



## **LIITE 10 Meluselvitys**

LAUTAMÄEN TUULIVOIMA OY

# LAUTAMÄEN TUULIVOIMAHANKE MELUSELVITYS

29.4.2026

319110  
REV: A0



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## 1. Hankkeen tiedot ja tehtävän kuvaus

Lautamäen Tuulivoima Oy suunnittelee Teuvan ja Karijoen kuntien rajalle tuulivoimaisuutta. Tässä selvityksessä esitetään laskennallinen arvio tuulivoimaloista aiheutuvasta meluvaikutuksesta kaavaehdotusvaiheen hankesuunnitelman mukaisella tuulivoimalasijoittelulla. Työ on tehty Lautamäen Tuulivoima Oy:n toimeksiannosta.

Selvityksessä on arvioitu tuulivoimalaitosten aiheuttamaa meluvaikutusta laskennallisen mallinnuksen avulla. Selvitys on laadittu perustuen Ympäristöministeriön ohjeeseen *Tuulivoimaloiden melun mallintaminen* [1]. Selvityksen tuloksia on verrattu Valtioneuvoston asetuksen 1107/2015 [2] mukaisiin tuulivoimaloiden ulkomelun ohjearvoihin sekä Sosiaali- ja terveysministeriön asetuksen 545/2015 [3] pienitaajuuden melun toimenpiderajoista johdettuihin ulkomelutasojen vertailuarvoihin. Sisätilojen toimenpiderajojen muutos ulkotilojen vertailuarvoksi on tehty huomioimalla Suomessa mitattujen [4] asuinrakennusten ääneneristävyyksien alaliikarvot.

Mallinnuksen avulla on tuotettu laskennallinen meluvyöhykekartta, josta käy ilmi voimaloiden aiheuttamat keskiäänitasot 5 dB:n vyöhykkeinä. Meluvyöhykkeiden lisäksi lähimmille asuin- ja lomarakennuksille on sijoitettu melun reseptoripisteet, joille on laskettu tarkat keskiäänitasot sekä pienitaajuuden (20–200 Hz) melun tasot.

Laskennan ja raportin on laatinut meluasiantuntija Ville-Veikko Kyllönen. Raportin on tarkastanut Ilkka Niskanen.

## 2. Melun ohje- ja raja-arvot

### 2.1. Valtioneuvoston asetus tuulivoimaloiden ulkomelutason ohjearvoista

Valtioneuvoston asetuksessa 1107/2015 on säädetty tuulivoimaloiden melusta aiheutuvien terveyshaittojen sekä tuulivoimaloiden melusta aiheutuvan muun merkittävän ympäristön pilaantumisen ehkäisemiseksi tarpeellisista ulkomelutason ohjearvoista. Asetusta sovelletaan maankäyttö- ja rakennuslain (132/1999) mukaisessa maankäytön ja rakentamisen suunnittelussa, lupamenettelyissä ja valvonnassa sekä ympäristönsuojelulain mukaisessa lupamenettelyssä ja valvonnassa.

Tuulivoimaloiden toiminnasta aiheutuva melupäästön takuarvon perusteella määritelty laskennallinen melutaso ja valvonnan yhteydessä mitattu melutaso eivät saa ulkona ylittää melulle altistuvalla alueella melun A-taajuuspainotetun keskiäänitason (ekvivalenttitason  $L_{Aeq}$ ) ohjearvoja (taulukko 1).

Taulukko 2. Valtioneuvoston asetuksen 1107/2015 mukaiset tuulivoimaloiden ulkomelutason ohjearvot

	Ulkomelutaso $L_{Aeq}$ päivällä klo 7–22	Ulkomelutaso $L_{Aeq}$ yöllä klo 22–7
Pysyvä asutus	45 dB	40 dB
Loma-asutus	45 dB	40 dB
Hoitolaitokset	45 dB	40 dB
Oppilaitokset	45 dB	–
Virkistysalueet	45 dB	–
Leirintäalueet	45 dB	40 dB
Kansallispuistot	40 dB	40 dB

Elinympäristöön vaikuttavaa toimintaa suunniteltaessa ja järjestettäessä sekä tällaista toimintaa harjoittaessa huomioon otettavista sisämelutasoista säädetään terveydensuojelulaissa (763/1994) ja sen nojalla annetuissa säännöksissä.

## 2.2. Asumisterveysasetuksen toimenpiderajat asuntojen sisätiloissa

Sosiaali- ja terveysministeriön asetuksessa 545/2015 on asetettu toimenpiderajat asuntojen ja muiden oleskelutilojen sisätilojen melutasoille.

Yöaikainen (klo 22–7) musiikkimelu tai muu vastaava mahdollisesti unihäiriötä aiheuttava melu, joka erottuu selvästi taustamelusta, ei saa ylittää 25 dB yhden tunnin keskiäänitasona  $L_{Aeq,1h}$  (klo 22–7) mitattuna niissä tiloissa, jotka on tarkoitettu nukkumiseen. Keskiäänitason arvioinnin lisäksi tulee huomioida melun mahdolliset erityisominaisuudet eli impulssimaisuus ja kapeakaistaisuus ja niistä aiheutuvat korjaukset. Näitä erityisominaisuuksia ei voida kuitenkaan etukäteen määrittää vaan ne on todennettava mittauksin.

Kun melu on pienitaajuisista, sovelletaan yöaikaiseen meluun taulukon 2 mukaisia toimenpiderajoja. Pienitaajuisen melun toimenpiderajat koskevat tiloja, jotka on tarkoitettu nukkumiseen.

Taulukko 2. Pienitaajuisen sisämelun tunnin keskiäänitason toimenpiderajat nukkumiseen tarkoitetuissa tiloissa.

Kaista [Hz]	20	25	31,5	40	50	63	80	100	125	160	200
$L_{eq,1h}$ [dB]	74	64	56	49	44	42	40	38	36	34	32

Päiväajan (klo 7–22) pienitaajuiselle melulle sovelletaan 5 dB suurempia arvoja kuin taulukossa 2.

### 3. Lähtötiedot ja arviointimenetelmät

#### 3.1. Hankkeen tuulivoimalat

Suunnitelmaversio VE1 sisältää 36 tuulivoimalaa ja versio VE2 23 voimalaa. Kaikkien voimaloiden mallina on käytetty Nordexin N163 6.8 voimalamallia, napakorkeutta 210 metriä. Tuulivoimapuistossa käytettävä tuulivoimalamallin äänitehotaso on voimalamallin mukaan 106,4 dB (A). Äänitehotasoon on laskennassa lisätty standardin IEC 61400-14 mukainen kokonaispävarmuustaso 2 dB, joten äänitehotason takuuarvoksi saadaan 108,4 dB(A).

Käytetty taajuusjakauma on esitetty taulukossa 3. Voimaloiden sijaintitiedot on esitetty taulukoissa 4 ja 5.

Taulukko 3. Melulaskennassa käytetyn äänitehotason taajuusjakauma 1/3-oktaavikaistoittain.

<b>Taajuus [Hz]</b>	<b>25</b>	<b>31,5</b>	<b>40</b>	<b>50</b>	<b>63</b>	<b>80</b>	<b>100</b>	<b>125</b>	<b>160</b>
<b>LWA [dB]</b>	79.7	81.6	82.8	83.8	90.1	91.8	92.4	95	95
<b>Taajuus [Hz]</b>	<b>200</b>	<b>250</b>	<b>315</b>	<b>400</b>	<b>500</b>	<b>630</b>	<b>800</b>	<b>1000</b>	<b>1250</b>
<b>LWA [dB]</b>	96	96.5	97.3	97.2	97	97.3	97.5	97.5	97.7
<b>Taajuus [Hz]</b>	<b>1600</b>	<b>2000</b>	<b>2500</b>	<b>3150</b>	<b>4000</b>	<b>5000</b>	<b>6300</b>	<b>8000</b>	<b>10000</b>
<b>LWA [dB]</b>	97	95.6	92.4	89.1	84.3	79.2	71.1	62.4	57

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Taulukko 4. Suunnitelmaversio VE1 mukaiset voimaloiden sijaintikoordinaatit ETRS-TM35FIN-koordinaatissa, maaston korkeudet merenpinnasta voimaloiden kohdalla sekä napakorkeudet (hub height).

Voimala	E	N	Maaston korkeus [m]	HH (m)
T1	225824	6931091	81	210
T2	225082	6930483	86	210
T3	225096	6931333	81	210
T4	224250	6930814	70	210
T5	224836	6933079	68	210
T6	224567	6932081	81	210
T7	223888	6933552	81	210
T8	223931	6932547	80	210
T9	223518	6931671	68	210
T10	222469	6932724	71	210
T11	222167	6931832	71	210
T12	226463	6929589	72	210
T13	227350	6929377	80	210
T14	228006	6928781	77	210
T15	229085	6929196	89	210
T16	229033	6930036	91	210
T17	228306	6930083	80	210
T18	229588	6928234	92	210
K1	224674	6927880	54	210
K2	225419	6928888	72	210
K3	224825	6929323	72	210
K4	224298	6929908	67	210
K5	224183	6928518	63	210
K6	223749	6927529	50	210
K7	222946	6927896	65	210
K8	223254	6928853	70	210
K9	223394	6929822	64	210
K10	222195	6930180	72	210
K11	221791	6929296	67	210
K12	221615	6928352	63	210
K13	226930	6928530	80	210

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K14	228297	6927589	73	210
K15	230058	6927243	92	210
K16	229345	6926545	78	210
K17	230631	6926906	115	210
K18	229048	6927350	77	210

Taulukko 5. Suunnitelmaversio VE2 mukaiset voimaloiden sijaintikoordinaatit ETRS-TM35FIN-koordinaatissa, maaston korkeudet merenpinnasta voimaloiden kohdalla sekä napakorkeudet (hub height).

Voimala	E	N	Maaston korkeus [m]	HH (m)
T1	221854	6932408	59	210
T2	221890	6931295	70	210
T3	224571	6931002	73	210
T4	227350	6929377	80	210
T5	228006	6928782	77	210
T6	228084	6930556	78	210
T7	229588	6928234	92	210
K1	224674	6927880	54	210
K2	225419	6928888	72	210
K3	224825	6929323	72	210
K4	224298	6929908	67	210
K5	224183	6928518	63	210
K6	223254	6928853	70	210
K7	223394	6929822	64	210
K8	222195	6930180	72	210
K9	221791	6929296	67	210
K10	221615	6928352	63	210
K11	226930	6928530	80	210
K12	228297	6927589	73	210
K13	229048	6927350	77	210
K14	230058	6927243	92	210
K15	229345	6926545	78	210
K16	230631	6926906	115	210

### 3.2. Laskentamalli

Melulaskennat on tehty windPRO 4.1- ohjelman DEICBEL-moduulilla ISO 9613-2 standardin mukaisesti. Laskenta on tehty 4 metrin korkeudelle. Laskentamallin suhteellisena koostutena on käytetty arvoa 70 % ja lämpötilana arvoa 15 °C. Vesistöjen absorptioarvona on käytetty arvoa 0 (akustisesti kova pinta) ja muilla maa-alueilla arvoa 0,4 (akustisesti puoli-kova pinta). Jokia ja puroja ei ole mallinnettu vesialueina. Kaikki tuulivoimat on mallinnettu ympärisäteilevinä suuntaamattomina pistelähteinä tuulen suunnasta riippumatta.

### 3.3. Erilliset laskentapistet

Laskentamalliin on lisäksi sijoitettu 31 melun laskenta- eli reseptoripistettä lähimpien asuin- ja lomarakennusten kohdalle. Näihin pisteisiin on laskettu sekä melun keskiäänitasot että pienitaajuisen melun tasot YM:n ohjeen 2/2014 mukaisesti. Reseptoripisteiden sijainnit on esitetty taulukossa 6 ja laskentojen tulokset on esitetty taulukoissa 7–9.

Taulukko 6. Reseptorien sijaintikoordinaatit ETRS-TM35FIN-koordinaatistossa sekä maaston korkeudet vastaavasti.

Reseptorit	E	N	Maaston korkeus [m]	Rakennusluokitus
R1	226831	6933348	62	Asuinrakennus
R2	226949	6933364	60	Asuinrakennus
R3	227020	6933297	59	Asuinrakennus
R4	227000	6932792	64	Asuinrakennus
R5	227105	6932798	64	Asuinrakennus
R6	227242	6933002	62	Asuinrakennus
R7	230553	6929856	99	Lomarakennus
R8	230366	6929703	100	Lomarakennus
R9	232062	6926422	112	Lomarakennus
R10	226524	6926963	64	Lomarakennus
R11	226226	6926484	60	Asuinrakennus
R12	226287	6926314	59	Asuinrakennus
R13	225975	6926260	59	Asuinrakennus
R14	225848	6926257	59	Lomarakennus
R15	225775	6926147	57	Lomarakennus
R16	225567	6925884	55	Lomarakennus
R17	226081	6925917	58	Asuinrakennus
R18	226021	6925845	58	Asuinrakennus

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R19	226143	6925729	57	Asuinrakennus
R20	224502	6925724	54	Lomarakennus
R21	222837	6925786	39	Lomarakennus
R22	219560	6929091	34	Asuinrakennus
R23	226076	6934487	61	Lomarakennus
R24	224029	6933901	73	Lomarakennus
R25	225436	6933244	83	Lomarakennus
R26	224719	6932621	78	Lomarakennus
R27	223297	6931904	72	Lomarakennus
R28	226872	6931422	70	Lomarakennus
R29	226154	6930851	76	Lomarakennus
R30	229382	6929720	93	Lomarakennus
R31	223641	6926919	45	Lomarakennus

### 3.4. Muut melulle herkät kohteet

Tuulivoimalapuiston lähelle sijoittuu Teuvan, Karijoen ja Kristiinankaupungin Muinaisvuorten retkeilyreitistö. Retkeilyreitti on tuulivoimaloiden läheisyydessä Suksenjärven länsipuolelta kohti Iso-Kakkoria suuntautuvalla osuudella. Tällä osuudella retkeilyreitillä varrella sijaitsee 3 laavua ja yksi autiotupa.

Retkeilyreitti on tulkittavissa yleisessä virkistyskäytössä olevaksi alueeksi, jolloin siihen sovelletaan päiväaikaisen keskiäänitason ohjearvoa 45 dB.

## 4. Tulokset

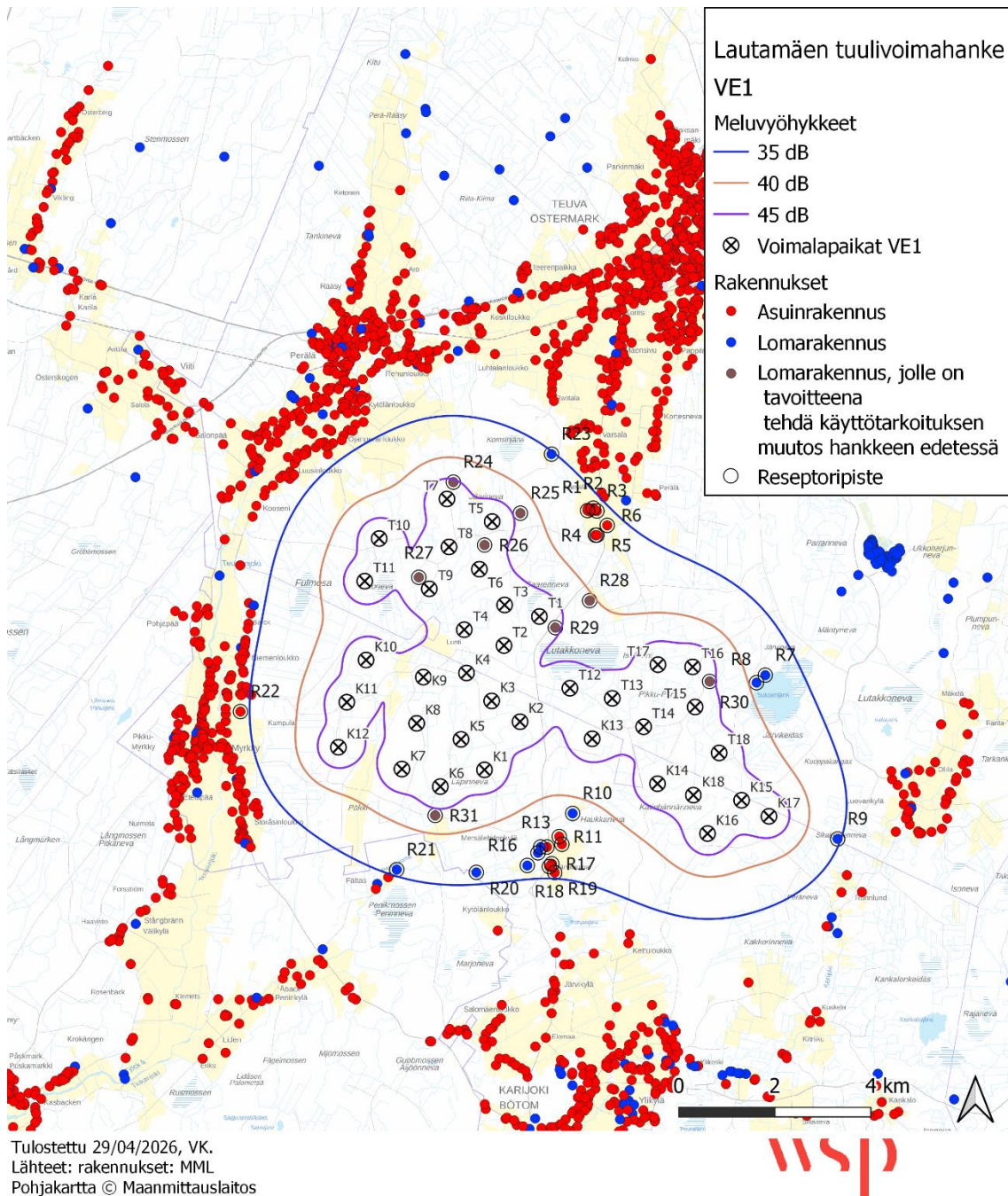
### 4.1. Nykytila

Lautamäen tuulivoima-alue sijaitsee Teuvan ja Karijoen kuntien alueella. Tuulivoima-alue on lähinnä ojitettua talousmetsäkäytössä olevaa aluetta, jonka länsiosassa on muutamia peltolohkoja.

Lautamäen hankealueen läheisyydessä sijaitsee useita jo toiminnassa tai vireillä olevia tuulivoimahankkeita. Alle 5 km etäisyydellä Lautamäen tuulivoima-alueen rajasta sijaitsee Pjelaxin tuulivoimahanke Lautamäen länsipuolella ja Kankalonselän tuulivoimahanke Lautamäen itäpuolella. Pjelaxin tuulivoimapuisto on toiminnassa ja Kankalonselän hanke rakenteilla. Lisäksi hankkeen läheisyydessä sijaitsee lukuisia muita tuulivoimahankkeita. Hankkeiden yhteisvaikutuksia on käsitelty yhteisvaikutuskappaleessa.

