

Project: Borkowo-Falenta	Printed/Page: 2014-03-25 07:41 / 1
	Licensed user: Enerko Przedsiębiorstwo Rozwoju Energii Odnawialnej Michal Kubecki ul. Armii Krajowej 47a PL-26060 Checiny +48 41 301 00 23 ENERKO / biuro@enerko.pl
	Calculated: 2014-03-24 15:41/2.8.552

DECIBEL - Main Result

Calculation: G97 100m 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

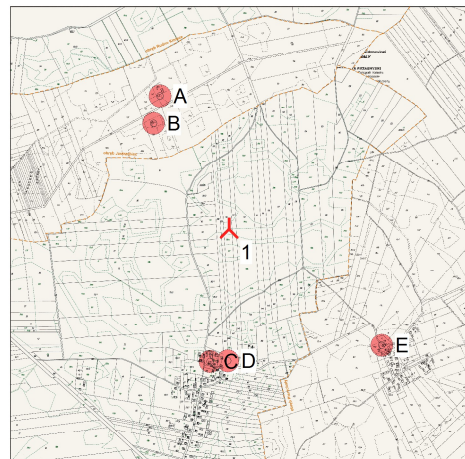
Height above ground level, when no value in NSA object:

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)



New WTG

Noise sensitive area

WTGs

Geo [deg,min,sec]-WGS84		Z	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	GAMESA G97 2000 97,0 IO! hu...	Yes	GAMESA	G97-2 000	2 000	97,0	100,0	EMD	Level 0 - Estimated - - 07-2012	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					
	A Noise sensitive point: (1)	20°45'26,79" East	53°05'52,60" North	160,0	4,0	45,0	34,0	Yes
	B Noise sensitive point: (2)	20°45'25,01" East	53°05'47,80" North	160,0	4,0	45,0	35,5	Yes
	C Noise sensitive point: (3)	20°45'41,13" East	53°05'06,59" North	150,0	4,0	45,0	35,2	Yes
	D Noise sensitive point: (4)	20°45'46,17" East	53°05'06,67" North	150,0	4,0	45,0	35,3	Yes
	E Noise sensitive point: (5)	20°46'30,10" East	53°05'09,53" North	150,0	4,0	45,0	31,4	Yes

Distances (m)

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

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DECIBEL - Detailed results**Calculation:** G97 100m 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	808	33,99	105,8	0,00	69,14	-	-	0,00	0,00	-	0,00
Sum	33,99											

- 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	699	35,52	105,8	0,00	67,89	-	-	0,00	0,00	-	0,00
Sum	35,52											

- 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	724	35,15	105,8	0,00	68,19	-	-	0,00	0,00	-	0,00
Sum	35,15											

- 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	714	35,29	105,8	0,00	68,08	-	-	0,00	0,00	-	0,00
Sum	35,29											

- 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	1 024	31,41	105,8	0,00	71,21	-	-	0,00	0,00	-	0,00
Sum	31,41											

- Data undefined due to calculation with octave data

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DECIBEL - Assumptions for noise calculation**Calculation:** G97 100m 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: GAMESA G97 2000 97.0 !O!**Noise:** Level 0 - Estimated - - 07-2012

Source	Source/Date	Creator	Edited
Manufacturer	2012-07-30	EMD	2013-07-18 10:08

Based on document GD161807-en, Rev.0.

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	
						[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
User value	100,0	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: G97 100m 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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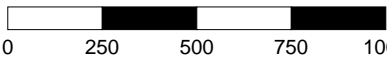
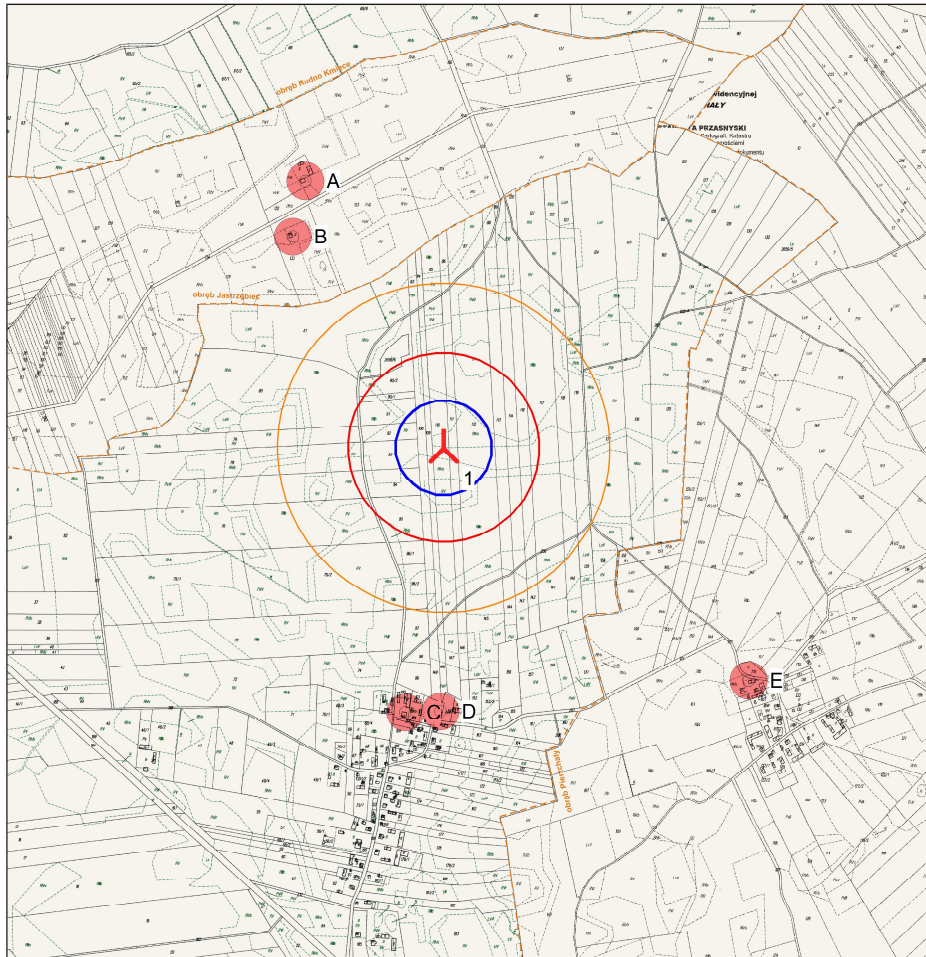
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DECIBEL - Map 8,0 m/s


Calculation: G97 100m 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