

Project:

**FW Cierpice**

Description:

Farma wiatrowa Cierpice w gminie Przeworno  
5 turbin wiatrowych o mocy 3MW każda

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2014-11-11 21:44 / 1

Licensed user:

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Calculated:

2014-11-11 21:44/2.9.285

**DECIBEL - Main Result****Calculation:** ZAŁĄCZNIK TEKSTOWY 12 - oddziaływanie akustyczne wariant 2**Noise calculation model:**

ISO 9613-2 Poland

**Wind speed:**

10,0 m/s

**Ground attenuation:**

General, Ground factor: 0,5

**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 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)

**WTGs**

Polish GK 1992/19-ETRS89					WTG type		Noise data				Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
East	North	Z	Row data/Description		Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Creator	Name	
		[m]											
1	369 035	311 963	230,0 EW1		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
2	369 480	312 108	225,8 EW2		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
3	369 947	312 060	216,3 EW3		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
4	370 203	311 996	206,6 EW4		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
5	370 551	311 950	195,7 EW5		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
6	369 512	311 787	217,6 EW6		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h
7	370 076	311 668	200,9 EW7		Yes	VESTAS	V126-3.3 GridStreame-3	3 300	126,0	117,0	USER	Level -- Mode 2 - 106,5dB	10,0 106,5 0 dB h

h) Generic octave distribution used

**Calculation Results****Sound Level**

Noise sensitive area		Polish GK 1992/19-ETRS89			Demands		Sound Level	Demands fulfilled ?	
No.	Name	East	North	Z	Imission height	Noise	From WTGs	Noise	
				[m]	[m]	[dB(A)]	[dB(A)]		
	A 01 Cierpice 1	370 121	312 919	200,0	4,0	45,0	41,4	Yes	
	B 02 Cierpice 2	370 396	312 888	194,1	4,0	45,0	41,1	Yes	
	C 03 Gołaczów 1	371 090	311 567	190,0	4,0	45,0	41,5	Yes	
	D 04 Konary 1	369 307	311 316	220,3	4,0	45,0	44,7	Yes	
	E 05 Konary 2	369 849	311 509	209,8	4,0	45,0	49,4	No	

**Distances (m)**

WTG	A	B	C	D	E
1	1448	1638	2094	660	926
2	1034	1196	1699	811	703
3	877	940	1245	982	560
4	909	913	986	1125	602
5	967	917	662	1397	815
6	1286	1408	1594	514	432
7	1248	1262	1020	846	267

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**DECIBEL - Detailed results****Calculation:** ZAŁĄCZNIK TEKSTOWY 12 - oddziaływanie akustyczne wariant 2 **Noise calculation model:** ISO 9613-2 Poland 10,0 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 01 Cierpice 1****WTG****Wind speed: 10,0 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	1 448	1 455	<b>29,60</b>	106,5	0,00	74,26	-	-	0,00	0,00	-	0,00
2	1 034	1 043	<b>33,33</b>	106,5	0,00	71,37	-	-	0,00	0,00	-	0,00
3	877	886	<b>35,10</b>	106,5	0,00	69,95	-	-	0,00	0,00	-	0,00
4	927	935	<b>34,53</b>	106,5	0,00	70,41	-	-	0,00	0,00	-	0,00
5	1 060	1 066	<b>33,10</b>	106,5	0,00	71,55	-	-	0,00	0,00	-	0,00
6	1 286	1 293	<b>30,95</b>	106,5	0,00	73,23	-	-	0,00	0,00	-	0,00
7	1 253	1 258	<b>31,26</b>	106,5	0,00	72,99	-	-	0,00	0,00	-	0,00

Sum 41,39

- Data undefined due to calculation with octave data

**Noise sensitive area: B 02 Cierpice 2****WTG****Wind speed: 10,0 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	1 647	1 653	<b>28,12</b>	106,5	0,00	75,37	-	-	0,00	0,00	-	0,00
2	1 203	1 212	<b>31,68</b>	106,5	0,00	72,67	-	-	0,00	0,00	-	0,00
3	942	951	<b>34,34</b>	106,5	0,00	70,57	-	-	0,00	0,00	-	0,00
4	913	921	<b>34,69</b>	106,5	0,00	70,29	-	-	0,00	0,00	-	0,00
5	951	957	<b>34,27</b>	106,5	0,00	70,62	-	-	0,00	0,00	-	0,00
6	1 413	1 419	<b>29,89</b>	106,5	0,00	74,04	-	-	0,00	0,00	-	0,00
7	1 262	1 267	<b>31,17</b>	106,5	0,00	73,06	-	-	0,00	0,00	-	0,00