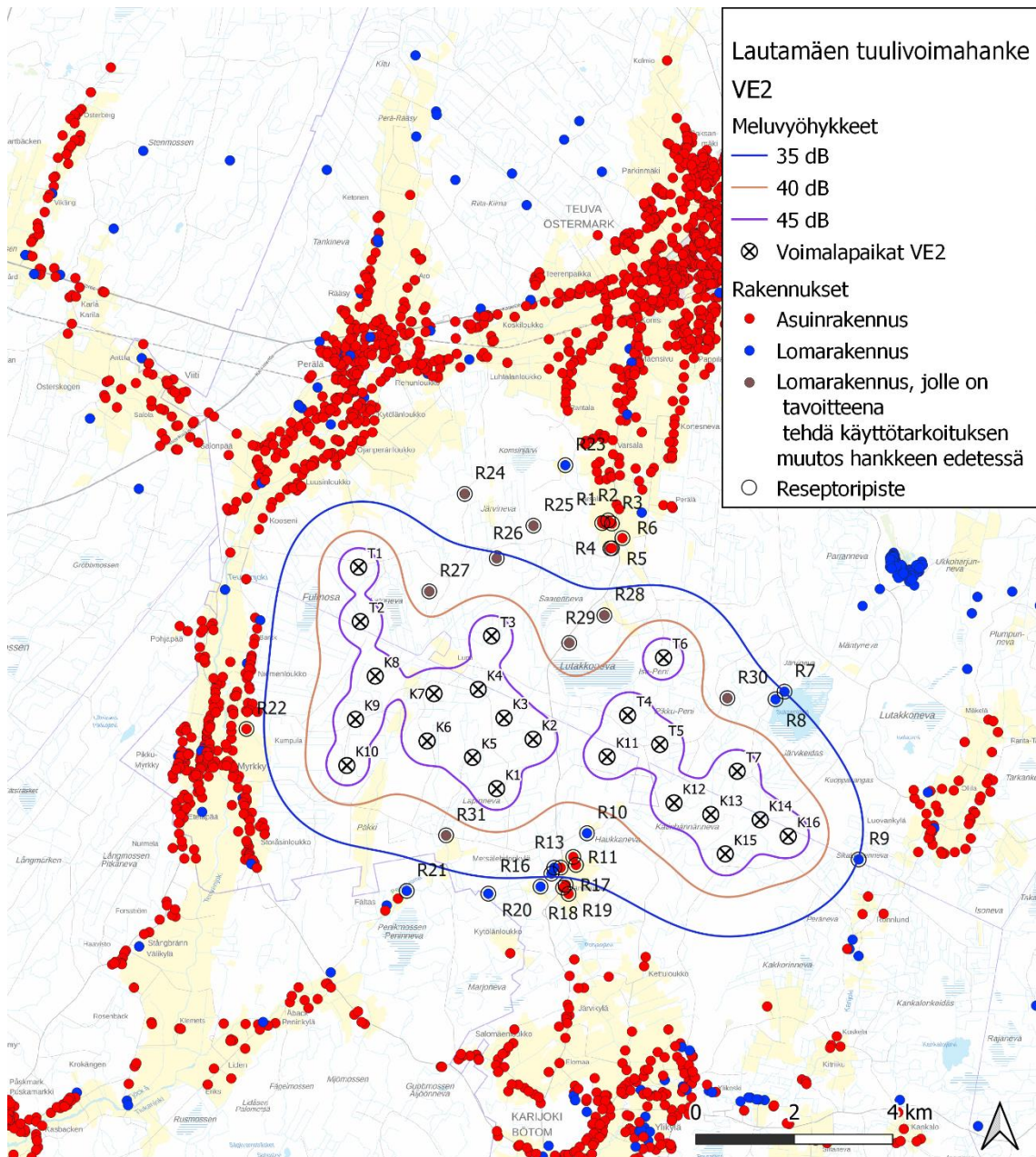
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Laskennallisen melumallinnuksen A-painotetut keskiäänitasovyöhykkeet on esitetty kuvissa Kuva 4.1 ja Kuva 4.2. Tuloksissa ei ole huomioitu impulssimaisuuden ja kapeakaistaisuuden mahdollisia korjauksia, sillä niiden huomioimista ei edellytetä ympäristövaikutusten arviointimenettelyssä. Lisäksi impulssimaisuuden ja kapeakaistaisuuden esiintyminen on aina tapauskohtaista, joten niiden esiintyminen voidaan todentaa vain altistuvissa kohteissa tehtävin mittauksin tuulivoimapaiston rakentamisen jälkeen.



Kuva 4.1 Tuulivoimaloiden aiheuttamat meluvyöhykkeet vaihtoehdossa VE1.

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Tulostettu 29/04/2026, VK.  
Lähteet: rakennukset: MML  
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Kuva 4.2 Tuulivoimaloiden aiheuttamat meluvyöhykkeet vaihtoehdossa VE2.

Mallinnuksen perusteella suunnitellun tuulivoimapuiston aiheuttaman 35–40 dB(A) keskiäänitasovyöhykkeen sisälle jää noin 11 asuinrakennusta ja 10 lomarakennusta vaihtoehdossa VE1 ja vaihtoehdossa VE2 3 asuinrakennusta ja 12 lomarakennusta. Yli 40 dB:n vyöhykkeelle jää 8 (reseptoripisteet R24–R31) MML:n maastotietokannan mukaan lomarakennukseksi merkittyä rakennusta, jotka ovat lomarakennuksia, metsätalouden taukotupia, metsästysmajoja tai mutia rakennuksia vaihtoehdossa VE1. Pienitajuksen melun (20–200 Hz) tasot ylittävät ulkoalueiden vertailuarvoja samaisissa rakennuksissa (taulukko 8 ja

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9). Näiden rakennusten käyttötarkoituksen muuttamisen mahdollisuudesta hankkeesta vastaava neuvottelee tarvittaessa kiinteistöjen omistajien kanssa.

Taulukko 7. Tuulivoimaloiden aiheuttamat keskiäänitasot reseptoripisteissä R1–R31 tarkastelutilanteissa VE1 ja VE2.

Reseptoripiste	LAeq [dB]	
	VE1	VE2
R1	36	31
R2	36	31
R3	36	31
R4	37	33
R5	37	33
R6	36	32
R7	38	35
R8	39	36
R9	35	35
R10	39	38
R11	37	36
R12	37	36
R13	37	36
R14	37	36
R15	37	35
R16	36	34
R17	36	35
R18	36	34
R19	35	34
R20	36	34
R21	36	33
R22	34	34
R23	35	29
R24	46	32
R25	43	33
R26	47	35
R27	48	39

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<b>R28</b>	<b>41</b>	<b>37</b>
<b>R29</b>	<b>46</b>	<b>38</b>
<b>R30</b>	<b>46</b>	<b>38</b>
<b>R31</b>	<b>43</b>	<b>38</b>

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Taulukko 8 Matalataajuisen melun sisätilojen toimenpiderajat, niistä johdetut ulkotilojen vertailuarvot ja reseptoripisteisiin lasketut tasot tarkastelutilanteessa VE1.

Kaista [Hz]	20	25	31,5	40	50	63	80	100	125	160	200
Sisämelun toimenpideraja $L_{eq}$ [dB]	74	64	56	49	44	42	40	38	36	34	32
Toimenpiderajasta johdettu ulkotilojen vertailuarvo $L_{eq}$ [dB]	81,6	72,3	65,2	59,3	55,5	55	54,8	54,8	54,8	55,1	54,8
Reseptoripiste	Lasketut tasot										
R1	53,8	51,8	51,7	50,1	50,5	47,2	45,5	45,8	39,6	35,7	34,0
R2	53,6	51,6	51,5	49,9	50,3	47,0	45,3	45,6	39,4	35,5	33,7
R3	53,6	51,6	51,5	49,9	50,3	47,0	45,3	45,6	39,4	35,5	33,7
R4	54,4	52,3	52,3	50,7	51,1	47,8	46,1	46,4	40,3	36,4	34,7
R5	54,2	52,2	52,1	50,6	50,9	47,6	46,0	46,2	40,1	36,2	34,5
R6	53,8	51,7	51,6	50,1	50,4	47,1	45,4	45,7	39,5	35,6	33,8
R7	54,7	52,7	52,6	51,1	51,4	48,2	46,5	46,9	40,8	37,1	35,5
R8	55,5	53,4	53,4	51,8	52,2	49,0	47,3	47,7	41,7	38,0	36,5
R9	52,5	50,4	50,4	48,8	49,1	45,9	44,2	44,5	38,3	34,5	32,8
R10	55,8	53,7	53,7	52,1	52,5	49,3	47,6	48,0	41,9	38,1	36,5
R11	54,8	52,7	52,7	51,1	51,5	48,2	46,6	46,9	40,7	36,9	35,2
R12	54,5	52,4	52,4	50,8	51,1	47,9	46,2	46,5	40,4	36,5	34,8
R13	54,4	52,3	52,3	50,7	51,0	47,8	46,1	46,4	40,3	36,4	34,7
R14	54,4	52,3	52,3	50,7	51,1	47,8	46,1	46,4	40,3	36,4	34,7
R15	54,2	52,1	52,1	50,5	50,9	47,6	45,9	46,2	40,0	36,2	34,4
R16	53,7	51,7	51,6	50,1	50,4	47,1	45,4	45,7	39,5	35,6	33,8
R17	53,8	51,7	51,6	50,1	50,4	47,1	45,4	45,7	39,5	35,6	33,8
R18	53,6	51,6	51,5	49,9	50,3	47,0	45,3	45,6	39,4	35,4	33,6
R19	53,4	51,4	51,3	49,7	50,1	46,8	45,1	45,3	39,1	35,2	33,3
R20	53,6	51,5	51,5	49,9	50,2	47,0	45,3	45,5	39,4	35,5	33,7
R21	53,2	51,1	51,1	49,5	49,8	46,6	44,9	45,1	39,0	35,1	33,3
R22	52,3	50,2	50,2	48,6	48,9	45,6	43,9	44,1	37,9	33,9	32,1
R23	53,0	50,9	50,9	49,3	49,6	46,4	44,7	44,9	38,7	34,8	33,0
R24	60,3	58,2	58,2	56,7	57,1	53,9	52,4	52,9	47,0	43,7	42,5
R25	58,0	56,0	56,0	54,5	54,8	51,6	50,1	50,5	44,6	41,0	39,8

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<b>R26</b>	61,5	59,5	59,4	57,9	<b>58,3</b>	55,2	53,6	54,1	48,3	44,9	43,7
<b>R27</b>	62,2	60,2	60,2	58,7	<b>59,0</b>	55,9	54,3	54,9	49,0	45,7	44,5
<b>R28</b>	56,9	54,9	54,8	53,3	53,6	50,4	48,8	49,2	43,1	39,5	38,0
<b>R29</b>	60,9	58,9	58,9	57,4	<b>57,7</b>	54,6	53,0	53,5	47,7	44,2	43,0
<b>R30</b>	60,6	58,6	58,6	57,1	<b>57,4</b>	54,3	52,7	53,2	47,4	44,0	42,8
<b>R31</b>	58,2	56,2	56,2	54,6	55,0	51,8	50,2	50,7	44,7	41,2	39,9

Taulukko 9. Matalataajuisen melun sisätilojen toimenpiderajat, niistä johdetut ulkotilojen vertailuarvot ja reseptoripisteisiin lasketut tasot tarkastelutilanteessa VE2.

Kaista [Hz]	20	25	31,5	40	50	63	80	100	125	160	200
<b>Sisämelun toimenpideraja <math>L_{eq}</math> [dB]</b>	74	64	56	49	44	42	40	38	36	34	32
<b>Toimenpiderajasta johdettu ulkotilojen vertailuarvo <math>L_{eq}</math> [dB]</b>	<b>81,6</b>	<b>72,3</b>	<b>65,2</b>	<b>59,3</b>	<b>55,5</b>	<b>55</b>	<b>54,8</b>	<b>54,8</b>	<b>54,8</b>	<b>55,1</b>	<b>54,8</b>
<b>Reseptoripiste</b>	<b>Lasketut tasot</b>										
<b>R1</b>	50,1	48,0	47,9	46,3	46,6	43,3	41,6	41,8	35,4	31,3	29,3
<b>R2</b>	50,0	47,9	47,8	46,2	46,5	43,2	41,5	41,7	35,3	31,2	29,2
<b>R3</b>	50,1	48,0	47,9	46,3	46,6	43,3	41,6	41,8	35,4	31,4	29,3
<b>R4</b>	50,9	48,8	48,8	47,2	47,5	44,2	42,5	42,7	36,5	32,5	30,6
<b>R5</b>	50,8	48,8	48,7	47,1	47,4	44,2	42,5	42,7	36,4	32,4	30,5
<b>R6</b>	50,4	48,3	48,3	46,7	47,0	43,7	42,0	42,2	35,9	31,9	29,9
<b>R7</b>	52,3	50,2	50,2	48,6	49,0	45,7	44,1	44,4	38,2	34,4	32,7
<b>R8</b>	52,9	50,9	50,8	49,3	49,6	46,4	44,7	45,0	39,0	35,2	33,6
<b>R9</b>	51,7	49,7	49,6	48,1	48,4	45,2	43,5	43,8	37,7	34,0	32,4
<b>R10</b>	54,6	52,6	52,5	51,0	51,3	48,1	46,5	46,8	40,8	37,1	35,6
<b>R11</b>	53,5	51,5	51,4	49,9	50,2	47,0	45,3	45,6	39,5	35,7	34,1
<b>R12</b>	53,2	51,1	51,1	49,5	49,9	46,6	45,0	45,3	39,2	35,4	33,7
<b>R13</b>	53,0	51,0	50,9	49,4	49,7	46,5	44,8	45,1	39,0	35,1	33,4
<b>R14</b>	53,0	50,9	50,9	49,3	49,7	46,4	44,8	45,1	38,9	35,1	33,4
<b>R15</b>	52,8	50,7	50,7	49,1	49,4	46,2	44,5	44,8	38,7	34,8	33,1
<b>R16</b>	52,2	50,2	50,1	48,6	48,9	45,6	44,0	44,2	38,0	34,2	32,4
<b>R17</b>	52,4	50,3	50,3	48,7	49,0	45,8	44,1	44,4	38,2	34,3	32,6
<b>R18</b>	52,2	50,2	50,1	48,6	48,9	45,6	44,0	44,2	38,0	34,2	32,4

<b>R19</b>	52,1	50,0	50,0	48,4	48,7	45,5	43,8	44,0	37,8	33,9	32,1
<b>R20</b>	51,7	49,7	49,6	48,1	48,4	45,1	43,4	43,7	37,5	33,6	31,7
<b>R21</b>	51,0	49,0	48,9	47,3	47,7	44,4	42,7	42,9	36,7	32,7	30,8
<b>R22</b>	51,1	49,0	49,0	47,4	47,7	44,5	42,8	43,0	36,9	33,0	31,3
<b>R23</b>	48,7	46,6	46,5	44,9	45,2	41,9	40,1	40,2	33,7	29,5	27,2
<b>R24</b>	50,3	48,2	48,2	46,6	46,9	43,6	41,9	42,1	35,8	31,8	29,8
<b>R25</b>	50,9	48,8	48,7	47,2	47,5	44,2	42,5	42,7	36,5	32,5	30,5
<b>R26</b>	52,6	50,5	50,5	48,9	49,3	46,0	44,3	44,6	38,5	34,7	33,0
<b>R27</b>	54,8	52,8	52,8	51,2	51,6	48,4	46,8	47,1	41,1	37,5	36,0
<b>R28</b>	53,7	51,6	51,6	50,0	50,4	47,1	45,5	45,8	39,7	36,0	34,4
<b>R29</b>	54,9	52,9	52,8	51,3	51,6	48,4	46,8	47,2	41,1	37,5	35,9
<b>R30</b>	54,7	52,7	52,6	51,1	51,4	48,2	46,6	47,0	41,0	37,3	35,9
<b>R31</b>	54,3	52,3	52,2	50,7	51,0	47,8	46,2	46,5	40,5	36,8	35,3

## 4.2. Melun vaikutusalue

Tuulivoimaloiden aiheuttamat meluvaikutukset eivät rajoitu ohjearvot ylittäviin melutasoihin, sillä voimaloiden melu saattaa olla kuultavissa jo matalammilla 20–40 dBA melutasoilla. Tuulivoimaloiden melupäästö kasvaa tuulen nopeuden kasvaessa tiettyyn pisteeseen asti, minkä jälkeen tuulen nopeuden kasvaessa melupäästö ei enää kasva. Tämä mallinnus on tehty maksimimelupäästöllä ja edustaa siten normaalin toiminnan pahinta mahdollista tilannetta.

Tuulivoimamelun erottumiseen taustamelusta vaikuttaa merkittävästi taustamelun määrä. Jos sekä ylhäällä voimalan lapojen korkeudella että alhaalla havainnointipaikassa tuulen nopeus on suuri, voimaloiden melu peittyy helposti taustameluun (tuulen aiheuttamat äänet puissa, kasveissa yms.). Tilanteessa, jossa voimaloiden lapojen korkeudella tuulee, mutta maanpinnan lähellä ei, voimaloiden melu todennäköisesti erottuu selvemmin taustamelusta ja saattaa kuulostaa voimakkaammalta.

Tuulen nopeuden lisäksi tuulivoimaloiden aiheuttamaan meluun vaikuttaa merkittävästi tuulen suunta. Laskentamalli on ns. myötätuulimalli eli sillä arvioidut laskentatulokset pätevät olosuhteissa, joissa tuulen suunta on melukohteesta arvioitavaan kohteeseen. Lisäksi laskentamallissa tuulen suunnan oletetaan olevan jokaisesta äänilähteestä joka suuntaan. Pinta-alaltaan suurissa "äänilähteissä" (esimerkiksi tuulivoimapuisto tai iso tehdasalue) tämä voi aiheuttaa melun lievää yliarviointia.

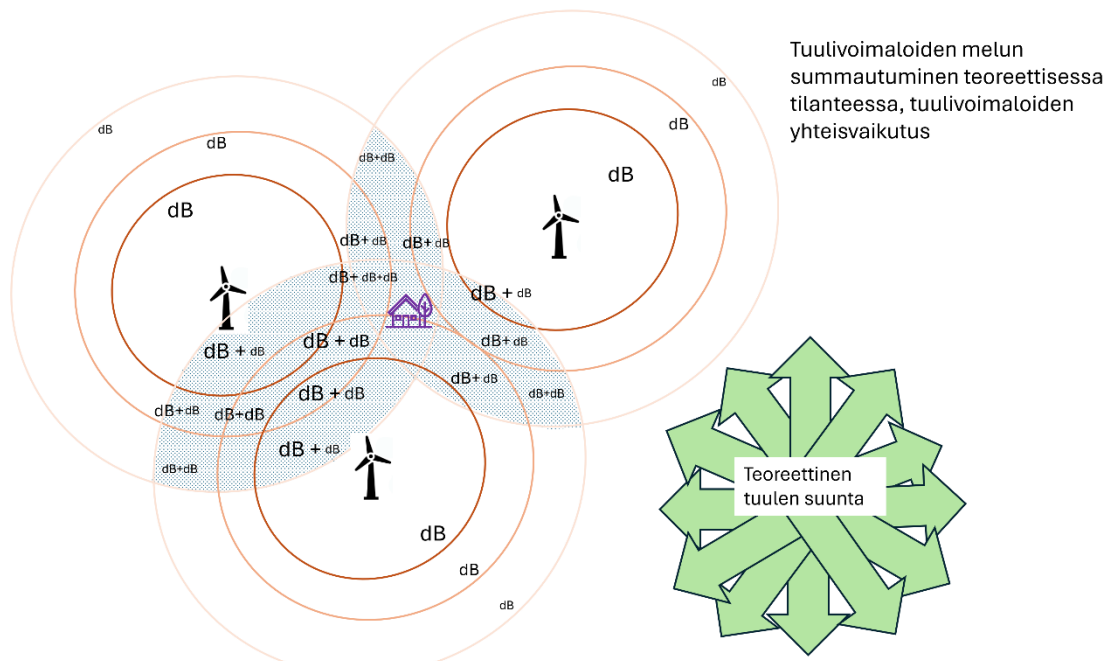
Todellisuudessa tuulivoimaloiden melu suuntautuu voimaloista merkittävimmin myötätuulen suuntaan.

## 5. Lautamäen ja läheisten tuulivoimapuistojen yhteisvaikutusten arviointi

### 5.1. Tuulivoimaloiden aiheuttaman melun summautuminen

#### 5.1.1. Tuulivoimaloiden aiheuttaman melun summautumisen periaate

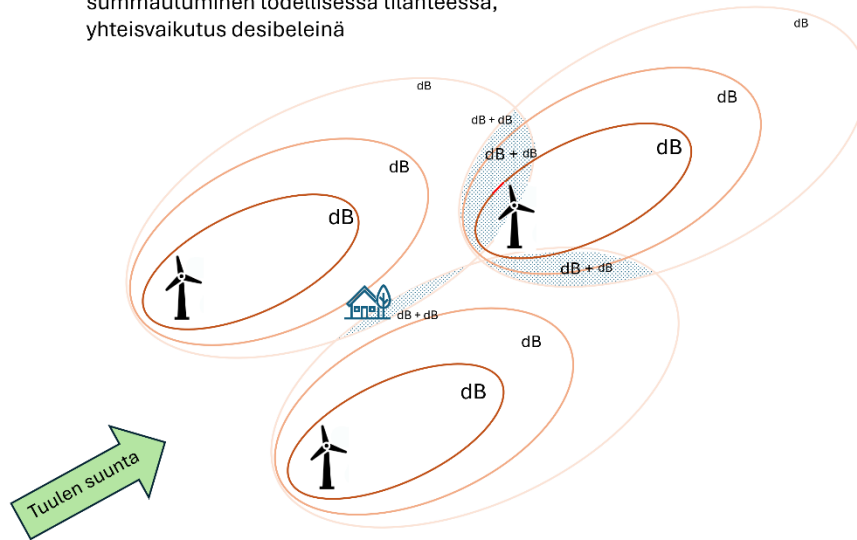
Tuulivoimalapuistojen yhteisvaikutuksia tarkastellaan tässä kappaleessa äänenpainetasojen summautumisena. Tämä tarkastelu on useissa tapauksissa puhtaasti teoreettinen, koska todellisessa tilanteessa melutasojen summautumista ei tapahdu. Tässä tapauksessa laskennallinen tarkastelu yliarvio summautumisen vaikutuksia (Kuva 5.1). Eri tuulivoimalapuistojen melu voi summautua todellisuudessa tietyissä tilanteissa, jotka riippuvat tuulivoimaloiden sijainnista ja vallitsevasta tuulen suunnasta (Kuva 5.2).



