

DECIBEL - Main Result

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-]

Noise calculation model:

ISO 9613-2 General

Wind speed:

95% rated power else 10,0 m/s

Ground attenuation:

General, fixed, Ground factor: 0,8

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:

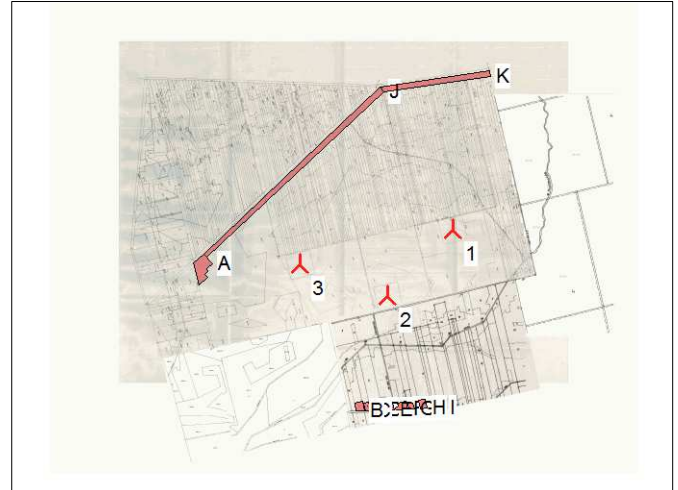
Pure and Impulse tone penalty are added to WTG source noise

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)



Scale 1:40 000

▲ New WTG

■ Noise sensitive area

WTGs

	Longitude	Latitude	Z [m]	Row data/Description	WTG type				Noise data			Wind speed [m/s]	Status	LwA,ref [dB(A)]	Pure tones
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Creator				
1	20°27'56,79" E	51°03'55,26" N	254,7	EW3	No	REpower	3.0M122-3 000	3 000	122,0	143,0	USER	Level 0 - Guaranteed - - 07-2013	(95%) From other hub height	104,5	No h
2	20°27'39,07" E	51°03'43,63" N	253,8	EW2	No	REpower	3.0M122-3 000	3 000	122,0	143,0	USER	Level 0 - Guaranteed - - 07-2013	(95%) From other hub height	104,5	No h
3	20°27'15,07" E	51°03'49,15" N	254,8	EW1	No	REpower	3.0M122-3 000	3 000	122,0	143,0	USER	Level 2 - Guaranteed - Sound Mgmt. 101.7 dBA - 10-2013	(95%)	101,7	No h

h) Generic octave distribution used

Calculation Results

Sound Level

Noise sensitive area

No.	Name	Longitude	Latitude	Z [m]	Imission height [m]	Demands		Distance to noise demand [m]	Demands fulfilled ?
						Noise [dB(A)]	From WTGs [dB(A)]		
A	R1	20°26'50,95" E	51°03'49,40" N	254,3	4,0	45,0	37,3	330	Yes
B	R2	20°27'31,99" E	51°03'25,25" N	250,0	4,0	45,0	37,9	361	Yes
C	R3	20°27'33,80" E	51°03'25,23" N	250,4	4,0	45,0	38,0	355	Yes
D	R4	20°27'37,14" E	51°03'25,00" N	251,1	4,0	45,0	37,9	354	Yes
E	R5	20°27'40,41" E	51°03'25,14" N	252,8	4,0	45,0	38,0	350	Yes
F	R6	20°27'43,95" E	51°03'25,27" N	254,3	4,0	45,0	38,0	352	Yes
G	R7	20°27'44,47" E	51°03'25,03" N	254,4	4,0	45,0	37,8	361	Yes
H	R8	20°27'47,29" E	51°03'25,52" N	255,6	4,0	45,0	37,9	359	Yes
I	R9	20°27'51,25" E	51°03'25,72" N	255,6	4,0	45,0	37,7	379	Yes
J	RM/MN	20°27'03,42" E	51°03'58,87" N	266,7	4,0	40,0	39,2	39	Yes
K	RM/MN	20°27'42,82" E	51°04'19,95" N	269,7	4,0	40,0	35,2	356	Yes