Sum 41,05

- Data undefined due to calculation with octave data

**Noise sensitive area: C 03 Gołaczów 1****WTG****Wind speed: 10,0 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	2 094	2 100	<b>25,26</b>	106,5	0,00	77,44	-	-	0,00	0,00	-	0,00
2	1 699	1 706	<b>27,75</b>	106,5	0,00	75,64	-	-	0,00	0,00	-	0,00
3	1 245	1 253	<b>31,30</b>	106,5	0,00	72,96	-	-	0,00	0,00	-	0,00
4	986	994	<b>33,86</b>	106,5	0,00	70,95	-	-	0,00	0,00	-	0,00
5	662	672	<b>38,02</b>	106,5	0,00	67,55	-	-	0,00	0,00	-	0,00
6	1 594	1 600	<b>28,50</b>	106,5	0,00	75,08	-	-	0,00	0,00	-	0,00
7	1 020	1 027	<b>33,50</b>	106,5	0,00	71,23	-	-	0,00	0,00	-	0,00

Sum 41,46

- Data undefined due to calculation with octave data

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**DECIBEL - Detailed results****Calculation:** ZAŁĄCZNIK TEKSTOWY 12 - oddziaływanie akustyczne wariant 2 **Noise calculation model:** ISO 9613-2 Poland 10,0 m/s**Noise sensitive area: D 04 Konary 1****WTG****Wind speed: 10,0 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	703	714	<b>37,40</b>	106,5	0,00	68,07	-	-	0,00	0,00	-	0,00
2	811	820	<b>35,93</b>	106,5	0,00	69,28	-	-	0,00	0,00	-	0,00
3	982	988	<b>33,93</b>	106,5	0,00	70,90	-	-	0,00	0,00	-	0,00
4	1 125	1 130	<b>32,46</b>	106,5	0,00	72,06	-	-	0,00	0,00	-	0,00
5	1 397	1 400	<b>30,05</b>	106,5	0,00	73,92	-	-	0,00	0,00	-	0,00
6	514	526	<b>40,54</b>	106,5	0,00	65,42	-	-	0,00	0,00	-	0,00
7	846	851	<b>35,53</b>	106,5	0,00	69,60	-	-	0,00	0,00	-	0,00

Sum 44,70

- Data undefined due to calculation with octave data

**Noise sensitive area: E 05 Konary 2****WTG****Wind speed: 10,0 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	933	942	<b>34,44</b>	106,5	0,00	70,48	-	-	0,00	0,00	-	0,00
2	704	716	<b>37,37</b>	106,5	0,00	68,09	-	-	0,00	0,00	-	0,00
3	560	573	<b>39,68</b>	106,5	0,00	66,16	-	-	0,00	0,00	-	0,00
4	602	612	<b>38,99</b>	106,5	0,00	66,74	-	-	0,00	0,00	-	0,00
5	829	835	<b>35,74</b>	106,5	0,00	69,44	-	-	0,00	0,00	-	0,00
6	437	453	<b>42,03</b>	106,5	0,00	64,13	-	-	0,00	0,00	-	0,00
7	277	296	<b>46,21</b>	106,5	0,00	60,42	-	-	0,00	0,00	-	0,00

Sum 49,39

- Data undefined due to calculation with octave data

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## Calculated:

2014-11-11 21:44/2.9.285

**DECIBEL - Assumptions for noise calculation****Calculation:** ZAŁĄCZNIK TEKSTOWY 12 - oddziaływanie akustyczne wariant 2 **Noise calculation model:** ISO 9613-2 Poland 10,0 m/s**Noise calculation model:**

ISO 9613-2 Poland

**Wind speed:**

10,0 m/s

**Ground attenuation:**

General, Ground factor: 0,5

**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 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 V126-3.3 GridStreame 3300 126.0 !O!**Noise:** Level - - Mode 2 - 106,5dB

Source Source/Date Creator Edited

Manufacturer 2013-05-04 USER 2014-03-21 09:38

Based on Document no.: 0034-7616 V06 2013-04-05.

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	117,0	10,0	106,5	No	Generic data 88,1	95,1	98,5	101,1	100,9	98,0	93,2	83,7

**NSA:** 01 Cierpice 1-A**Predefined calculation standard:** Night: Multi-family houses, agricultural, mixed**Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** 02 Cierpice 2-B**Predefined calculation standard:** Night: Multi-family houses, agricultural, mixed**Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** 03 Gołaczów 1-C**Predefined calculation standard:** Night: Multi-family houses, agricultural, mixed**Imission height(a.g.l.):** Use standard value from calculation model**Noise demand:** 45,0 dB(A)**Distance demand:****NSA:** 04 Konary 1-D**Predefined calculation standard:** Night: Multi-family houses, agricultural, mixed**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:** ZAŁĄCZNIK TEKSTOWY 12 - oddziaływanie akustyczne wariant 2 **Noise calculation model:** ISO 9613-2 Poland 10,0 m/s

**NSA:** 05 Konary 2-E

**Predefined calculation standard:** Night: Multi-family houses, agricultural, mixed

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

**Noise demand:** 45,0 dB(A)

**Distance demand:**