Kuva 5.1 Melutasojen summautuminen tuulivoimaloiden melun yhteisvaikutusten arvioinnissa. Varjostetut alueet esittävät alueita, joissa laskennalliset melutasot summautuvat.

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Tuulivoimaloiden melun eteneminen ja  
summautuminen todellisessa tilanteessa,  
yhteisvaikutus desibeleinä



Kuva 5.2 Melutasojen summautuminen todellisessa tilanteessa. Varjostetut alueet esittävät alueita, joissa laskennalliset melutasot summautuvat.

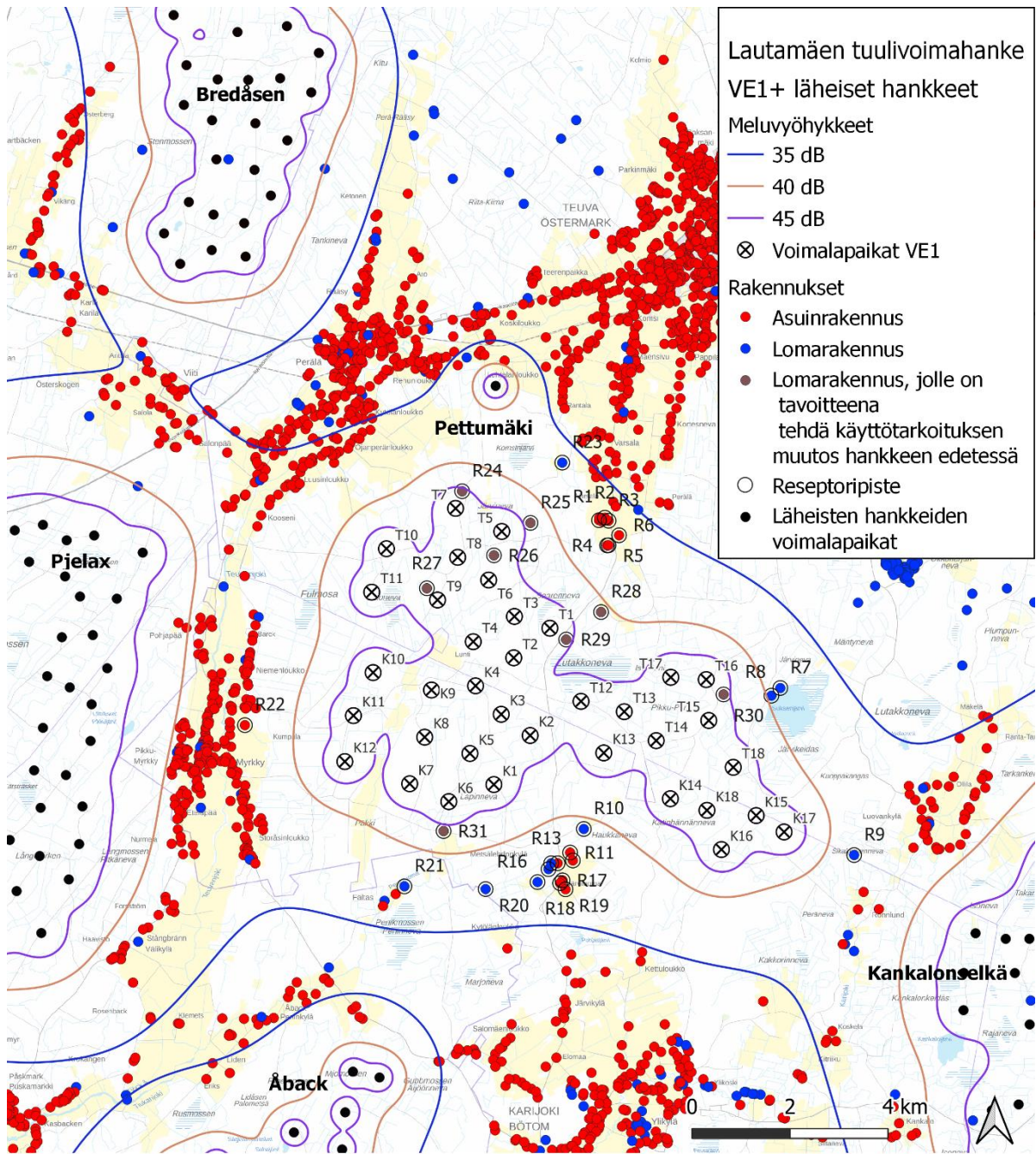
### 5.1.2. Tuulivoimaloiden melutasojen laskennallinen summautuminen

Lautamäen hankealueen läheisyydessä sijaitsee Pejalaxin, Pettumäen, Kankalonselän, Åbackan, Bredåsen, Paskoonharjun ja Paulakankaan tuulivoimahankkeet. Etäisyys Lautamäen ja viereisten voimaloiden välillä on lyhimmillään noin 5000 metriä, jolloin yhteisvaikutukset ovat mahdollisia.

Yhteisvaikutusten mallinnuksessa läheisten hankkeiden tuulivoimaloiden melupäästönä on käytetty kyseisten hankkeiden meluselvityksissä ilmoitettuja päästötietoja.

Laskennallisen melumallinnuksen A-painotetut keskiäänitasovyöhykkeet VE1+Läheiset tuulivoimapaistot on esitetty kuvassa Kuva 5.3 ja VE2+ Läheiset tuulivoimapaistot kuvassa Kuva 5.4.

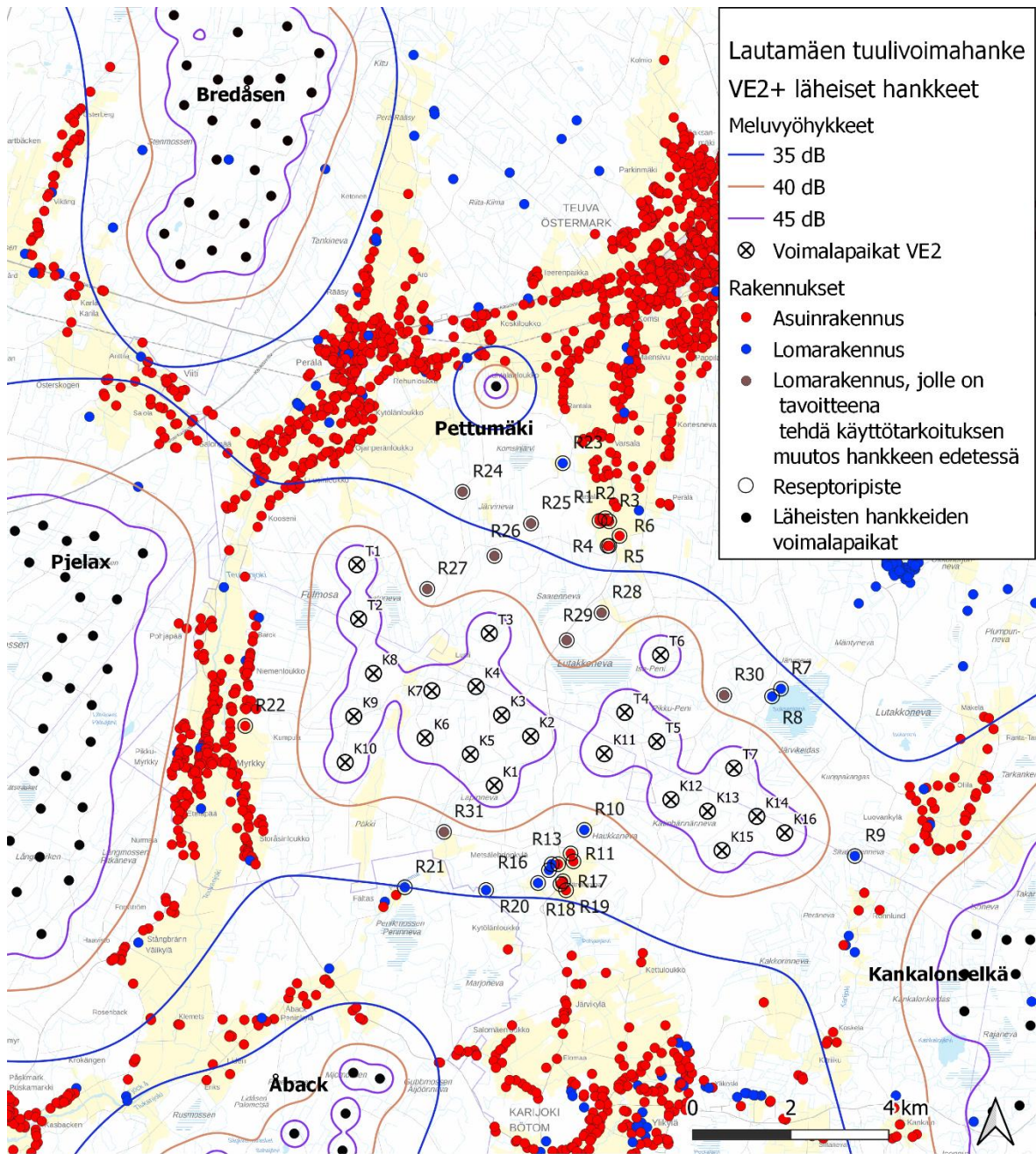
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Tulostettu 29/04/2026, VK.  
Lähteet: rakennukset: MML  
Pohjakartta © Maanmittauslaitos

Kuva 5.3 Tuulivoimaloiden aiheuttamat meluvyöhykkeet vaihtoehdossa VE1 + läheiset tuulivoimapaistot.

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Tulostettu 29/04/2026, VK.  
Lähteet: rakennukset: MML  
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Kuva 5.4 Tuulivoimaloiden aiheuttamat meluvyöhykkeet vaihtoehdossa VE2 + läheiset tuulivoimapuistot.

Mallinnuksen perusteella VE1+ Läheiset tuulivoimapuistot yhteisvaikutusten aiheuttaman 35–40 dB (A) keskiäänitasovyöhykkeen sisälle jää lukuisia asuin- ja lomarakennuksia Myrkyin alueella, sekä noin 20 asuin- ja lomarakennusta Rönnlundin alueella. VE2 + Läheiset tuulivoimapuistot yhteisvaikutusten aiheuttaman 35–40 dB (A) keskiäänitasovyöhykkeen sisälle jää samaiset asuin- ja lomarakennukset Myrkyin ja Rönnlundin alueella kuin vaihtoehdossa VE1. Vaihtoehdossa VE1 40 dB (A) keskiäänitasovyöhykkeen jää

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samaiset 8 lomarakennusta(R24-R31) kuin Lautamäen mallinuksissa. Vaihtoehdossa VE1 pienitaajuuden melun (20–200 Hz) ylittävät ulkoalueiden vertailuarvoja (taulukot 11 ja 12) näissä rakennuksissa. Reseptiopisteissä melutasot nousevat noin 0,5–2 dB yhteisvai-  
kutusten johdosta.

Laskentatulokset on yllimitoitu, sillä tuulivoimaloiden melu suuntautuu voimaloista merkittä-  
vimmin myötätuulen suuntaan (vertaa kuvia 5.1 ja 5.2). Hankealueiden välialueella kuuluu  
todellisuudessa tuulivoimaloiden ääntä useammin kahden hankkeen toteutuessa, kuin  
vain yhden hankkeen tapauksessa. mutta hetkellisesti kuultavissa oleva melu ei ole kovem-  
paa, koska se kantautuu kerrallaan vain toisen hankkeen suunnasta.

Taulukko 10. Tuulivoimaloiden aiheuttamat keskiäänitasot reseptiopisteissä R1-R31 tarkastelutilanteissa VE1  
ja VE2 yhdessä läheisten tuulivoimaloiden kanssa.

Reseptoripiste	LAeq [dB]	
	VE1+Läheiset hankkeet	VE2+Läheiset hankkeet
R1	37	33
R2	36	33
R3	36	33
R4	37	34
R5	37	34
R6	37	33
R7	39	36
R8	39	37
R9	38	38
R10	39	39
R11	38	37
R12	38	37
R13	38	37
R14	38	37
R15	37	36
R16	37	36
R17	37	36
R18	37	36
R19	36	35
R20	37	35
R21	37	35
R22	38	38

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<b>R23</b>	<b>36</b>	<b>32</b>
<b>R24</b>	<b>46</b>	<b>34</b>
<b>R25</b>	<b>43</b>	<b>34</b>
<b>R26</b>	<b>47</b>	<b>36</b>
<b>R27</b>	<b>48</b>	<b>39</b>
<b>R28</b>	<b>41</b>	<b>37</b>
<b>R29</b>	<b>46</b>	<b>39</b>
<b>R30</b>	<b>46</b>	<b>39</b>
<b>R31</b>	<b>43</b>	<b>39</b>

Taulukko 11. Matalataajuisen melun sisätilojen toimenpiderajat, niistä johdetut ulkotilojen vertailuarvot ja reseptoripisteisiin lasketut tasot tarkastelutilanteessa VE1+ läheiset voimat.

Kaista [Hz]	20	25	31,5	40	50	63	80	100	125	160	200
<b>Sisämelun toimenpideraja <math>L_{eq}</math> [dB]</b>	74	64	56	49	44	42	40	38	36	34	32
<b>Toimenpiderajasta johdettu ulkotilojen vertailuarvo <math>L_{eq}</math> [dB]</b>	<b>81,6</b>	<b>72,3</b>	<b>65,2</b>	<b>59,3</b>	<b>55,5</b>	<b>55</b>	<b>54,8</b>	<b>54,8</b>	<b>54,8</b>	<b>55,1</b>	<b>54,8</b>
<b>Reseptoripiste</b>	<b>Lasketut tasot</b>										
<b>R1</b>	55,8	53,7	53,6	52,0	52,2	48,9	47,1	47,1	40,7	36,6	34,6
<b>R2</b>	55,7	53,5	53,4	51,8	52,1	48,7	46,9	47,0	40,5	36,4	34,3
<b>R3</b>	55,6	53,5	53,4	51,8	52,1	48,7	46,9	47,0	40,5	36,3	34,3
<b>R4</b>	56,1	54,0	53,9	52,3	52,6	49,2	47,4	47,5	41,2	37,1	35,1
<b>R5</b>	56,0	53,9	53,8	52,2	52,4	49,1	47,3	47,4	41,0	36,9	34,9
<b>R6</b>	55,7	53,5	53,5	51,8	52,1	48,7	46,9	47,0	40,6	36,4	34,3
<b>R7</b>	56,3	54,2	54,1	52,5	52,8	49,5	47,7	47,9	41,6	37,7	35,9
<b>R8</b>	56,8	54,7	54,7	53,1	53,4	50,1	48,4	48,6	42,4	38,5	36,8
<b>R9</b>	56,0	53,8	53,8	52,2	52,5	49,1	47,4	47,5	41,2	37,1	35,2
<b>R10</b>	57,1	54,9	54,9	53,3	53,6	50,3	48,6	48,7	42,5	38,6	36,8
<b>R11</b>	56,4	54,2	54,2	52,6	52,8	49,5	47,8	47,9	41,6	37,5	35,6
<b>R12</b>	56,1	54,0	54,0	52,3	52,6	49,3	47,5	47,6	41,3	37,2	35,2
<b>R13</b>	56,1	54,0	53,9	52,3	52,6	49,2	47,4	47,5	41,2	37,1	35,1
<b>R14</b>	56,1	54,0	53,9	52,3	52,6	49,2	47,5	47,6	41,2	37,1	35,2
<b>R15</b>	56,0	53,9	53,8	52,2	52,4	49,1	47,3	47,4	41,0	36,9	34,9

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<b>R16</b>	55,7	53,6	53,5	51,9	52,1	48,8	47,0	47,0	40,6	36,5	34,4
<b>R17</b>	55,7	53,5	53,5	51,8	52,1	48,8	46,9	47,0	40,6	36,4	34,4
<b>R18</b>	55,6	53,5	53,4	51,8	52,0	48,7	46,9	46,9	40,5	36,3	34,2
<b>R19</b>	55,5	53,3	53,3	51,6	51,9	48,5	46,7	46,8	40,3	36,1	34,0
<b>R20</b>	55,7	53,6	53,5	51,9	52,2	48,8	47,0	47,1	40,7	36,5	34,5
<b>R21</b>	55,8	53,7	53,6	52,0	52,2	48,9	47,1	47,1	40,7	36,5	34,5
<b>R22</b>	56,8	54,7	54,6	53,0	53,3	49,9	48,1	48,3	41,9	37,7	35,7
<b>R23</b>	55,6	53,5	53,4	51,8	52,1	48,7	46,9	47,0	40,5	36,4	34,3
<b>R24</b>	60,9	58,9	58,8	57,3	<b>57,6</b>	54,4	52,8	53,3	47,3	43,9	42,7
<b>R25</b>	59,0	56,9	56,9	55,3	<b>55,6</b>	52,4	50,7	51,1	45,0	41,4	40,0
<b>R26</b>	61,9	59,9	59,8	58,3	<b>58,7</b>	<b>55,5</b>	53,9	54,3	48,4	45,0	43,8
<b>R27</b>	62,6	60,5	60,5	59,0	<b>59,3</b>	<b>56,2</b>	54,6	<b>55,1</b>	49,2	45,7	44,6
<b>R28</b>	57,9	55,8	55,8	54,2	54,5	51,2	49,5	49,8	43,6	39,8	38,2
<b>R29</b>	61,3	59,3	59,3	57,7	<b>58,1</b>	54,9	53,3	53,7	47,8	44,3	43,1
<b>R30</b>	61,0	59,0	59,0	57,4	<b>57,8</b>	54,6	53,0	53,4	47,5	44,1	42,9
<b>R31</b>	59,1	57,0	57,0	55,4	<b>55,8</b>	52,5	50,9	51,2	45,2	41,5	40,1

Taulukko 12. Matalataajuisten melun sisätilojen toimenpiderajat, niistä johdetut ulkotilojen vertailuarvot ja reseptoripisteisiin lasketut tasot tarkastelutilanteessa VE2+ läheiset voimat.

