106,5	0,00	68,11	-	-	0,00	0,00	-	0,00
Sum	35,95											

- 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	1 026	32,09	106,5	0,00	71,23	-	-	0,00	0,00	-	0,00
Sum	32,09											

- Data undefined due to calculation with octave data

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DECIBEL - Assumptions for noise calculation**Calculation:** V112 poprawione **Noise 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: 0,9

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 V112 3000 112.0 !O!**Noise:** Level 0 - Mode 0 - - 08-2010

Source	Source/Date	Creator	Edited
Manufacturer	2010-08-27	EMD	2010-10-26 13:56

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data								
					63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]	
From Windcat	119,0	8,0	106,5	No	Generic data	88,1	95,1	98,5	101,1	100,9	98,0	93,2	83,7

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: V112 poprawione **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:

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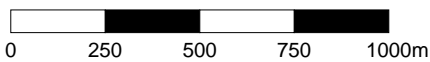
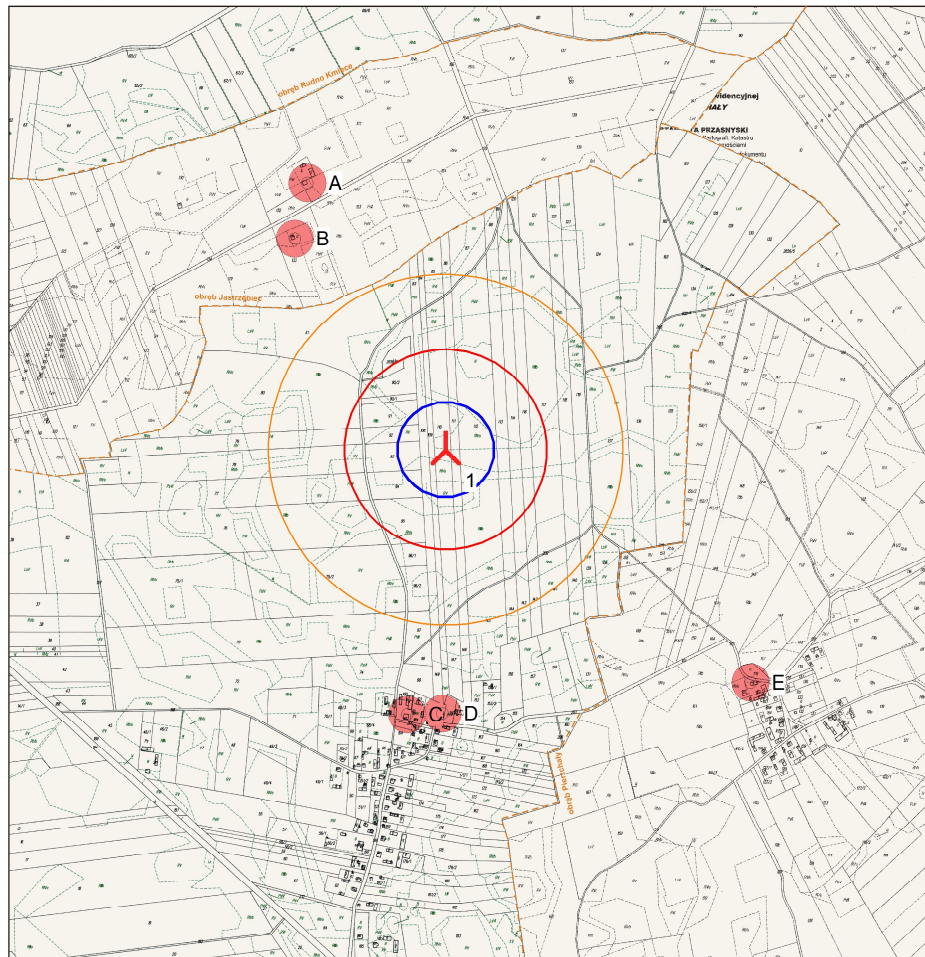
Calculated:

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DECIBEL - Map 8,0 m/s


Calculation: V112 poprawione Noise calculation model: ISO 9613-2 General 8,0 m/s

Noise [dB(A)]	
	40
	45
	50
	55



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