Distances (m)

WTG

NSA	1	2	3
A	1294	953	469
B	1045	584	800
C	1030	578	817
D	1010	577	852
E	983	572	879
F	960	575	907
G	956	584	940
H	925	582	962
I	912	602	1010
J	797	819	374
K	794	1108	1036

DECIBEL - Detailed results

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-] **Noise calculation model:** ISO 9613-2 General 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 R1

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1 294	1 302	27,78	104,5	0,00	73,29	-	-	0,00	0,00	-	0,00
2	953	963	31,13	104,5	0,00	70,68	-	-	0,00	0,00	-	0,00
3	469	490	35,42	101,7	0,00	64,80	-	-	0,00	0,00	-	0,00

Sum 37,31

- Data undefined due to calculation with octave data

Noise sensitive area: B R2

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1 045	1 055	30,14	104,5	0,00	71,46	-	-	0,00	0,00	-	0,00
2	584	602	36,12	104,5	0,00	66,59	-	-	0,00	0,00	-	0,00
3	808	821	30,06	101,7	0,00	69,29	-	-	0,00	0,00	-	0,00

Sum 37,88

- Data undefined due to calculation with octave data

Noise sensitive area: C R3

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1 030	1 040	30,30	104,5	0,00	71,34	-	-	0,00	0,00	-	0,00
2	578	595	36,24	104,5	0,00	66,49	-	-	0,00	0,00	-	0,00
3	824	836	29,86	101,7	0,00	69,45	-	-	0,00	0,00	-	0,00

Sum 37,96

- Data undefined due to calculation with octave data

Noise sensitive area: D R4

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1 010	1 020	30,51	104,5	0,00	71,17	-	-	0,00	0,00	-	0,00
2	577	594	36,26	104,5	0,00	66,47	-	-	0,00	0,00	-	0,00
3	861	872	29,41	101,7	0,00	69,81	-	-	0,00	0,00	-	0,00

Sum 37,94

- Data undefined due to calculation with octave data

Noise sensitive area: E R5

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	983	993	30,80	104,5	0,00	70,94	-	-	0,00	0,00	-	0,00

To be continued on next page...

DECIBEL - Detailed results

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-] **Noise calculation model:** ISO 9613-2 General 10,0 m/s

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WTG		95% rated power										
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]
2	572	589	36,35	104,5	0,00	66,40	-	-	0,00	0,00	-	0,00
3	891	902	29,05	101,7	0,00	70,10	-	-	0,00	0,00	-	0,00

Sum 38,01

- Data undefined due to calculation with octave data

Noise sensitive area: F R6

WTG		95% rated power										
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	960	970	31,06	104,5	0,00	70,73	-	-	0,00	0,00	-	0,00
2	575	592	36,30	104,5	0,00	66,44	-	-	0,00	0,00	-	0,00
3	927	938	28,63	101,7	0,00	70,44	-	-	0,00	0,00	-	0,00

Sum 37,97

- Data undefined due to calculation with octave data

Noise sensitive area: G R7

WTG		95% rated power										
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	964	974	31,01	104,5	0,00	70,77	-	-	0,00	0,00	-	0,00
2	584	600	36,14	104,5	0,00	66,57	-	-	0,00	0,00	-	0,00
3	940	950	28,49	101,7	0,00	70,55	-	-	0,00	0,00	-	0,00

Sum 37,84

- Data undefined due to calculation with octave data

Noise sensitive area: H R8

WTG		95% rated power										
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	937	947	31,32	104,5	0,00	70,53	-	-	0,00	0,00	-	0,00
2	582	598	36,19	104,5	0,00	66,53	-	-	0,00	0,00	-	0,00
3	962	972	28,23	101,7	0,00	70,76	-	-	0,00	0,00	-	0,00