Kaista [Hz]	20	25	31,5	40	50	63	80	100	125	160	200
<b>Sisämelun toimenpideraja <math>L_{eq}</math> [dB]</b>	74	64	56	49	44	42	40	38	36	34	32
<b>Toimenpiderajasta johdettu ulkotilojen vertailuarvo <math>L_{eq}</math> [dB]</b>	<b>81,6</b>	<b>72,3</b>	<b>65,2</b>	<b>59,3</b>	<b>55,5</b>	<b>55</b>	<b>54,8</b>	<b>54,8</b>	<b>54,8</b>	<b>55,1</b>	<b>54,8</b>
<b>Reseptoripiste</b>	<b>Lasketut tasot</b>										
<b>R1</b>	53,8	51,6	51,5	49,8	50,1	46,6	44,7	44,6	37,9	33,4	30,9
<b>R2</b>	53,7	51,6	51,5	49,8	50,0	46,6	44,7	44,5	37,8	33,3	30,8
<b>R3</b>	53,7	51,6	51,5	49,8	50,0	46,6	44,7	44,6	37,9	33,3	30,9
<b>R4</b>	54,1	51,9	51,8	50,2	50,4	47,0	45,1	45,0	38,4	34,0	31,7
<b>R5</b>	54,0	51,9	51,8	50,1	50,4	46,9	45,0	45,0	38,4	33,9	31,6
<b>R6</b>	53,8	51,7	51,6	49,9	50,1	46,7	44,8	44,7	38,1	33,6	31,2
<b>R7</b>	54,7	52,6	52,5	50,9	51,2	47,8	46,0	46,1	39,6	35,5	33,5
<b>R8</b>	55,1	53,0	52,9	51,3	51,6	48,2	46,4	46,5	40,2	36,1	34,2

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<b>R9</b>	55,6	53,5	53,5	51,9	52,1	48,8	47,0	47,2	40,9	36,9	35,0
<b>R10</b>	56,2	54,1	54,0	52,4	52,7	49,4	47,7	47,9	41,6	37,7	35,9
<b>R11</b>	55,5	53,4	53,3	51,7	52,0	48,6	46,8	46,9	40,6	36,5	34,6
<b>R12</b>	55,3	53,2	53,1	51,5	51,7	48,4	46,6	46,7	40,3	36,2	34,3
<b>R13</b>	55,2	53,1	53,0	51,4	51,7	48,3	46,5	46,6	40,2	36,1	34,1
<b>R14</b>	55,2	53,1	53,0	51,4	51,7	48,3	46,5	46,6	40,2	36,1	34,1
<b>R15</b>	55,1	52,9	52,9	51,2	51,5	48,2	46,3	46,4	40,0	35,8	33,8
<b>R16</b>	54,8	52,7	52,6	50,9	51,2	47,8	46,0	46,0	39,6	35,3	33,2
<b>R17</b>	54,8	52,7	52,6	51,0	51,2	47,9	46,1	46,1	39,6	35,4	33,3
<b>R18</b>	54,8	52,6	52,5	50,9	51,2	47,8	46,0	46,0	39,5	35,3	33,2
<b>R19</b>	54,7	52,5	52,4	50,8	51,1	47,7	45,8	45,9	39,4	35,1	33,0
<b>R20</b>	54,7	52,5	52,5	50,8	51,1	47,7	45,9	45,9	39,4	35,1	32,9
<b>R21</b>	54,7	52,6	52,5	50,9	51,1	47,7	45,9	45,9	39,3	35,0	32,8
<b>R22</b>	56,4	54,3	54,2	52,6	52,9	49,5	47,8	47,9	41,5	37,4	35,4
<b>R23</b>	53,8	51,6	51,5	49,9	50,1	46,7	44,7	44,6	37,9	33,4	31,0
<b>R24</b>	54,6	52,4	52,4	50,7	51,0	47,6	45,7	45,6	39,1	34,7	32,4
<b>R25</b>	54,4	52,2	52,2	50,5	50,7	47,3	45,5	45,4	38,8	34,4	32,1
<b>R26</b>	55,2	53,1	53,0	51,4	51,7	48,3	46,5	46,6	40,1	36,0	33,9
<b>R27</b>	56,7	54,6	54,6	53,0	53,3	50,0	48,2	48,4	42,2	38,3	36,6
<b>R28</b>	55,6	53,4	53,4	51,8	52,0	48,7	46,9	47,0	40,7	36,7	34,8
<b>R29</b>	56,4	54,3	54,3	52,7	53,0	49,7	47,9	48,1	41,9	38,0	36,3
<b>R30</b>	56,2	54,1	54,1	52,5	52,8	49,5	47,7	47,9	41,7	37,8	36,2
<b>R31</b>	56,3	54,1	54,1	52,5	52,8	49,5	47,7	47,9	41,6	37,6	35,9

## 5.2. Tuulivoimalapuistojen yhteisvaikutukset havaittavien melutapahtumien esiintymistiheyksiin

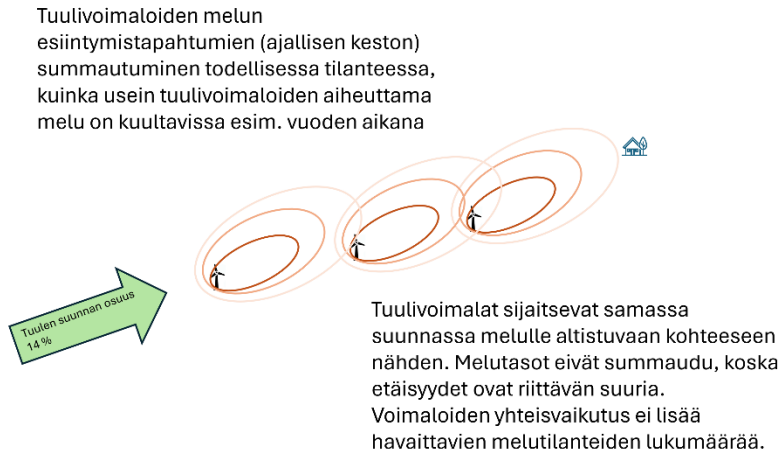
### 5.2.1. Melutapahtumien esiintymistiheyksien summautumisen periaate

Tuulivoimaloiden aiheuttaman melun esiintymistiheys saattaa kasvaa eri tuulivoimala-alueiden yhteisvaikutuksesta. Tällä esiintymistiheyden kasvulla tarkoitetaan käytännössä tilannetta, jossa tuulivoimaloita sijaitsee eri puolilla tarkasteltavaa kohdetta. Tällöin tuulivoimaloiden melu on useammin kuultavissa kohteessa kuin tilanteessa, jossa tarkastellaan vain yhden tuulivoimalapuiston vaikutuksia.

Kuvissa Kuva 5.5 ja Kuva 5.6 esitetään periaate melun esiintymistiheydestä kahdelle erilaiselle tilanteelle. Kuvassa Kuva 5.5 tuulivoimalat sijoittuvat tarkasteltavaan kohteesta

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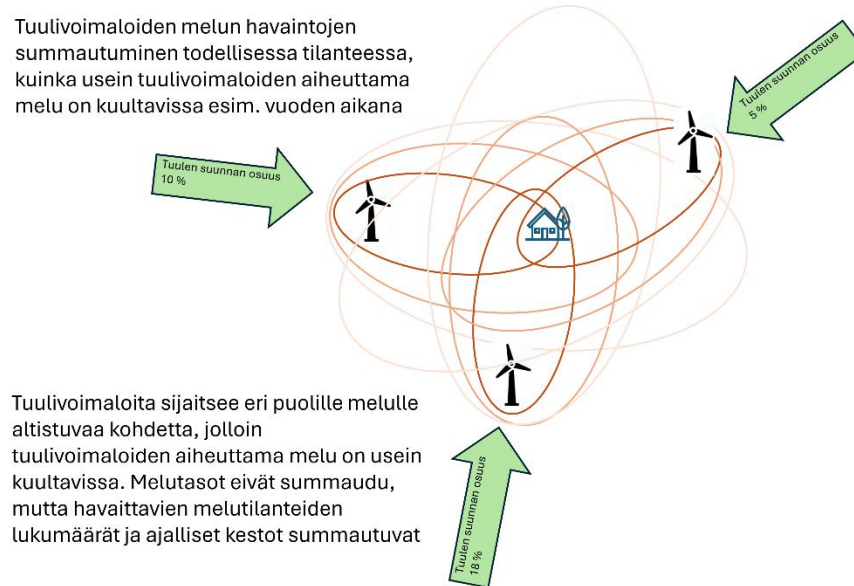
nähdessä samaan suuntaan. Tässä tilanteessa melutasojen summautuminen on mahdollista, mutta melun esiintymistiheyteen useammalla voimalalla ei ole vaikutusta.



Kuva 5.5 Periaatekuva tuulivoimaloiden sijainnin vaikutuksesta meluhavaintojen esiintymistiheyteen tilanteessa, jossa tuulivoimalat sijaitsevat samassa suunnassa melulle altistuvaan kohteeseen nähden. Tuulivoimaloiden aiheuttaman melun ajallinen esiintymistiheys on 14 %.

Kuvassa Kuva 5.6 esitetään vastaava periaatteellinen tarkastelu tilanteelle, jossa tuulivoimaloita sijaitsee eri puolilla melulle altistuvaa kohdetta. Tässä tilanteessa kuultavan melun ajallinen esiintymistiheys muodostuu eri suunnissa sijaitsevien tuulivoimaloiden tuulen suuntaosuuksien summana.

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Kuva 5.6 Periaatekuva tuulivoimaloiden sijainnin vaikutuksesta meluhavaintojen esiintymistiheyteen tilanteessa, jossa tuulivoimalat sijaitsevat eri puolilla melulle altistuvaa kohdetta. Tuulivoimaloiden aiheuttaman melun ajallinen esiintymistiheys on 33 % (=10 % + 5 % + 18 %).

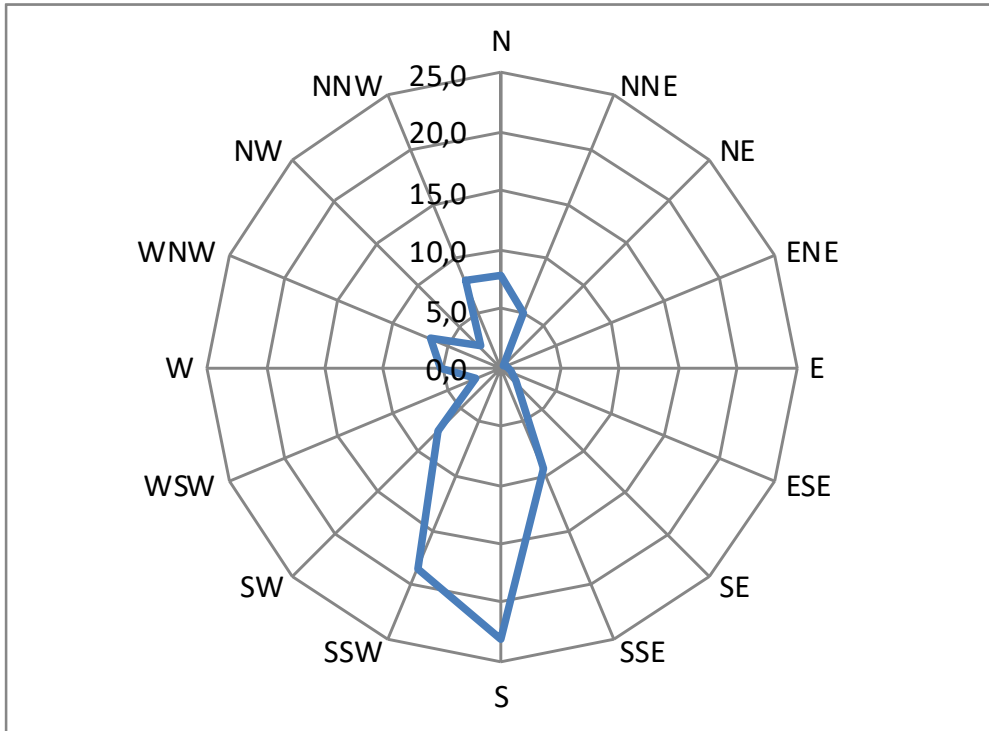
### 5.2.2. Tuulivoimalapuistojen yhteisvaikutukset melun esiintymistiheyksiin

Tuulivoima-alueen vallitsevat tuulen suunnat ovat etelästä (23 %), etelä-lounaasta (18 %), etelä-kaakosta (9 %), pohjois-luoteesta (8 %) ja lännenluoteesta (6 %). Tuulihavainnot perustuvat vuoden 2025 tuulitilastoihin, jolloin keskituulen nopeus on ollut yli 5 m/s (arvio tuulen nopeudesta, kun tuulivoimaloiden aiheuttama melu on tasolla jolloin, tuulivoimaloiden melu on vielä kuultavissa) (Kuva 5.7).

Tuulitietojen ja alueella sijaitsevien tuulivoimaloiden sijaintien perusteella yhteisvaikutukset ovat mahdollisia erityisesti Myrkyin, Rönnlundin ja Rehunluokon alueella.

Yhteisvaikutusten johdosta tuulivoimapuistojen melun esiintymistiheydet kasvavat Myrkyin alueella noin 22 %, Rönnlundin alueella noin 13 % ja Rehuluokon alueella noin 11 %.

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Kuva 5.7 Vuoden 2025 tuulihavainnot Lautamäen alueelta.

## 6. Vaikutusten lieventäminen

Ohje- ja raja-arvojen alla olevien tasojen on katsottu aiheuttavan hyväksyttäviä meluvaikutuksia, joten niiden vaikutuksia ei ole tarpeen erikseen lieventää. Mikäli tuulivoimapuiston käyttöönoton jälkeen syntyy epäily liian suurista melutasoista tai melun kapeakaistaisuudesta tai impulssimaisuudesta, on melutasoja ja melun erityisominaisuuksia mahdollista todentaa mittauksin. Mikäli melun todetaan mittauksin ylittävän sallittuja ohje- tai raja-arvoja, voidaan yksittäisiä voimaloita ohjelmoinnilla pysäyttää tai rajoittaa tietyissä tuulen suunta- ja nopeusolosuhteissa.

## 7. Arvioinnin epävarmuus

Selvityksessä äänitehotason taajuusjakaumaan on lisätty varmuusarvo 2 dB, joten käytetty epävarmuus on sen verran suuri, että mallinnuksen tuloksia voidaan pitää luotettavana.

Laajan mittauskokemuksemme mukaan tuulivoimaloiden mitatut keskiäänitasot ovat yleensä mallinnettujen keskiäänitasojen tasalla tai alle. Mitatut pienitaajuuden melun tasot ovat yleensä selvästi alle mallinnettujen tasojen. Mittauksissa todetut mallinnustuloksia suuremmat tasot ovat johtuneet lyhytkestoisista poikkeustilanteista, kuten voimaloiden laajojen jäätymisestä.

Oulussa ja Tampereella 29.4.2026

29.4.2026

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WSP Finland Oy

Laatinut:

Ville-Veikko Kyllönen  
Meluasiantuntija  
Akustiikka ja melu

Tarkastanut:

Ilkka Niskanen  
Projektijohtaja  
Akustiikka ja melu

## Viitteet

- 1) Tuulivoimaloiden melun mallintaminen, Ympäristöhallinnon ohjeita 2/2014
- 2) Valtioneuvoston asetus tuulivoimaloiden ulkomelutason ohjearvoista. Asetus 1107/2015
- 3) Sosiaali- ja terveysministeriön asetus asunnon ja muun oleskelutilan terveydellisistä olosuhteista sekä ulkopuolisten asiantuntijoiden pätevyysvaatimuksista. Asetus 545/2015
- 4) Hongisto V., Radun J., Rajala V., Maula H., Keränen J. ja Saarinen P. 2020. Raportti. Miksi ympäristömelu häiritsee? Anojanssi-projektin loppuraportti

## Liitteet

- 1) Melun leviämismallinnuksen tulokset

Project:

319110\_Lautamäki\_YVA

Licensed user:

WSP Finland Oy / WSP Finland Ltd.

Pasilan Asema-aukio 1

FI-00520 Helsinki

+358 2078 6411

Julia Turku / julia.turku@wsp.com

Calculated:

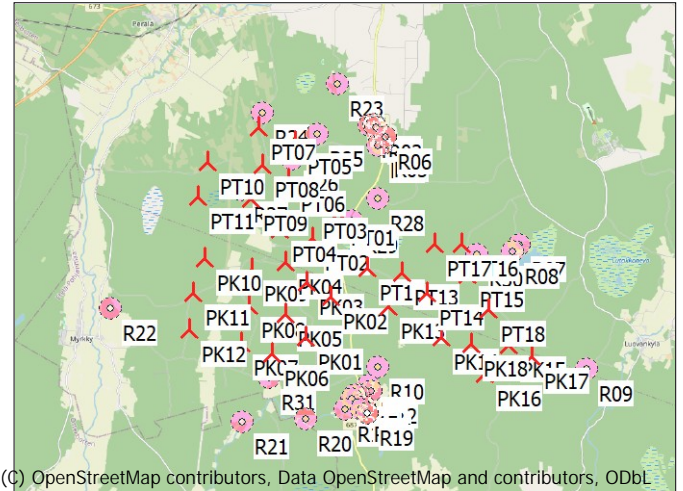
21.4.2026 14.30/4.2.285

## DECIBEL - Main Result

Calculation: Copy of Lautamäki melu VE1 uusi

Calculation is done according to Finnish guideline " Ympäristöhallinnon ohjeita 2 | 2014" from the Ministry of the Environment of Finland

All coordinates are in  
Finish TM ETRS-TM35FIN-ETRS89



Scale 1:200 000

New WTG

Noise sensitive area

## WTGs

	East	North	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.	Type-generator				Creator	Name			
PK01	224 674	6 927 880	53,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK02	225 419	6 928 888	71,4	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK03	224 825	6 929 323	70,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK04	224 298	6 929 908	67,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK05	224 183	6 928 518	61,0	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK06	223 749	6 927 529	50,3	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK07	222 946	6 927 896	65,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK08	223 254	6 928 853	70,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK09	223 394	6 929 822	64,0	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK10	222 195	6 930 180	73,0	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK11	221 791	6 929 296	66,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK12	221 615	6 928 352	62,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK13	226 930	6 928 530	78,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK14	228 297	6 927 589	73,3	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK15	230 058	6 927 243	91,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK16	229 345	6 926 545	78,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK17	230 631	6 926 906	116,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PK18	229 048	6 927 350	77,8	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT01	225 824	6 931 091	80,5	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT02	225 082	6 930 483	86,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT03	225 096	6 931 333	80,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT04	224 251	6 930 815	71,0	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT05	224 836	6 933 079	69,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT06	224 567	6 932 081	81,5	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT07	223 888	6 933 553	80,8	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT08	223 931	6 932 548	80,3	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT09	223 518	6 931 671	69,5	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT10	222 469	6 932 724	71,3	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT11	222 167	6 931 832	73,0	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT12	226 463	6 929 589	72,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT13	227 350	6 929 377	79,2	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT14	228 006	6 928 782	77,5	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT15	229 085	6 929 196	88,1	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT16	229 033	6 930 036	90,9	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT17	228 306	6 930 083	80,4	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g
PT18	229 588	6 928 234	91,7	NORDEX N163/6.X 6800 163..... No		NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g

g) Data calculated from data for other wind speed (uncertain)

## Calculation Results

## DECIBEL - Main Result

Calculation: Copy of Lautamäki melu VE1 uusi

### Sound level

Noise sensitive area

No.	Name	East	North	Z	Immission height	From WTGs	Uncertainty margin	WTG+Uncertainty margin	2 dB penalty applied for one or more WTGs
					[m]	[dB(A)]	[dB]	[dB(A)]	
R01	Noise sensitive point: Finnish normal frequency - User defined (58)	226 831	6 933 348	61,0	4,0	34,1	2,0	36,1	No
R02	Noise sensitive point: Finnish normal frequency - User defined (59)	226 950	6 933 365	59,2	4,0	33,8	2,0	35,8	No
R03	Noise sensitive point: Finnish normal frequency - User defined (60)	227 021	6 933 297	58,1	4,0	33,7	2,0	35,7	No
R04	Noise sensitive point: Finnish normal frequency - User defined (61)	227 000	6 932 793	63,7	4,0	34,8	2,0	36,8	No
R05	Noise sensitive point: Finnish normal frequency - User defined (62)	227 106	6 932 798	62,9	4,0	34,6	2,0	36,6	No
R06	Noise sensitive point: Finnish normal frequency - User defined (63)	227 242	6 933 003	61,0	4,0	33,8	2,0	35,8	No
R07	Noise sensitive point: Finnish normal frequency - User defined (64)	230 553	6 929 857	98,1	4,0	36,0	2,0	38,0	No
R08	Noise sensitive point: Finnish normal frequency - User defined (65)	230 367	6 929 703	98,3	4,0	37,1	2,0	39,1	No
R09	Noise sensitive point: Finnish normal frequency - User defined (66)	232 062	6 926 422	112,7	4,0	33,4	2,0	35,4	No
R10	Noise sensitive point: Finnish normal frequency - User defined (67)	226 525	6 926 964	62,9	4,0	36,8	2,0	38,8	No
R11	Noise sensitive point: Finnish normal frequency - User defined (68)	226 226	6 926 485	60,4	4,0	35,3	2,0	37,3	No
R12	Noise sensitive point: Finnish normal frequency - User defined (69)	226 288	6 926 314	58,4	4,0	34,9	2,0	36,9	No
R13	Noise sensitive point: Finnish normal frequency - User defined (70)	225 975	6 926 261	59,3	4,0	34,8	2,0	36,8	No
R14	Noise sensitive point: Finnish normal frequency - User defined (71)	225 848	6 926 257	59,1	4,0	34,8	2,0	36,8	No
R15	Noise sensitive point: Finnish normal frequency - User defined (72)	225 775	6 926 147	56,9	4,0	34,5	2,0	36,5	No
R16	Noise sensitive point: Finnish normal frequency - User defined (73)	225 568	6 925 885	55,3	4,0	33,8	2,0	35,8	No
R17	Noise sensitive point: Finnish normal frequency - User defined (74)	226 081	6 925 918	58,0	4,0	33,8	2,0	35,8	No
R18	Noise sensitive point: Finnish normal frequency - User defined (75)	226 021	6 925 845	57,8	4,0	33,6	2,0	35,6	No
R19	Noise sensitive point: Finnish normal frequency - User defined (76)	226 143	6 925 729	57,0	4,0	33,3	2,0	35,3	No
R20	Noise sensitive point: Finnish normal frequency - User defined (77)	224 503	6 925 724	52,7	4,0	33,8	2,0	35,8	No
R21	Noise sensitive point: Finnish normal frequency - User defined (78)	222 838	6 925 787	39,5	4,0	33,5	2,0	35,5	No
R22	Noise sensitive point: Finnish normal frequency - User defined (88)	219 560	6 929 092	33,4	4,0	32,3	2,0	34,3	No
R23	Noise sensitive point: Finnish normal frequency - User defined (79)	226 076	6 934 488	60,4	4,0	33,2	2,0	35,2	No
R24	Noise sensitive point: Finnish normal frequency - User defined (80)	224 030	6 933 901	73,9	4,0	44,0	2,0	46,0	No
R25	Noise sensitive point: Finnish normal frequency - User defined (81)	225 437	6 933 245	83,5	4,0	41,0	2,0	43,0	No
R26	Noise sensitive point: Finnish normal frequency - User defined (82)	224 719	6 932 622	79,9	4,0	45,2	2,0	47,2	No
R27	Noise sensitive point: Finnish normal frequency - User defined (83)	223 298	6 931 904	72,7	4,0	46,0	2,0	48,0	No
R28	Noise sensitive point: Finnish normal frequency - User defined (84)	226 873	6 931 422	70,2	4,0	38,5	2,0	40,5	No
R29	Noise sensitive point: Finnish normal frequency - User defined (85)	226 155	6 930 851	75,5	4,0	44,3	2,0	46,3	No
R30	Noise sensitive point: Finnish normal frequency - User defined (86)	229 383	6 929 720	93,0	4,0	44,3	2,0	46,3	No
R31	Noise sensitive point: Finnish normal frequency - User defined (87)	223 642	6 926 920	44,3	4,0	41,2	2,0	43,2	No

### Distances (m)

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
PK01	5873	5933	5898	5431	5482	5725	6197	5973	7524	2063	2085	2247	2075	2001	2051	2184	2412	2438	2602	2161	2782	5250
PK02	4674	4727	4687	4209	4255	4496	5220	5010	7080	2217	2533	2714	2683	2663	2761	3004	3040	3099	3238	3291	4031	5857
PK03	4493	4562	4536	4092	4153	4399	5748	5550	7790	2905	3162	3343	3268	3229	3312	3514	3626	3674	3825	3610	4053	5265
PK04	4268	4353	4343	3949	4026	4268	6250	6067	8503	3688	3925	4104	4011	3963	4037	4215	4366	4409	4564	4185	4368	4803
PK05	5503	5576	5553	5115	5178	5424	6503	6291	8146	2808	2880	3045	2879	2805	2853	2972	3216	3241	3406	2809	3042	4654
PK06	6579	6650	6625	6181	6242	6487	7185	6960	8379	2830	2686	2812	2560	2452	2450	2450	2832	2826	2992	1954	1964	4466
PK07	6689	6772	6759	6351	6423	6667	7849	7631	9226	3695	3567	3694	3439	3330	3323	3301	3704	3693	3859	2670	2110	3587
PK08	5739	5827	5820	5432	5509	5750	7361	7157	9129	3774	3797	3952	3755	3667	3695	3760	4072	4083	4251	3366	3091	3698
PK09	4920	5015	5018	4668	4753	4988	7153	6968	9303	4235	4373	4543	4394	4324	4375	4493	4735	4762	4926	4241	4070	3899
PK10	5610	5718	5739	5465	5560	5778	8357	8178	10549	5389	5463	5625	5440	5356	5388	5456	5763	5777	5944	5013	4436	2848
PK11	6461	6564	6579	6268	6359	6586	8772	8578	10656	5272	5246	5391	5164	5064	5074	5085	5456	5454	5622	4480	3658	2238
PK12	7216	7314	7320	6974	7059	7294	9056	8848	10614	5098	4970	5093	4831	4719	4704	4655	5082	5065	5228	3901	2839	2182
PK13	4815	4831	4764	4260	4268	4480	3855	3629	5543	1616	2161	2305	2460	2515	2646	2973	2744	2832	2907	3707	4922	7384
PK14	5937	5926	5844	5358	5339	5511	3196	2956	3938	1878	2345	2377	2672	2785	2902	3215	2773	2864	2843	4224	5744	8857
PK15	6899	6860	6767	6331	6286	6405	2658	2478	2164	3541	3903	3880	4196	4320	4417	4687	4188	4268	4194	5754	7359	10649
PK16	7246	7222	7135	6667	6636	6785	3522	3317	2718	2849	3117	3063	3379	3506	3589	3831	3320	3393	3301	4907	6546	10101
PK17	7473	7428	7334	6910	6860	6969	2949	2807	1509	4103	4421	4380	4696	4822	4910	5161	4652	4726	4636	6236	7866	11274
PK18	6389	6365	6278	5810	5779	5929	2922	2695	3151	2550	2949	2946	3257	3378	3484	3773	3291	3377	3324	4823	6398	9637
PT01	2469	2535	2507	2067	2133	2378	4883	4746	7785	4182	4620	4795	4828	4830	4940	5208	5175	5245	5367	5522	6082	6569
PT02	3354	3431	3414	3000	3072	3316	5502	5337	8068	3800	4155	4336	4312	4291	4387	4620	4669	4728	4866	4790	5200	5689
PT03	2657	2748	2747	2397	2485	2717	5648	5512	8516	4593	4974	5154	5143	5127	5225	5464	5499	5560	5696	5635	5983	5966
PT04	3613	3710	3716	3384	3473	3703	6369	6211	8954	4468	4755	4936	4865	4825	4906	5098	5223	5271	5421	5092	5218	4992
PT05	2011	2131	2193	2181	2285	2405	6557	6474	9816	6338	6733	6913	6906	6890	6989	7225	7262	7323	7458	7356	7554	6607
PT06	2592	2704	2736	2533	2636	2827	6380	6263	9383	5474	5832	6013	5983	5958	6050	6271	6341	6397	6539	6351	6521	5826
PT07	2948	3065	3140	3201	3302	3396	7614	7530	10838	7091	7438	7619	7578	7548	7636	7843	7937	7990	8135	7846	7830	6209
PT08	3006	3125	3176	3076	3182	3339	7142	7030	10171	6151	6477	6658	6605	6570	6655	6855	6964	7015	7162	6841	6843	5567
PT09	3710	3824	3858	3655	3757	3952	7259	7120	10019	5580	5845	6025	5937	5889	5962	6133	6293	6335	6490	6022	5918	4719

To be continued on next page...

## DECIBEL - Main Result

Calculation: Copy of Lautamäki melu VE1 uusi

...continued from previous page

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
PT10	4403	4522	4583	4527	4633	4777	8570	8448	11468	7038	7276	7454	7346	7290	7354	7502	7698	7735	7894	7283	6940	4649
PT11	4900	5018	5065	4923	5028	5204	8608	8464	11267	6528	6707	6880	6742	6674	6727	6845	7086	7114	7277	6533	6077	3778
PT12	3774	3804	3746	3246	3270	3498	4095	3902	6427	2623	3110	3277	3361	3385	3507	3807	3688	3766	3870	4330	5249	6914
PT13	4001	4004	3930	3431	3427	3624	3236	3032	5557	2548	3100	3239	3403	3460	3590	3917	3681	3770	3839	4627	5761	7788
PT14	4711	4699	4617	4131	4112	4285	2762	2532	4689	2343	2903	3004	3234	3318	3449	3783	3448	3541	3573	4646	5968	8443
PT15	4720	4680	4587	4154	4107	4226	1609	1378	4066	3394	3937	4013	4272	4368	4496	4826	4442	4536	4543	5744	7111	9516
PT16	3974	3924	3829	3422	3365	3462	1529	1374	4711	3962	4523	4621	4854	4938	5069	5403	5062	5156	5182	6249	7506	9511
PT17	3579	3548	3459	3005	2966	3105	2256	2094	5240	3589	4152	4271	4473	4543	4675	5008	4718	4810	4857	5780	6948	8793
PT18	5805	5764	5672	5238	5191	5310	1887	1662	3064	3313	3786	3815	4113	4227	4343	4652	4199	4289	4256	5666	7174	10055

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
PK01	6749	6050	5414	4738	4249	4165	3317	5051	1408
PK02	5633	5197	4353	3795	3684	2919	2095	4047	2649
PK03	5310	4643	3966	3297	2996	2930	2024	4571	2676
PK04	4909	3999	3522	2744	2231	2984	2081	5084	3056
PK05	6257	5381	4886	4135	3497	3955	3052	5332	1686
PK06	7331	6373	5954	5180	4394	4987	4098	6040	618
PK07	7291	6097	5895	5043	4020	5273	4358	6684	1198
PK08	6296	5103	4900	4040	3049	4434	3519	6184	1970
PK09	5377	4125	3982	3095	2082	3826	2944	5984	2910
PK10	5793	4145	4457	3509	2045	4835	4013	7196	3564
PK11	6726	5116	5369	4427	3009	5504	4628	7597	3009
PK12	7579	6046	6203	5274	3927	6083	5177	7880	2480
PK13	6013	6099	4941	4647	4953	2890	2445	2724	3658
PK14	7241	7612	6332	6169	6598	4085	3899	2390	4699
PK15	8260	8974	7568	7572	8204	5250	5311	2565	6418
PK16	8582	9067	7749	7630	8073	5463	5354	3173	5710
PK17	8837	9610	8188	8216	8867	5870	5961	3076	6983
PK18	7725	8245	6907	6815	7329	4612	4538	2392	5418
PT01	3403	3331	2186	1886	2651	1099	408	3810	4703
PT02	4123	3573	2782	2167	2279	2020	1133	4364	3840
PT03	3301	2778	1940	1341	1885	1777	1162	4576	4642
PT04	4098	3091	2701	1865	1446	2689	1903	5243	3939
PT05	1875	1150	623	472	1934	2623	2587	5648	6268
PT06	2838	1896	1451	561	1280	2396	2007	5359	5239
PT07	2377	376	1578	1247	1750	3664	3524	6694	6632
PT08	2890	1356	1658	791	902	3147	2795	6136	5630
PT09	3802	2286	2479	1530	320	3361	2759	6175	4748
PT10	4012	1953	3010	2250	1165	4588	4131	7531	5916
PT11	4722	2782	3559	2669	1132	4719	4103	7512	5124
PT12	4910	4947	3794	3495	3918	1877	1298	2920	3880
PT13	5263	5607	4311	4173	4771	2098	1896	2060	4444
PT14	6018	6476	5145	5050	5644	2870	2774	1665	4740
PT15	6082	6900	5445	5544	6384	3136	3362	603	5894
PT16	5340	6317	4815	5025	6026	2564	2989	471	6221
PT17	4933	5728	4266	4390	5324	1960	2282	1135	5630
PT18	7166	7931	6501	6548	7276	4184	4313	1499	6084

Project:  
319110\_Lautamäki\_YVA

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Calculated:  
21.4.2026 14.30/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Copy of Lautamäki melu VE1 uusi

Noise calculation model:

ISO 9613-2:2024 Finland

Wind speed (at 10 m height):

8,0 m/s

Ground attenuation:

General, Ground factor: 0,4

Meteorological coefficient, CO:

Selected option: Fixed value: 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 tones penalty is added to total noise impact at receptors

Noise sensitive area

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

Uncertainty margin:

Uncertainty added to source noise level of the WTGs in the calculation

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0,0 dB(A)

Octave data required

Input parameters for calculation of air absorption:

Temperature 15,0 °C

Relative humidity 70,0 %

Pressure 101,325 kPa

Frequency dependent 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	1,1	2,4	4,1	8,7	26,4	93,7

All coordinates are in

Finish TM ETRS-TM35FIN-ETRS89

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: N163/6.X\_R02 HH164\_STE STE Mode 1

Source Source/Date Creator Edited

NORDEX 6.12.2021 USER 6.12.2021 9.07

F008\_277\_A06\_R02, F008\_277\_A12\_R02, F008\_277\_A13\_R02, F008\_277\_A14\_R02, F008\_277\_A15\_R02, F008\_277\_A17\_R02, F008\_277\_A19\_R02, F008\_277\_A20\_R02

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones No	Octave data							
						63	125	250	500	1000	2000	4000	8000
						[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
Interpolated	210,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8

Noise sensitive area: R01 Noise sensitive point: Finnish normal frequency - User defined (58)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R02 Noise sensitive point: Finnish normal frequency - User defined (59)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R03 Noise sensitive point: Finnish normal frequency - User defined (60)

No noise demand

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Copy of Lautamäki melu VE1 uusi

Noise sensitive area: R04 Noise sensitive point: Finnish normal frequency - User defined (61)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R05 Noise sensitive point: Finnish normal frequency - User defined (62)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R06 Noise sensitive point: Finnish normal frequency - User defined (63)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R07 Noise sensitive point: Finnish normal frequency - User defined (64)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R08 Noise sensitive point: Finnish normal frequency - User defined (65)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R09 Noise sensitive point: Finnish normal frequency - User defined (66)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R10 Noise sensitive point: Finnish normal frequency - User defined (67)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R11 Noise sensitive point: Finnish normal frequency - User defined (68)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R12 Noise sensitive point: Finnish normal frequency - User defined (69)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R13 Noise sensitive point: Finnish normal frequency - User defined (70)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R14 Noise sensitive point: Finnish normal frequency - User defined (71)

No noise demand

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Copy of Lautamäki melu VE1 uusi

Noise sensitive area: R15 Noise sensitive point: Finnish normal frequency - User defined (72)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R16 Noise sensitive point: Finnish normal frequency - User defined (73)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R17 Noise sensitive point: Finnish normal frequency - User defined (74)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R18 Noise sensitive point: Finnish normal frequency - User defined (75)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R19 Noise sensitive point: Finnish normal frequency - User defined (76)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R20 Noise sensitive point: Finnish normal frequency - User defined (77)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R21 Noise sensitive point: Finnish normal frequency - User defined (78)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R22 Noise sensitive point: Finnish normal frequency - User defined (88)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R23 Noise sensitive point: Finnish normal frequency - User defined (79)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R24 Noise sensitive point: Finnish normal frequency - User defined (80)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R25 Noise sensitive point: Finnish normal frequency - User defined (81)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Project:  
319110\_Lautamäki\_YVA

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Calculated:  
21.4.2026 14.30/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Copy of Lautamäki melu VE1 uusi

Noise sensitive area: R26 Noise sensitive point: Finnish normal frequency - User defined (82)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R27 Noise sensitive point: Finnish normal frequency - User defined (83)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R28 Noise sensitive point: Finnish normal frequency - User defined (84)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R29 Noise sensitive point: Finnish normal frequency - User defined (85)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R30 Noise sensitive point: Finnish normal frequency - User defined (86)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R31 Noise sensitive point: Finnish normal frequency - User defined (87)

No noise demand

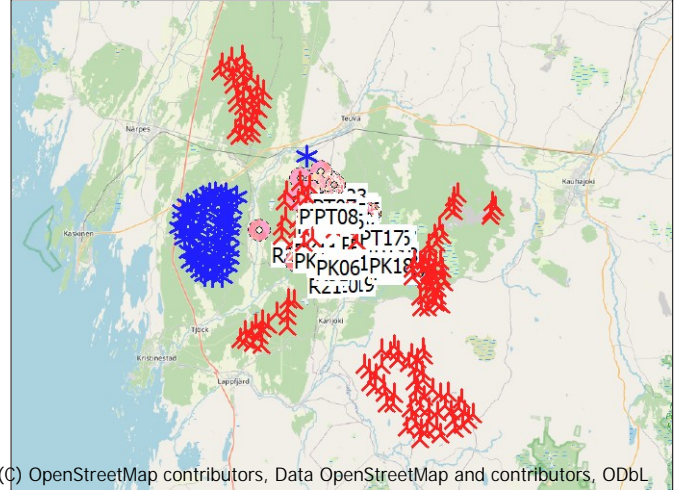
No distance demand  
Pure tone penalty: 0 dB

## DECIBEL - Main Result

### Calculation: Lautamäki melu VE1 yhteisvaikutukset

Calculation is done according to Finnish guideline " Ympäristöhallinnon ohjeita 2 | 2014" from the Ministry of the Environment of Finland

All coordinates are in  
Finish TM ETRS-TM35FIN-ETRS89



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:750 000  
 New WTG  
 Noise sensitive area  
 Existing WTG

### WTGs

	East	North	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LWA,ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.	Type-generator				Creator	Name			
			[m]												
100	230 558	6 912 686	92,6	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
101	230 567	6 912 020	90,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
102	231 566	6 911 745	96,8	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
103	230 662	6 910 917	87,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
104	231 404	6 910 851	90,8	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
105	233 534	6 915 510	112,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
106	233 230	6 914 683	109,3	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
107	234 076	6 915 025	125,5	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
108	234 875	6 915 358	128,1	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
109	234 808	6 916 062	126,4	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
110	233 952	6 914 227	120,4	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
111	234 485	6 913 732	120,8	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
112	234 552	6 912 952	120,5	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
113	233 629	6 912 886	118,3	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
114	233 962	6 912 087	118,1	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
115	233 658	6 911 155	114,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
116	234 552	6 911 250	113,0	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
117	235 445	6 911 963	118,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
118	236 149	6 911 383	111,0	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
119	233 097	6 910 195	107,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
120	234 086	6 910 233	109,3	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
121	234 827	6 910 071	105,7	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
122	236 986	6 911 469	111,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
123	236 501	6 910 261	111,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
124	235 731	6 909 539	105,0	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
125	234 732	6 908 768	102,7	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
126	233 059	6 909 329	105,0	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
127	232 564	6 908 293	97,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
128	233 439	6 908 512	98,7	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
129	233 981	6 907 979	98,1	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
130	234 561	6 907 865	100,1	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
131	235 521	6 908 188	105,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
132	237 043	6 909 577	112,2	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
133	237 956	6 909 900	120,4	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
134	238 222	6 910 642	121,5	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
135	238 498	6 909 510	131,6	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
136	239 268	6 909 149	129,6	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
137	238 754	6 908 635	127,4	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
138	238 117	6 908 169	117,9	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
139	237 205	6 908 635	106,3	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
140	237 328	6 907 903	108,5	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
141	235 835	6 907 333	104,6	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
142	233 772	6 907 047	96,0	VESTAS V162 5600 162,0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
143	218 236	6 938 576	35,5	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
144	218 883	6 938 859	49,9	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
145	219 579	6 938 725	50,4	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
146	218 920	6 939 588	53,0	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
147	217 904	6 939 202	35,4	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
148	218 413	6 939 846	50,8	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
149	218 979	6 940 722	60,3	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
150	220 097	6 939 978	69,9	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
151	219 761	6 940 507	66,3	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
152	220 435	6 941 112	86,2	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
153	220 926	6 942 098	89,3	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
154	219 779	6 941 463	78,2	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0 h
155	220 287	6 942 388	83,2	NORDEX N163/6.X 6800 163,0 IO...No	No	NORDEX	N163/6.X-6 800								