Sum 37,91

- Data undefined due to calculation with octave data

Noise sensitive area: I R9

WTG		95% rated power										
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	919	929	31,53	104,5	0,00	70,36	-	-	0,00	0,00	-	0,00
2	602	617	35,86	104,5	0,00	66,81	-	-	0,00	0,00	-	0,00
3	1 010	1 019	27,72	101,7	0,00	71,17	-	-	0,00	0,00	-	0,00

Sum 37,68

- Data undefined due to calculation with octave data

Noise sensitive area: J RM/MN

WTG		95% rated power										
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	1 045	1 053	30,16	104,5	0,00	71,45	-	-	0,00	0,00	-	0,00
2	838	849	32,51	104,5	0,00	69,57	-	-	0,00	0,00	-	0,00
3	376	399	37,48	101,7	0,00	63,01	-	-	0,00	0,00	-	0,00

Sum 39,25

- Data undefined due to calculation with octave data

Project:

Elektrownie wiatrowe Smyków

Licensed user:

ENVO
ul.Sikorskiego 25/20
PL-62 030 Lubon
0048 662 643 300
ENVO / envo-i.nowicki@wp.pl
Calculated:
2015-06-28 09:53/3.0.578

DECIBEL - Detailed results

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-] **Noise calculation model:** ISO 9613-2 General 10,0 m/s

Noise sensitive area: K RM/MN

No.	Distance [m]	Sound distance [m]	95% rated power									
			Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	810	819	32,89	104,5	0,00	69,26	-	-	0,00	0,00	-	0,00
2	1 124	1 130	29,37	104,5	0,00	72,06	-	-	0,00	0,00	-	0,00
3	1 094	1 101	26,87	101,7	0,00	71,83	-	-	0,00	0,00	-	0,00

Sum 35,18

- Data undefined due to calculation with octave data

Project:

Elektrownie wiatrowe Smyków

Licensed user:

ENVO
ul.Sikorskiego 25/20
PL-62 030 Lubon
0048 662 643 300
ENVO / envo-i.nowicki@wp.pl
Calculated:
2015-06-28 09:53/3.0.578

DECIBEL - Assumptions for noise calculation

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-] **Noise calculation model:** ISO 9613-2 General 10,0 m/s

Noise calculation model:

ISO 9613-2 General

Wind speed:

95% rated power else 10,0 m/s

Ground attenuation:

General, fixed, Ground factor: 0,8

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: REpower 3.0M122 3000 122.0 !O!

Noise: Level 0 - Guaranteed - - 07-2013

Source Source/Date Creator Edited
Manufacturer 2013-07-10 USER 2013-12-23 10:16
Based on document SD-3.5-WT.PC-00-A-C-EN.

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data								
					63	125	250	500	1000	2000	4000	8000	
From other hub height	143,0	95% rated power	104,5	No	Generic data	86,1	93,1	96,5	99,1	98,9	96,0	91,2	81,7

WTG: REpower 3.0M122 3000 122.0 !O!

Noise: Level 2 - Guaranteed - Sound Mgmt. 101.7 dBA - 10-2013

Source Source/Date Creator Edited
Manufacturer 2013-10-07 USER 2013-12-05 13:48
Based on document SD-3.5-WT.PO-01-C-A-EN.

Status	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data								
				63	125	250	500	1000	2000	4000	8000	
From Windcat	95% rated power	101,7	No	Generic data	83,3	90,3	93,7	96,3	96,1	93,2	88,4	78,9

NSA: R1-A

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R2-B

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R3-C

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

DECIBEL - Assumptions for noise calculation

Calculation: Analiza akustyczna - wariant proponowany H=143 m, z=0,8[-] **Noise calculation model:** ISO 9613-2 General 10,0 m/s

NSA: R4-D

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R5-E

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R6-F

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R7-G

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R8-H

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: R9-I

Predefined calculation standard:

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

Noise demand: 45,0 dB(A)

No distance demand

NSA: RM/MN-J

Predefined calculation standard:

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

Noise demand: 40,0 dB(A)

No distance demand

NSA: RM/MN-K

Predefined calculation standard:

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

Noise demand: 40,0 dB(A)

No distance demand