## DECIBEL - Main Result

## Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

	East	North	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA.ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.					Creator	Name			
				[m]											
164	218 086	6 944 470	49,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
165	218 574	6 945 308	53,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
166	219 113	6 943 922	58,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
167	219 911	6 944 279	63,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
168	220 426	6 943 459	69,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
169	217 809	6 945 436	47,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
170	218 129	6 946 394	41,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
171	219 354	6 944 957	62,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
172	219 405	6 945 725	58,5	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
173	219 194	6 946 455	57,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
174	217 201	6 945 902	45,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
175	216 892	6 945 124	46,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
176	219 549	6 939 412	55,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	190,0	USER	Bredåsen	8,0	106,4	0,0	h
177	239 454	6 931 126	147,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
178	239 074	6 930 759	153,3	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
179	238 846	6 930 228	149,9	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
180	238 488	6 929 761	146,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
181	238 907	6 929 430	131,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
182	242 870	6 930 086	132,2	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
183	243 080	6 929 473	146,2	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
184	242 602	6 929 156	132,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
185	242 524	6 928 659	144,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
186	224 711	6 936 070	68,4	LAGERWEY L82-2.3MW 2300 82.0...Yes	LAGERWEY	L82-2.3MW-2 300	2 300	82,0	100,0	USER	Level 0 - Calculated - Standard L82-2.3MW - 08-2015	8,0	103,7	0,0	h
187	211 879	6 930 909	29,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
188	211 992	6 931 693	31,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
189	212 257	6 930 704	31,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
190	211 658	6 930 064	22,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
191	212 004	6 929 605	36,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
192	212 577	6 929 589	45,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
193	213 465	6 929 787	53,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
194	212 845	6 929 161	48,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
195	211 949	6 928 883	43,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
196	214 190	6 928 730	55,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
197	213 930	6 927 830	57,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
198	213 357	6 927 216	60,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
199	212 386	6 926 676	51,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
200	212 363	6 927 541	51,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
201	212 940	6 927 613	60,5	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
202	213 778	6 930 498	57,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
203	213 062	6 931 339	46,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
204	212 529	6 932 360	46,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
205	212 959	6 932 067	51,6	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
206	213 499	6 932 574	55,5	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
207	214 174	6 932 172	52,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
208	214 839	6 933 102	47,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
209	215 418	6 933 215	48,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
210	215 905	6 932 897	55,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
211	214 191	6 931 385	48,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
212	214 372	6 932 224	53,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
213	215 135	6 932 455	51,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
214	215 873	6 932 155	66,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
215	216 470	6 932 996	61,6	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
216	217 466	6 932 644	61,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
217	216 935	6 931 698	67,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
218	216 179	6 931 742	66,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
219	216 442	6 930 950	78,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
220	215 807	6 930 906	64,0</												

Project:

319110\_Lautamäki\_YVA

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Calculated:

24.4.2026 18.50/4.2.285

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

	East	North	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA.ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.					Creator	Name			
60	236 229	6 926 320	117,6	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
61	236 845	6 927 197	115,1	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
62	237 631	6 927 157	119,8	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
63	236 952	6 926 489	121,4	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
64	235 665	6 924 712	123,5	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
65	237 319	6 927 961	119,8	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
66	234 562	6 924 825	109,8	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
67	234 321	6 924 009	105,7	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
68	234 314	6 923 245	103,0	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
69	237 245	6 924 580	124,8	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
70	234 926	6 920 219	105,6	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
71	234 897	6 921 188	103,7	VESTAS V172-7.2 7200 250.0 IOI ...Yes	VESTAS	V172-7.2-7 200	7 200	250.0	225.0	USER	PO7200 - 2024-11	8,0	106,9	2,0	i
72	216 627	6 918 471	32,7	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
73	217 217	6 918 287	20,9	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
74	217 914	6 918 033	22,6	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
75	218 745	6 917 761	21,4	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
76	217 217	6 919 231	30,5	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
77	217 863	6 919 009	23,2	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
78	218 675	6 918 737	35,2	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
79	218 288	6 919 796	27,5	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
80	219 024	6 919 339	40,3	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
81	218 979	6 920 100	36,9	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
82	219 613	6 919 656	34,8	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
83	220 570	6 920 734	39,7	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
84	221 445	6 919 345	53,0	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
85	221 559	6 920 385	53,2	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
86	221 623	6 921 146	50,1	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
87	222 326	6 921 862	57,6	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
88	221 781	6 921 983	47,6	VESTAS V162-7.2 7200 162.0 IOI ...Yes	VESTAS	V162-7.2-7 200	7 200	162.0	149.0	USER	PO7200 - 2024-10	8,0	104,3	0,0	i
89	230 596	6 916 280	76,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
90	231 908	6 916 613	84,6	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
91	231 442	6 915 900	93,7	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
92	232 336	6 915 995	99,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
93	232 193	6 915 120	109,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
94	230 510	6 914 807	86,3	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
95	228 789	6 914 864	71,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
96	229 274	6 914 360	78,1	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
97	229 864	6 913 865	81,1	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
98	229 198	6 913 114	77,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
99	229 702	6 912 610	86,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
PK01	224 674	6 927 880	53,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK02	225 419	6 928 888	71,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK03	224 825	6 929 323	70,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK04	224 298	6 929 908	67,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK05	224 183	6 928 518	61,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK06	223 749	6 927 529	50,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK07	222 946	6 927 896	65,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK08	223 254	6 928 853	70,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK09	223 394	6 929 822	64,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK10	222 195	6 930 180	73,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK11	221 791	6 929 296	66,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK12	221 615	6 928 352	62,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK13	226 930	6 928 530	78,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK14	228 297	6 927 589	73,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK15	230 058	6 927 243	91,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK16	229 345	6 926 545	78,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163.0	210.0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

### Sound level

No.	Name	East	North	Z	Immission height	Demands Noise	Sound level			2 dB penalty applied for one or more WTGs	
							From WTGs	Uncertainty margin	WTG+Uncertainty margin		
						[dB(A)]	[dB(A)]	[dB]	[dB(A)]		
R01	Noise sensitive point: Finnish normal frequency - User defined (89)	226 831	6 933 348	61,0	[m]	4,0	0,0	34,8	1,9	36,7	No
R02	Noise sensitive point: Finnish normal frequency - User defined (90)	226 950	6 933 365	59,2	[m]	4,0	0,0	34,5	1,9	36,4	No
R03	Noise sensitive point: Finnish normal frequency - User defined (91)	227 021	6 933 297	58,1	[m]	4,0	0,0	34,5	1,9	36,4	No
R04	Noise sensitive point: Finnish normal frequency - User defined (92)	227 000	6 932 793	63,7	[m]	4,0	0,0	35,4	1,9	37,4	No
R05	Noise sensitive point: Finnish normal frequency - User defined (93)	227 106	6 932 798	62,9	[m]	4,0	0,0	35,2	1,9	37,1	No
R06	Noise sensitive point: Finnish normal frequency - User defined (94)	227 242	6 933 003	61,0	[m]	4,0	0,0	34,6	1,9	36,5	No
R07	Noise sensitive point: Finnish normal frequency - User defined (95)	230 553	6 929 857	98,1	[m]	4,0	0,0	36,6	2,0	38,5	No
R08	Noise sensitive point: Finnish normal frequency - User defined (96)	230 367	6 929 703	98,3	[m]	4,0	0,0	37,6	2,0	39,5	No
R09	Noise sensitive point: Finnish normal frequency - User defined (97)	232 062	6 926 422	112,7	[m]	4,0	0,0	35,8	2,0	37,8	No
R10	Noise sensitive point: Finnish normal frequency - User defined (98)	226 525	6 926 964	62,9	[m]	4,0	0,0	37,3	2,0	39,3	No
R11	Noise sensitive point: Finnish normal frequency - User defined (99)	226 226	6 926 485	60,4	[m]	4,0	0,0	36,0	1,9	38,0	No
R12	Noise sensitive point: Finnish normal frequency - User defined (100)	226 288	6 926 314	58,4	[m]	4,0	0,0	35,7	1,9	37,6	No
R13	Noise sensitive point: Finnish normal frequency - User defined (101)	225 975	6 926 261	59,3	[m]	4,0	0,0	35,6	1,9	37,5	No
R14	Noise sensitive point: Finnish normal frequency - User defined (102)	225 848	6 926 257	59,1	[m]	4,0	0,0	35,6	1,9	37,5	No
R15	Noise sensitive point: Finnish normal frequency - User defined (103)	225 775	6 926 147	56,9	[m]	4,0	0,0	35,4	1,9	37,3	No
R16	Noise sensitive point: Finnish normal frequency - User defined (104)	225 568	6 925 885	55,3	[m]	4,0	0,0	34,9	1,9	36,8	No
R17	Noise sensitive point: Finnish normal frequency - User defined (105)	226 081	6 925 918	58,0	[m]	4,0	0,0	34,8	1,9	36,7	No
R18	Noise sensitive point: Finnish normal frequency - User defined (106)	226 021	6 925 845	57,8	[m]	4,0	0,0	34,7	1,9	36,6	No
R19	Noise sensitive point: Finnish normal frequency - User defined (107)	226 143	6 925 729	57,0	[m]	4,0	0,0	34,4	1,9	36,3	No
R20	Noise sensitive point: Finnish normal frequency - User defined (108)	224 503	6 925 724	52,7	[m]	4,0	0,0	35,0	1,9	36,8	No
R21	Noise sensitive point: Finnish normal frequency - User defined (109)	222 838	6 925 787	39,5	[m]	4,0	0,0	34,9	1,8	36,8	No
R22	Noise sensitive point: Finnish normal frequency - User defined (110)	219 560	6 929 092	33,4	[m]	4,0	0,0	35,9	1,9	37,9	No
R23	Noise sensitive point: Finnish normal frequency - User defined (111)	226 076	6 934 488	60,4	[m]	4,0	0,0	34,3	1,8	36,1	No
R24	Noise sensitive point: Finnish normal frequency - User defined (112)	224 030	6 933 901	73,9	[m]	4,0	0,0	44,1	2,0	46,1	No
R25	Noise sensitive point: Finnish normal frequency - User defined (113)	225 437	6 933 245	83,5	[m]	4,0	0,0	41,2	2,0	43,1	No
R26	Noise sensitive point: Finnish normal frequency - User defined (114)	224 719	6 932 622	79,9	[m]	4,0	0,0	45,3	2,0	47,3	No
R27	Noise sensitive point: Finnish normal frequency - User defined (115)	223 298	6 931 904	72,7	[m]	4,0	0,0	46,0	2,0	48,0	No
R28	Noise sensitive point: Finnish normal frequency - User defined (116)	226 873	6 931 422	70,2	[m]	4,0	0,0	38,8	2,0	40,8	No
R29	Noise sensitive point: Finnish normal frequency - User defined (117)	226 155	6 930 851	75,5	[m]	4,0	0,0	44,4	2,0	46,4	No
R30	Noise sensitive point: Finnish normal frequency - User defined (118)	229 383	6 929 720	93,0	[m]	4,0	0,0	44,4	2,0	46,4	No
R31	Noise sensitive point: Finnish normal frequency - User defined (119)	223 642	6 926 920	44,3	[m]	4,0	0,0	41,4	2,0	43,4	No

### Distances (m)

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
100	20977	20973	20894	20401	20389	20567	17156	17004	13806	14823	14450	14269	14315	14352	14273	14098	13956	13907	13758	14363	15193	19733
101	21633	21630	21551	21058	21046	21225	17821	17669	14467	15467	15088	14907	14949	14985	14904	14725	14591	14540	14392	14972	15774	20294
102	22097	22088	22007	21519	21502	21674	18125	17983	14673	16018	15664	15482	15542	15584	15509	15346	15184	15138	14986	15649	16519	21077
103	22735	22732	22654	22160	22149	22329	18923	18772	15554	16557	16173	15992	16029	16063	15980	15797	15671	15619	15472	16023	16788	21278
104	22937	22930	22850	22360	22345	22520	19009	18865	15572	16821	16455	16273	16324	16363	16285	16113	15966	15917	15767	16382	17203	21729
105	19039	19014	18926	18460	18429	18573	14641	14530	11001	13417	13174	12998	13131	13201	13154	13069	12790	12766	12601	13622	14820	19469
106	19714	19692	19605	19135	19106	19257	15395	15278	11787	13980	13712	13533	13651	13716	13663	13560	13305	13276	13113	14061	15195	19843
107	19686	19658	19570	19108	19075	19216	15231	15127	11564	14114	13878	13703	13839	13911	13866	13784	13500	13477	13312	14344	15546	20195
108	19689	19657	19566	19114	19076	19208	15116	15024	11406	14285	14081	13908	14062	14139	14102	14039	13730	13713	13546	14651	15913	20552
109	19022	18988	18897	18447	18408	18538	14424	14334	10709	13680	13490	13319	13481	13561	13527	13475	13153	13139	12971	14115	15410	20039
110	20387	20362	20274	19808	19777	19922	15982	15873	12331	14732	14477	14300	14426	14493	14443	14348	14082	14055	13891	14870	16023	20672
111	21038	21011	20923	20640	20627	20569	16583	16480	12908	15428	15180	15004	15132	15201	15152	15060	14790	14764	14600	15589	16748	21397
112	21789	21763	21675	21211	21179	21323	17356	17251	13686	16134	15875	15697	15819	15885	15833	15733	15474	15446	15282	16237	17361	22008
113	21543	21522	21436	20964	20936	21088	17233	17116	13615	15755	15470	15291	15397	15457	15399	15282	15047	15014	14853	15738	16805	21442
114	22405	22384	22298	21826	21798	21950	18078	17964	14448	16618	16330	16151	16255	16314	16256	16137	15905	15871	15710	16582	17632	22264
115	23199	23181	23095	22619	22594	22750	18942	18822	15337	17328	17021	16841	16932	16987	16923	16790	16579	16542	16383	17192	18182	22793
116	23387	23365	23278	22808	22779	22928	19015	18906	15362	17630	17346	17167	17273	17333	17275	17157	16923	16890	16729	17605	18653	23283
117	23035	23006	22917	22457	22423	22562	18535	18437	14837	17438	17186	17009	17135	17202	17152	17055	16791	16764	16600	17566	18693	23340
118	23839	23808	23719	23262	23226	23362	19286	19195	15571	18298	18054	17878	18008	18077	18028	17936	17666	17640	17475	18458	19595	24243
119	23965	23951	23867	23386	23364	23527	19809	19682	16246	17995	17664	17483	17558	17607	17537	17388	17202	17161	17005	17733	18648	23224
120	24206	24187	24101	23626	23600	23755	19923	19806	16301	18344	18037	17857	17948	18002	17938	17804	17594	17557	17398	18200	19178	23783
121	24591	24569	24482	24011	23982	24133	20225	20115	16569	18807	18515	18335	18436	18494	18433	18309	18084	18050	17889	18735	19750	24368
122	24100	24066	23975	23526	23487	23615	19464	19382	15730	18680	18457	18283	18424	18497	18454	18374	18086	18065	17899	18932	20111	24761
123	25008	24979	24889	24432	24396	24533	20461	20370	16745	19438	19187	19010	19135	19202	19151	19053	18791	18764	18599	19555	20664	25307
124	25396	25371	25283	24818	24786	24931	20950	20848	17263	19691	19413	19234	19343	19404	19347	19231	18994	18962	18800	19682	20724	25351
125	25796	25776	25690	25216	25189	25343	21480	21367	17839	19944	19636	19455	19545	19599	19534	19399	19191	19154	18995	19785	20745	25339
126	24791	24778	24695	24212	24191	24356	20662	20533	17107	18790	18450	18269	18337	18383	18311	18155	17980	17937	17783	18477	19356	23911
127	25680	25670	25589	25102	25084	25254	21639	21504	18121	19606	19247	19066	19121	19162	19084	18915	18763	18716	18565	19188	19998	24507
128	25678	25664	25581	25099	25077	25241	21521	21395	17948	19688	19350	19168	19238	19284	19212	19056	18881	18838	18683	19377	20251	24800
129	26334	26319	26235	25755	25732	25893	22126	22004	18527	20379	20047	19866	19940	19988	19918	19766	19584	19542	19387	20100	20988	25545
130	26606	26589	26503	26027	26002	26159	22335	22218	18709	20703	20382	20202	20283	20334	20266	20122	19928	19888	19731	20479	21397	25969
131	26595	26573	26486	26016	25987	26137	22212	22105	18543	20802	20505	20325	20421	20477	20415	20286	20069	20033	19873	20692	21674	26277
132	25850	25819	25729	25274	25237	25372	21275	21187	17552	20304	20055	19878	20004	20071								

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

WGT	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
134	25382	25344	25252	24810	24768	24890	20672	20599	16926	20064	18955	19682	19831	19907	19866	19794	19496	19477	19310	20371	21570	26219
135	26517	26480	26389	25945	25903	26028	21825	21751	18080	21148	20928	20754	20896	20969	20926	20846	20559	20537	20371	21400	22567	27217
136	27185	27146	27054	26615	26571	26691	22449	22380	18701	21885	21676	21502	21650	21725	21684	21610	21315	21295	21128	22179	23363	28013
137	27415	27379	27288	26843	26802	26927	22732	22657	18988	22015	21789	21614	21752	21824	21779	21694	21413	21390	21224	22233	23379	28027
138	27569	27536	27446	26994	26956	27087	22950	22867	19215	22063	21818	21642	21770	21838	21788	21692	21426	21400	21236	22196	23300	27942
139	26779	26749	26659	26202	26166	26303	22221	22131	18500	21195	20937	20760	20881	20946	20893	20790	20535	20507	20343	21274	22354	26991
140	27502	27472	27383	26924	26889	27027	22956	22865	19237	21891	21627	21449	21566	21630	21576	21468	21219	21189	21026	21937	22997	27628
141	27506	27483	27396	26926	26897	27047	23116	23010	19442	21709	21409	21229	21324	21380	21317	21186	20971	20935	20776	21584	22552	27148
142	27177	27164	27081	26598	26577	26741	23016	22891	19434	21176	20833	20651	20717	20762	20688	20529	20360	20315	20162	20832	21677	26205
143	10051	10144	10239	10490	10576	10581	15077	15016	18392	14254	14479	14656	14531	14468	14523	14643	14878	14909	15071	14285	13579	9567
144	9663	9751	9848	10124	10205	10197	14725	14674	18104	14125	14376	14554	14444	14385	14447	14581	14795	14829	14989	14273	13644	9781
145	9020	9105	9202	9492	9571	9555	14096	14050	17511	13646	13916	14095	13996	13942	14008	14155	14350	14388	14546	13889	13330	9624
146	10066	10149	10247	10548	10625	10603	15153	15110	18586	14724	14988	15167	15065	15010	15074	15216	15418	15455	15614	14932	14333	10650
147	10665	10756	10852	11117	11200	11198	15712	15656	19056	14956	15184	15360	15237	15174	15230	15351	15585	15615	15778	14992	14280	10235
148	10624	10708	10806	11102	11180	11160	15707	15663	19127	15209	15463	15642	15534	15476	15537	15673	15885	15920	16080	15364	14725	10805
149	10762	10837	10935	11268	11340	11297	15860	15831	19364	15677	15961	16141	16050	15998	16067	16219	16404	16444	16601	15968	15411	11633
150	9441	9515	9612	9955	10024	9976	14539	14514	18065	14501	14806	14987	14910	14864	14937	15104	15266	15310	15464	14905	14440	10889
151	10052	10124	10222	10569	10637	10587	15148	15126	18683	15124	15427	15607	15528	15481	15554	15718	15885	15928	16082	15510	15024	11406
152	10050	10113	10210	10588	10649	10578	15121	15112	18718	15389	15717	15899	15836	15796	15875	16054	16194	16242	16393	15902	15498	12040
153	10546	10599	10695	11102	11155	11063	15559	15567	19211	16122	16473	16654	16607	16573	16656	16849	16966	17017	17164	16744	16407	13065
154	10741	10807	10904	11273	11336	11271	15822	15809	19402	15977	16292	16473	16401	16357	16433	16604	16758	16803	16957	16417	15957	12361
155	11150	11206	11303	11700	11756	11671	16185	16187	19821	16622	16960	17142	17085	17047	17127	17311	17443	17492	17642	17173	16780	13303
156	11146	11193	11288	11709	11758	11655	16112	16128	19791	16833	17195	17376	17336	17305	17391	17589	17695	17748	17893	17506	17196	13887
157	11519	11580	11678	12060	12120	12045	16581	16576	20189	16847	17169	17350	17282	17239	17316	17490	17640	17686	17838	17312	16859	13250
158	12432	12490	12586	12979	13037	12955	17473	17474	21104	17836	18162	18343	18278	18236	18314	18490	18636	18682	18834	18318	17865	14233
159	11929	11994	12092	12461	12524	12459	17009	16997	20589	17123	17429	17610	17532	17485	17558	17722	17888	17931	18086	17509	16999	13272
160	11389	11460	11558	11908	11976	11923	16484	16463	20023	16427	16720	16900	16814	16764	16835	16992	17169	17211	17367	16754	16212	12440
161	12572	12640	12737	13098	13164	13104	17659	17644	21222	17672	17965	18146	18060	18010	18080	18237	18415	18456	18612	17994	17437	13605
162	12019	12091	12189	12533	12602	12553	17116	17092	20641	16978	17260	17440	17347	17295	17362	17512	17701	17740	17898	17249	16664	12798
163	13518	13582	13680	14053	14116	14047	18592	18583	22182	18707	19006	19186	19104	19055	19127	19286	19460	19502	19657	19051	18498	14653
164	14135	14196	14293	14677	14737	14661	19191	19188	22806	19416	19723	19904	19826	19780	19852	20016	20183	20226	20380	19795	19260	15434
165	14520	14574	14670	15073	15128	15038	19533	19542	23187	19974	20300	20481	20415	20373	20450	20625	20773	20819	20971	20442	19962	16231
166	13079	13136	13232	13628	13685	13600	18114	18117	21750	18490	18815	18996	18930	18888	18965	19139	19288	19334	19486	18961	18496	14823
167	12925	12975	13070	13485	13536	13438	17907	17922	21580	18518	18864	19045	18994	18957	19039	19226	19352	19402	19551	19097	18705	15177
168	11958	12008	12103	12518	12569	12470	16943	16956	20613	17570	17921	18103	18054	18020	18103	18294	18413	18464	18612	18180	17819	14379
169	15070	15127	15224	15616	15674	15592	20109	20112	23741	20406	20717	20898	20822	20776	20850	21015	21179	21222	21377	20798	20263	16422
170	15667	15719	15815	16223	16277	16183	20665	20677	24330	21147	21473	21654	21588	21546	21622	21796	21946	21992	22144	21610	21118	17345
171	13796	13846	13942	14354	14406	14309	18783	18797	22453	19351	19691	19872	19815	19777	19857	20040	20174	20222	20372	19891	19466	15851
172	14421	14467	14562	14984	15033	14929	19375	19395	23062	20048	20395	20576	20524	20487	20569	20756	20883	20932	21081	20621	20212	16618
173	15156	15201	15295	15720	15768	15662	20094	20117	23788	20805	21152	21334	21282	21246	21328	21515	21641	21691	21840	21380	20967	17350
174	15807	15867	15963	16352	16410	16332	20855	20865	24479	21089	21392	21573	21492	21444	21515	21675	21848	21890	22045	21438	20870	16959
175	15395	15459	15557	15930	15992	15924	20468	20468	24059	20537	20826	21006	20916	20865	20934	21085	21271	21311	21468	20820	20211	16237
176	9468	9548	9646	9957	10033	10004	14560	14522	18020	14256	14536	14716	14624	14572	14640	14792	14978	15018	15175	14543	14003	10310
177	12807	12893	12911	12555	12451	12345	8984	8984	9190	8754	13571	14007	14006	14318	14439	14544	14830	14339	14421	14351	15884	17438
178	12503	12391	12308	12234	12131	12033	8562	8562	8764	8238	13100	13529	13526	13838	13960	14064	14347	13854	13935	13364	15404	16967
179	12403	12293	12207	12110	12009	11921	8295	8489	7773	12736	13153	13143	13457	13580	13682	13959	13462	13542	13465	15021	16599	19302
180	12186	12078	11990	11871	11771	11694	7929	8115	7236	12276	12682	12667	12982	13106	13206	13478	12978	13056	12976	14544	16134	18923
181	12685	12577	12489	12362	12262	12189	8358	8538	7471	12615	13008	12988	13304	13428	13525	13791	13287	13364	13279	14861	16463	19333
182	16354	16241	16158	16086	15983	15885	12309	12499	11403	16627	17015	16992	17308	17433	17528	17790	17284	17360	17271	18862	20471	23311
183	16691	16580	16495	16406	16304	16213	12523	12705	11423	16731	17103	17073	17389	17515	17607	17861	17352	17426	17332	18936	20558	23503
184	16305</																					

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
211	12780	12899	12959	12874	12979	13139	16418	16248	18530	13090	12982	13104	12838	12723	12701	12625	13075	13051	13210	11752	10291	5833
212	12498	12618	12682	12629	12735	12882	16338	16177	18600	13230	13158	13288	13033	12922	12909	12854	13287	13269	13431	12025	10625	6055
213	11719	11839	11904	11859	11964	12108	15621	15464	17954	12632	12584	12720	12473	12365	12358	12318	12738	12724	12888	11524	10178	5553
214	11013	11132	11195	11135	11240	11390	14845	14686	17158	11838	11793	11930	11685	11577	11571	11535	11952	11939	12103	10752	9428	4789
215	10357	10477	10545	10522	10627	10762	14415	14269	16906	11714	11718	11865	11639	11537	11543	11536	11925	11920	12087	10825	9609	4974
216	9383	9502	9568	9526	9632	9774	13368	13220	15852	10682	10699	10848	10627	10528	10538	10541	10920	10918	11085	9860	8702	4120
217	10023	10143	10202	10115	10220	10380	13729	13567	16006	10685	10644	10782	10539	10433	10429	10398	10809	10798	11093	9632	8346	3696
218	10762	10882	10942	10862	10967	11124	14484	14320	16735	11385	11329	11463	11215	11106	11098	11056	11477	11463	11627	10261	8925	4292
219	10652	10772	10826	10708	10812	10983	14140	13968	16248	10832	10745	10872	10614	10502	10487	10427	10863	10844	11006	9597	8212	3627
220	11281	11400	11455	11340	11445	11615	14770	14596	16847	11409	11308	11432	11168	11055	11036	10966	11410	11389	11549	10113	8688	4165
221	11770	11889	11938	11794	11898	12078	15036	14854	16946	11448	11305	11419	11143	11026	10997	10902	11365	11336	11492	9998	8502	4176
222	11393	11511	11558	11400	11503	11688	14571	14386	16444	10940	10793	10906	10629	10511	10481	10385	10849	10820	10976	9481	7985	3672
223	12185	12302	12345	12161	12263	12456	15142	14949	16833	11288	11096	11196	10907	10785	10744	10619	11101	11064	11214	9662	8095	4138
224	10542	10661	10709	10558	10662	10844	13808	13628	15785	10320	10205	10327	10060	9945	9924	9849	10297	10274	10434	8988	7562	3055
225	11082	11199	11243	11065	11167	11359	14127	13938	15936	10418	10261	10371	10092	9973	9941	9840	10307	10277	10432	8927	7424	3170
226	11383	11499	11537	11330	11431	11631	14186	13990	15828	10281	10085	10185	9895	9773	9732	9608	10089	10053	10203	8654	7095	3178
227	12134	12248	12283	12058	12158	12363	14756	14554	16240	10682	10447	10535	10236	10112	10061	9912	10406	10363	10507	8918	7306	3804
228	12685	12801	12838	12627	12727	12929	15394	15193	16900	11341	11107	11195	10896	10772	10721	10571	11065	11022	11165	9574	7958	4416
229	12131	12243	12272	12021	12118	12331	14515	14306	15851	10297	10032	10111	9807	9681	9623	9457	9958	9910	10049	8440	6803	3719
230	12899	13012	13044	12806	12904	13114	15365	15157	16704	11152	10883	10960	10655	10530	10470	10299	10802	10753	10891	9276	7632	4513
231	13769	13881	13911	13663	13760	13973	16106	15894	17313	11780	11482	11549	11239	11112	11045	10855	11364	11310	11441	9810	8150	5361
232	14727	14839	14868	14614	14710	14925	16972	16757	18068	12561	12240	12297	11985	11858	11784	11579	12092	12033	12158	10200	8855	6313
233	14645	14759	14792	14556	14655	14864	17073	16863	18295	12762	12464	12530	12219	12093	12025	11833	12343	12288	12418	10786	9124	6265
234	15602	15713	15741	15482	15578	15794	17772	17555	18776	13297	12958	13009	12694	12567	12489	12272	12786	12724	12844	11205	9543	7186
235	15618	15732	15764	15525	15622	15833	17977	17764	19107	13596	13278	13337	13024	12897	12824	12620	13132	13074	13199	11561	9897	7227
236	15480	15589	15613	15337	15431	15652	17476	17255	18369	12925	12567	12611	12295	12168	12086	11859	12373	12308	12423	10786	9131	7073
237	15028	15136	15157	14868	14960	15184	16904	16682	17742	12316	11950	11990	11674	11547	11462	11231	11745	11679	11792	10157	8506	6651
238	14182	14291	14315	14036	14130	14351	16204	15985	17184	11705	11365	11416	11101	10974	10897	10681	11195	11134	11254	9616	7952	5782
239	13401	13511	13537	13271	13366	13584	15574	15359	16697	11178	10866	10928	10616	10489	10419	10222	10733	10676	10804	9170	7506	4986
240	14254	14360	14377	14069	14160	14387	15965	15740	16738	11332	10956	10993	10676	10550	10464	10228	10741	10675	10785	9153	7507	5961
241	13158	13265	13286	12996	13089	13313	15109	14890	16106	10616	10282	10336	10022	9895	9819	9610	10123	10063	10186	8548	6883	4795
242	12581	12691	12715	12442	12537	12756	14729	14514	15887	10358	10056	10122	9812	9685	9618	9429	9938	9884	10015	8385	6726	4176
37	16502	16444	16347	15961	15901	15979	11498	11476	7832	12352	12356	12218	12465	12574	12587	12652	12210	12230	12069	13549	15109	19454
38	15977	15920	15824	15432	15373	15456	10997	10968	7306	11755	11755	11616	11861	11971	11983	12047	11605	11625	11464	12942	14503	18849
39	15811	15760	15665	15256	15202	15298	10916	10867	7178	11303	11266	11120	11352	11457	11461	11505	11081	11094	10930	12366	13896	18306
40	15472	15415	15318	14928	14869	14950	10488	10459	6800	11310	11233	11187	11437	11548	11563	11636	11188	11209	11050	12546	14121	18433
41	15632	15571	15474	15097	15034	15106	10603	10588	6972	11677	11714	11583	11841	11955	11975	12060	11602	11628	11470	12991	14581	18845
42	14791	14736	14640	14243	14185	14272	9841	9803	6126	10553	10564	10428	10678	10789	10804	10877	10428	10450	10291	11790	13368	17674
43	15137	15067	14969	14625	14554	14603	10046	10064	6626	11756	11864	11750	12029	12149	12185	12308	11825	11862	11173	13295	14928	19013
44	15029	14964	14867	14502	14436	14499	9968	9966	6409	11329	11402	11280	11549	11666	11695	11801	11329	11360	11207	12764	14380	18551
45	14638	14577	14480	14103	14039	14112	9613	9596	5978	10750	10806	10679	10944	11060	11085	11183	10716	10745	10590	12134	13743	17949
46	14439	14372	14274	13918	13850	13908	9364	9369	5863	10923	11025	10909	11187	11306	11341	11463	10981	11017	10867	12448	14081	18174
47	14092	14029	13932	13559	13495	13564	9054	9042	5444	10326	10404	10282	10554	10671	10702	10812	10337	10370	10217	11783	13406	17553
48	14506	14434	14337	13999	13926	13972	9411	9434	6049	11277	11408	11300	11586	11707	11748	11885	11395	11435	11290	12889	14534	18547
49	13636	13572	13475	13106	13041	13107	8589	8580	5004	9980	10077	9960	10238	10357	10391	10513	10031	10067	9917	11499	13133	17227
50	13916	13848	13750	13397	13328	13384	8836	8844	5364	10503	10623	10512	10795	10915	10954	11087	10599	10638	10491	12086	13728	17767
51	14130	14054	13956	13636	13560	13594	9033	9073	5839	11215	11382	11284	11577	11701	11750	11906	11407	11453	11313	12932	14588	18490
52	13552	13479	13381	13048	12975	13017	8454	8483	5161	10498	10658	10559	10851	10975	11023	11177	10679	10724	10584	12201	13857	17773
53	13335	13267	13169	12816	12747	12803	8256	8263	4787	9970	10103	9995	10282	10404	10446	10587	10094	10136	9992	11596	13245	17240
54	12644	12577	12479	12123	12055	12112	7571	7574	4091	9317	9464	9361	9652	9774	9821	9971	9474	9518	9377	10991	12646	16591
55	13155	13078	12980	12666	12589	12619	8061	8107	4972	10437	10635	10546	10847	10972	11028	11201						

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

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WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
82	15464	15534	15508	15057	15114	15359	14944	14704	14156	10049	9497	9419	9162	9072	8942	8609	8994	8901	8909	7786	6920	9427
83	14070	14138	14109	13654	13708	13953	13511	13271	12811	8610	8059	7982	7723	7632	7503	7170	7559	7466	7477	6348	5533	8411
84	14989	15048	15011	14536	14582	14823	13896	13658	12748	9148	8584	8478	8259	8187	8056	7723	8036	7942	7919	7067	6584	9918
85	13981	14042	14007	13536	13584	13826	13050	12811	12103	8235	7673	7577	7343	7265	7133	6799	7139	7045	7034	6091	5546	8925
86	13255	13318	13284	12817	12866	13109	12464	12224	11687	7601	7043	6956	6710	6626	6495	6161	6525	6431	6431	5404	4793	8202
87	12326	12386	12350	11877	11924	12166	11461	11221	10741	6601	6042	5954	5710	5627	5496	5161	5522	5428	5428	4429	3954	7733
88	12425	12490	12457	11993	12044	12288	11777	11536	11189	6872	6321	6245	5986	5895	5765	5432	5824	5731	5745	4622	3945	7441
89	17462	17454	17373	16884	16868	17040	13565	13413	10238	11423	11091	10910	10988	11039	10972	10831	10633	10593	10436	11229	12259	16894
90	17473	17455	17370	16893	16868	17026	13301	13169	9802	11657	11380	11202	11316	11380	11326	11222	10969	10940	10776	11731	12889	17539
91	18031	18018	17934	17452	17431	17595	13973	13833	10531	12097	11790	11610	11704	11761	11699	11574	11352	11317	11157	12017	13095	17738
92	18189	18170	18084	17609	17583	17738	13964	13837	10422	12402	12129	11950	12066	12130	12077	11973	11719	11690	11527	12480	13630	18279
93	18983	18967	18882	18404	18380	18539	14815	14684	11293	13119	12825	12645	12747	12806	12747	12629	12397	12363	12202	13088	14176	18819
94	18886	18880	18800	18309	18295	18471	15037	14885	11709	12783	12428	12247	12309	12352	12278	12120	11951	11906	11753	12450	13383	17983
95	18571	18576	18502	18002	17998	18189	15084	14910	12003	12299	11890	11710	11729	11756	11669	11472	11371	11315	11173	11665	12428	16944
96	19128	19130	19054	18556	18549	18737	15536	15369	12370	12889	12491	12311	12339	12370	12285	12096	11981	11927	11782	12315	13103	17630
97	19700	19699	19621	19126	19116	19299	15993	15832	12737	13506	13122	12941	12980	13015	12933	12753	12621	12570	12423	13003	13826	18368
98	20354	20357	20282	19784	19778	19967	16783	16616	13601	14093	13685	13505	13524	13551	13463	13265	13166	13110	12968	13444	14167	18642
99	20917	20918	20842	20345	20337	20522	17253	17091	14000	14688	14291	14110	14138	14168	14083	13891	13779	13725	13581	14095	14844	19334
PK01	5873	5933	5898	5431	5482	5725	6197	5973	7524	2063	2085	2247	2075	2001	2051	2184	2412	2438	2602	2161	2782	5250
PK02	4674	4727	4687	4209	4255	4496	5220	5010	7080	2217	2533	2714	2683	2663	2761	3004	3040	3099	3238	3291	4031	5857
PK03	4493	4562	4536	4092	4153	4399	5748	5550	7790	2905	3162	3343	3268	3229	3312	3514	3626	3674	3825	3610	4053	5265
PK04	4268	4353	4343	3949	4026	4268	6250	6067	8503	3688	3925	4104	4011	3963	4037	4215	4366	4409	4564	4185	4368	4803
PK05	5503	5576	5553	5115	5178	5424	6503	6291	8146	2808	2880	3045	2879	2805	2853	2972	3216	3241	3406	2809	3042	4654
PK06	6579	6650	6625	6181	6242	6487	7185	6960	8379	2830	2686	2812	2560	2452	2450	2450	2832	2826	2992	1954	1964	4466
PK07	6689	6772	6759	6351	6423	6667	7849	7631	9226	3695	3567	3694	3439	3330	3323	3301	3704	3693	3859	2670	2110	3587
PK08	5739	5827	5820	5432	5509	5750	7361	7157	9129	3774	3797	3952	3755	3667	3695	3760	4072	4083	4251	3366	3091	3698
PK09	4920	5015	5018	4668	4753	4988	7153	6968	9303	4235	4373	4543	4394	4324	4375	4493	4735	4762	4926	4241	4070	3899
PK10	5610	5718	5739	5465	5560	5778	8357	8178	10549	5389	5463	5625	5440	5356	5388	5456	5763	5777	5944	5013	4436	2848
PK11	6461	6564	6579	6268	6359	6586	8772	8578	10656	5272	5246	5391	5164	5064	5074	5085	5456	5454	5622	4480	3658	2238
PK12	7216	7314	7320	6974	7059	7294	9056	8848	10614	5098	4970	5093	4831	4719	4704	4655	5082	5065	5228	3901	2839	2182
PK13	4815	4831	4764	4260	4268	4480	3855	3629	5543	1616	2161	2305	2460	2515	2646	2973	2744	2832	2907	3707	4922	7384
PK14	5937	5926	5844	5358	5339	5511	3196	2956	3938	1878	2345	2377	2672	2785	2902	3215	2773	2864	2843	4224	5744	8857
PK15	6899	6860	6767	6331	6286	6405	2658	2478	2164	3541	3903	3880	4196	4320	4417	4687	4188	4268	4194	5754	7359	10649
PK16	7246	7222	7135	6667	6636	6785	3522	3317	2718	2849	3117	3063	3379	3506	3589	3831	3320	3393	3301	4907	6546	10101
PK17	7473	7428	7334	6910	6860	6969	2949	2807	1509	4103	4421	4380	4696	4822	4910	5161	4652	4726	4636	6236	7866	11274
PK18	6389	6365	6278	5810	5779	5929	2922	2695	3151	2550	2949	2946	3257	3378	3484	3773	3291	3377	3324	4823	6398	9637
PT01	2469	2535	2507	2067	2133	2378	4883	4746	7785	4182	4620	4795	4828	4830	4940	5208	5175	5245	5367	5522	6082	6569
PT02	3354	3431	3414	3000	3072	3316	5502	5337	8068	3800	4155	4336	4312	4291	4387	4620	4669	4728	4866	4790	5200	5689
PT03	2657	2748	2747	2397	2485	2717	5648	5512	8516	4593	4974	5154	5143	5127	5225	5464	5499	5560	5696	5635	5983	5966
PT04	3613	3710	3716	3384	3473	3703	6369	6211	8954	4468	4755	4936	4865	4825	4906	5098	5223	5271	5421	5092	5218	4992
PT05	2011	2131	2193	2181	2285	2405	6557	6474	9816	6338	6733	6913	6906	6890	6989	7225	7262	7323	7458	7356	7554	6607
PT06	2592	2704	2736	2533	2636	2827	6380	6263	9383	5474	5832	6013	5983	5958	6050	6271	6341	6397	6539	6351	6521	5826
PT07	2948	3065	3140	3201	3302	3396	7614	7530	10838	7091	7438	7619	7578	7548	7636	7843	7937	7990	8135	7846	7830	6209
PT08	3006	3125	3176	3076	3182	3339	7142	7030	10171	6151	6477	6658	6605	6570	6655	6855	6964	7015	7162	6841	6843	5567
PT09	3710	3824	3858	3655	3757	3952	7259	7120	10019	5580	5845	6025	5937	5889	5962	6133	6293	6335	6490	6022	5918	4719
PT10	4403	4522	4583	4527	4633	4777	8570	8448	11468	7038	7276	7454	7346	7290	7354	7502	7698	7735	7894	7283	6940	4649
PT11	4900	5018	5065	4923	5028	5204	8608	8464	11267	6528	6707	6880	6742	6674	6727	6845	7086	7114	7277	6533	6077	3778
PT12	3774	3804	3746	3246	3270	3498	4095	3902	6427	2623	3110	3277	3361	3385	3507	3807	3688	3766	3870	4330	5249	6914
PT13	4001	4004	3930	3431	3427	3624	3236	3032	5557	2548	3100	3239	3403	3460	3590	3917	3681	3770	3839	4627	5761	7788
PT14	4711	4699	4617	4131	4112	4285	2762	2532	4689	2343	2903	3004	3234	3318	3449	3783	3448	3541	3573	4646	5968	8443
PT15	4720	4680	4587	4154	4107	4226	1609	1378	4066	3394	3937	4013	4272	4368	4496	4826	4442	4536	4543	5744	7111	9516
PT16	3974	3924	3829	3422	3365	3462	1529	1374	4711	3962	4523	4621	4854	4938	5069	5403	5062	5156	5182	6249	7506	9511
PT17	3579	3548	3459	3005	2966	3105	2256	2094	5240	3589	4152	4271	4473	4543	4675	5008	4718	4810	4857	5780	6948	8793
PT18	5805	5764	5672	5238	5191	5310	1887	1662	3064	3313	3786	3815	4113	4227	4343	46						

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Calculation: Lautamäki melu VE1 yhteisvaikutukset

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WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
118	25183	25550	24324	24098	24192	22063	21864	19529	19928
119	25265	25359	24268	23920	23797	22102	21772	19858	19196
120	25521	25693	24562	24248	24187	22364	22072	20030	19668
121	25915	26139	24982	24691	24669	22765	22497	20372	20206
122	25452	25882	24628	24431	24574	22350	22184	19755	20398
123	26352	26705	25486	25253	25330	23228	23023	20702	21026
124	26729	27003	25822	25553	25566	23588	23345	21138	21153
125	27114	27293	26159	25847	25784	23957	23669	21605	21253
126	26087	26155	25078	24718	24573	22922	22582	20702	19935
127	26963	26969	25927	25540	25342	23798	23430	21643	20635
128	26976	27053	25973	25616	25474	23812	23476	21574	20834
129	27638	27742	26648	26303	26179	24476	24153	22203	21560
130	27918	28061	26946	26618	26524	24758	24454	22441	21942
131	27920	28139	26986	26691	26657	24770	24501	22371	22161
132	27195	27563	26338	26111	26196	24076	23878	21533	21898
133	27284	27725	26467	26273	26416	24187	24025	21577	22219
134	26738	27224	25946	25774	25955	23657	23518	21009	21834
135	27872	28335	27068	26884	27042	24784	24632	22152	22867
136	28543	29042	27760	27592	27776	25468	25335	22804	23644
137	28770	29218	27958	27767	27911	25677	25518	23054	23701
138	28918	29310	28075	27858	27957	25807	25621	23234	23667
139	28122	28470	27255	27018	27084	24998	24791	22470	22746
140	28843	29177	27969	27725	27777	25716	25502	23199	23409
141	28831	29048	27897	27600	27561	25681	25411	23279	23052
142	28474	28541	27467	27106	26950	25310	24971	23074	22286
143	8834	7438	8951	8794	8367	11204	11052	14223	12837
144	8409	7140	8622	8534	8230	10905	10807	13907	12841
145	7749	6557	8014	7972	7761	10312	10249	13300	12473
146	8779	7638	9086	9056	8835	11388	11333	14369	13507
147	9426	8093	9595	9465	9066	11862	11728	14875	13544
148	9342	8171	9630	9580	9315	11928	11857	14915	13931
149	9438	8479	9871	9919	9809	12187	12192	15128	14555
150	8110	7232	8586	8680	8677	10904	10944	13824	13518
151	8716	7858	9209	9306	9293	11527	11570	14441	14117
152	8693	8050	9314	9501	9634	11623	11737	14473	14536
153	9180	8757	9927	10198	10456	12209	12392	14977	15405
154	9388	8667	9968	10118	10176	12283	12369	15156	15033
155	9785	9267	10484	10715	10897	12780	12931	15581	15813
156	9782	9469	10590	10901	11215	12852	13070	15569	16178
157	10159	9519	10792	10971	11064	13100	13211	15944	15932
158	11068	10496	11744	11947	12065	14046	14178	16862	16938
159	10576	9834	11150	11285	11297	13466	13541	16344	16111
160	10050	9187	10547	10633	10574	12866	12901	15781	15346
161	11224	10419	11762	11867	11820	14080	14132	16978	16583
162	10684	9776	11155	11217	11108	13473	13489	16401	15830
163	12163	11430	12749	12880	12865	15064	15138	17937	17641
164	12774	12114	13405	13566	13591	15716	15815	18562	18391
165	13154	12632	13866	14083	14199	16162	16309	18951	19056
166	11715	11152	12398	12603	12714	14699	14833	17510	17578
167	11560	11155	12329	12598	12818	14607	14795	17353	17739
168	10592	10205	11367	11646	11895	13642	13836	16386	16833
169	13706	13093	14367	14545	14589	16674	16788	19500	19395
170	14301	13803	15029	15253	15370	17322	17476	20098	20220
171	12430	11993	13185	13439	13623	15469	15645	18224	18522
172	13056	12684	13849	14127	14345	16120	16319	18843	19258
173	13792	13440	14597	14882	15104	16865	17070	19574	20016
174	14445	13795	15087	15246	15254	17397	17497	20236	20026
175	14039	13288	14619	14736	14676	16936	16999	19813	19397
176	8169	7096	8519	8527	8384	10829	10803	13794	13133
177	13783	15659	14165	14798	16161	12574	13291	10160	16348
178	13511	15356	13850	14463	15804	12209	12909	9739	15889
179	13450	15252	13733	14316	15625	12023	12696	9469	15547
180	13270	15026	13497	14051	15328	11724	12371	9098	15103
181	13780	15521	13988	14530	15791	12188	12820	9521	15457
182	17347	19207	17703	18312	19640	16040	16719	13481	19471
183	17714	19542	18027	18614	19914	16311	16967	13688	19589

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Calculation: Lautamäki melu VE1 yhteisvaikutukset

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WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
184	17351	19153	17631	18201	19483	15879	16521	13220	19076
185	17436	19207	17677	18226	19482	15880	16502	13173	18946
186	2088	2271	2914	3445	4395	5122	5410	7876	9204
187	14627	12502	13744	12941	11451	14988	14262	17528	12409
188	14345	12227	13521	12749	11297	14869	14174	17486	12578
189	14314	12188	13410	12597	11095	14620	13885	17138	11986
190	15067	12941	14127	13296	11773	15261	14504	17712	12378
191	14881	12758	13904	13056	11514	14965	14192	17363	11932
192	14347	12226	13356	12503	10957	14399	13623	16791	11371
193	13446	11327	12449	11595	10049	13494	12722	15903	10563
194	14250	12136	13225	12356	10796	14195	13404	16532	11017
195	15184	13069	14162	13293	11733	15124	14328	17438	11845
196	13195	11105	12108	11215	9636	12953	12140	15211	9615
197	13838	11773	12705	11794	10206	13419	12581	15554	9745
198	14637	12582	13488	12571	10980	14142	13291	16205	10279
199	15747	13690	14597	13678	12088	15230	14374	17251	11248
200	15358	13275	14250	13347	11762	15006	14170	17143	11285
201	14812	12736	13694	12788	11201	14430	13593	16562	10714
202	12917	10792	11966	11135	9614	13115	12370	15610	10483
203	13377	11252	12509	11716	10242	13798	13089	16386	11455
204	13700	11593	12926	12181	10768	14361	13696	17043	12361
205	13326	11211	12521	11762	10330	13916	13239	16575	11847
206	12710	10604	11945	11210	9812	13411	12760	16123	11601
207	11987	9890	11255	10541	9177	12781	12156	15538	11226
208	11312	9217	10589	9882	8535	12139	11527	14918	10747
209	10724	8631	10009	9311	7981	11583	10984	14382	10347
210	10285	8179	9529	8810	7452	11056	10442	13834	9768
211	12272	10146	11388	10590	9113	12670	11964	15269	10443
212	11910	9793	11101	10345	8923	12515	11851	15204	10670
213	11118	9003	10322	9577	8174	11772	11125	14495	10140
214	10457	8334	9617	8850	7422	11014	10354	13715	9359
215	9712	7607	8962	8250	6908	10511	9910	13310	9391
216	8797	6677	7986	7246	5873	9477	8864	12259	8413
217	9549	7422	8633	7831	6360	9932	9250	12592	8227
218	10261	8135	9370	8577	7114	10689	10006	13345	8877
219	10254	8134	9274	8436	6915	10432	9704	12987	8243
220	10866	8743	9900	9067	7550	11067	10338	13615	8782
221	11433	9323	10406	9542	7990	11433	10666	13870	8730
222	11100	9002	10040	9162	7597	11003	10223	13402	8215
223	11955	9877	10852	9955	8374	11687	10876	13967	8485
224	10237	8139	9185	8313	6754	10191	9426	12645	7666
225	10848	8771	9746	8851	7273	10616	9818	12955	7674
226	11231	9188	10077	9161	7572	10797	9969	13010	7474
227	12025	10000	10846	9921	8331	11470	10623	13579	7829
228	12534	10485	11381	10465	8875	12070	11231	14217	8490
229	12104	10126	10880	9942	8358	11357	10489	13340	7423
230	12826	10816	11628	10697	9107	12173	11311	14189	8277
231	13720	11721	12510	11575	9988	12996	12124	14933	8899
232	14691	12694	13475	12539	10953	13925	13047	15802	9685
233	14550	12522	13366	12439	10849	13922	13057	15899	9881
234	15575	13580	14355	13417	11833	14777	13894	16605	10431
235	15530	13502	14344	13414	11825	14874	14004	16805	10718
236	15510	13550	14261	13318	11743	14582	13690	16315	10076
237	15102	13175	13833	12886	11322	14079	13180	15748	9478
238	14227	12283	12970	12025	10454	13281	12390	15040	8841
239	13414	11453	12172	11230	9652	12553	11670	14404	8300
240	14394	12519	13097	12147	10604	13232	12327	14814	8509
241	13246	11340	11969	11021	9462	12215	11320	13945	7749
242	12621	10684	11365	10420	8848	11712	10827	13558	7477
37	17865	18744	17311	17346	17897	14997	15081	12077	14835
38	17341	18190	16766	16786	17320	14449	14518	11547	14230
39	17177	17929	16537	16510	16969	14219	14234	11382	13689
40	16836	17696	16268	16296	16844	13952	14030	11044	13817
41	16992	17918	16470	16532	17131	14161	14276	11216	14236
42	16156	16982	15564	15576	16105	13246	13307	10360	13058
43	16481	17562	16072	16218	16943	13794	14002	10786	14450

To be continued on next page...

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
44	16384	17374	15907	16005	16661	13609	13764	10632	13962
45	15999	16928	15477	15544	16156	13169	13290	10221	13350
46	15790	16821	15343	15464	16158	13053	13236	10060	13607
47	15450	16405	14946	15028	15667	12642	12781	9681	12968
48	15846	16956	15459	15622	16377	13189	13418	10173	14008
49	14993	15969	14504	14598	15260	12203	12358	9232	12657
50	15265	16313	14830	14962	15677	12545	12741	9545	13216
51	15458	16640	15127	15331	16147	12883	13158	9855	13995
52	14889	16023	14519	14699	15485	12259	12509	9237	13270
53	14684	15733	14248	14383	15105	11964	12164	8963	12704
54	13995	15036	13552	13686	14412	11267	11468	8268	12073
55	14479	15686	14168	14390	15238	11936	12235	8906	13253
56	14237	15367	13863	14044	14836	11603	11856	8581	12684
57	13349	14438	12942	13105	13879	10672	10908	7657	11739
58	13750	14961	13441	13668	14528	11213	11520	8183	12636
59	13305	14584	13052	13320	14239	10858	11212	7835	12581
60	13020	14351	12812	13111	14073	10648	11037	7638	12591
61	12994	14450	12901	13273	14329	10821	11288	7871	13195
62	13673	15169	13618	14009	15086	11563	12046	8630	13979
63	13489	14884	13339	13672	14676	11212	11635	8223	13305
64	13682	14814	13309	13493	14294	11051	11310	8028	12214
65	12989	14544	12993	13423	14553	10996	11523	8122	13705
66	12849	13891	12405	12546	13292	10123	10335	7120	11109
67	13322	14262	12804	12887	13547	10499	10644	7543	11058
68	13926	14797	13360	13404	14000	11047	11145	8133	11278
69	14917	16158	14634	14872	15740	12415	12730	9385	13791
70	16776	17476	16102	16049	16471	13785	13771	10991	13112
71	15945	16710	15312	15294	15778	12993	13019	10150	12619
72	18579	17098	17185	16286	14984	16498	15607	16992	10971
73	18448	17020	17052	16164	14899	16287	15405	16680	10751
74	18351	16990	16954	16082	14865	16095	15224	16359	10563
75	18247	16968	16853	16002	14844	15882	15028	15992	10377
76	17626	16160	16231	15334	14043	15537	14646	16049	10010
77	17506	16103	16109	15227	13980	15323	14442	15715	9787
78	17387	16067	15991	15129	13942	15090	14224	15325	9564
79	16613	15215	15217	14335	13092	14439	13556	14872	8903
80	16695	15384	15299	14439	13260	14395	13529	14652	8868
81	16028	14683	14632	13762	12558	13789	12914	14157	8254
82	16164	14900	14770	13922	12778	13813	12954	14014	8299
83	14802	13602	13412	12579	11488	12397	11546	12575	6900
84	15820	14770	14448	13661	12683	13228	12421	13051	7879
85	14795	13727	13419	12626	11639	12238	11420	12169	6852
86	14053	12969	12674	11875	10878	11529	10701	11554	6111
87	13159	12148	11789	11012	10080	10576	9761	10552	5221
88	13210	12118	11830	11027	10027	10715	9879	10837	5271
89	18744	18788	17716	17350	17229	15579	15219	13483	12699
90	18785	18982	17830	17533	17533	15628	15343	13337	13200
91	19330	19450	18339	18007	17941	16166	15844	13961	13489
92	19506	19721	18562	18272	18281	16351	16076	14027	13949
93	20293	20460	19326	19014	18979	17133	16835	14855	14559
94	20157	20146	19106	18716	18540	16994	16610	14943	13913
95	19793	19606	18668	18202	17887	16654	16189	14856	13097
96	20363	20215	19254	18805	18518	17215	16769	15348	13753
97	20949	20849	19861	19432	19179	17794	17371	15849	14448
98	21582	21401	20461	19997	19677	18439	17980	16593	14869
99	22157	22014	21052	20604	20311	19007	18566	17098	15526
PK01	6749	6050	5414	4738	4249	4165	3317	5051	1408
PK02	5633	5197	4353	3795	3684	2919	2095	4047	2649
PK03	5310	4643	3966	3297	2996	2930	2024	4571	2676
PK04	4909	3999	3522	2744	2231	2984	2081	5084	3056
PK05	6257	5381	4886	4135	3497	3955	3052	5332	1686
PK06	7331	6373	5954	5180	4394	4987	4098	6040	618
PK07	7291	6097	5895	5043	4020	5273	4358	6684	1198
PK08	6296	5103	4900	4040	3049	4434	3519	6184	1970
PK09	5377	4125	3982	3095	2082	3826	2944	5984	2910
PK10	5793	4145	4457	3509	2045	4835	4013	7196	3564

To be continued on next page...

Project:

319110\_Lautamäki\_YVA

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Julia Turku / julia.turku@wsp.com

Calculated:

24.4.2026 18.50/4.2.285

## DECIBEL - Main Result

Calculation: Lautamäki melu VE1 yhteisvaikutukset

...continued from previous page

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
PK11	6726	5116	5369	4427	3009	5504	4628	7597	3009
PK12	7579	6046	6203	5274	3927	6083	5177	7880	2480
PK13	6013	6099	4941	4647	4953	2890	2445	2724	3658
PK14	7241	7612	6332	6169	6598	4085	3899	2390	4699
PK15	8260	8974	7568	7572	8204	5250	5311	2565	6418
PK16	8582	9067	7749	7630	8073	5463	5354	3173	5710
PK17	8837	9610	8188	8216	8867	5870	5961	3076	6983
PK18	7725	8245	6907	6815	7329	4612	4538	2392	5418
PT01	3403	3331	2186	1886	2651	1099	408	3810	4703
PT02	4123	3573	2782	2167	2279	2020	1133	4364	3840
PT03	3301	2778	1940	1341	1885	1777	1162	4576	4642
PT04	4098	3091	2701	1865	1446	2689	1903	5243	3939
PT05	1875	1150	623	472	1934	2623	2587	5648	6268
PT06	2838	1896	1451	561	1280	2396	2007	5359	5239
PT07	2377	376	1578	1247	1750	3664	3524	6694	6632
PT08	2890	1356	1658	791	902	3147	2795	6136	5630
PT09	3802	2286	2479	1530	320	3361	2759	6175	4748
PT10	4012	1953	3010	2250	1165	4588	4131	7531	5916
PT11	4722	2782	3559	2669	1132	4719	4103	7512	5124
PT12	4910	4947	3794	3495	3918	1877	1298	2920	3880
PT13	5263	5607	4311	4173	4771	2098	1896	2060	4444
PT14	6018	6476	5145	5050	5644	2870	2774	1665	4740
PT15	6082	6900	5445	5544	6384	3136	3362	603	5894
PT16	5340	6317	4815	5025	6026	2564	2989	471	6221
PT17	4933	5728	4266	4390	5324	1960	2282	1135	5630
PT18	7166	7931	6501	6548	7276	4184	4313	1499	6084

Project:  
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Julia Turku / julia.turku@wsp.com  
Calculated:  
24.4.2026 18.50/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

Noise calculation model:

ISO 9613-2:2024 Finland

Wind speed (at 10 m height):

8,0 m/s

Ground attenuation:

General, Ground factor: 0,4

Meteorological coefficient, CO:

Selected option: Fixed value: 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 tones penalty is added to total noise impact at receptors

Noise sensitive area

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

Uncertainty margin:

Uncertainty added to source noise level of the WTGs in the calculation

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0,0 dB(A)

Octave data required

Input parameters for calculation of air absorption:

Temperature 15,0 °C

Relative humidity 70,0 %

Pressure 101,325 kPa

Frequency dependent 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	1,1	2,4	4,1	8,7	26,4	93,7

All coordinates are in

Finish TM ETRS-TM35FIN-ETRS89

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: N163/6.X\_R02 HH164\_STE STE Mode 1

Source Source/Date Creator Edited

NORDEX 6.12.2021 USER 6.12.2021 9.07

F008\_277\_A06\_R02, F008\_277\_A12\_R02, F008\_277\_A13\_R02, F008\_277\_A14\_R02, F008\_277\_A15\_R02, F008\_277\_A17\_R02, F008\_277\_A19\_R02, F008\_277\_A20\_R02

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data							
						63	125	250	500	1000	2000	4000	8000
From other hub height	159,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8
Interpolated	210,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8

WTG: VESTAS V172-7.2 7200 250.0 !O!

Noise: P07200 - 2024-11

Source Source/Date Creator Edited

Vestas 11.5.2024 USER 24.4.2026 10.20

DMS no.: 0180-4980\_V01 Sound Oerformance Specification

Issued by: Vestas Power Solutions EnVentusTM

Type: T05 V172-7.2MW 50/60Hz

Date 2024-11-05

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data								
						63	125	250	500	1000	2000	4000	8000	
From Windcat	225,0	8,0	106,9	2,0	No	From nearest other wind speed	93,6	97,9	98,9	98,4	100,8	100,3	94,4	81,8

Project:

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Calculated:

24.4.2026 18.50/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

WTG: VESTAS V162-7.2 7200 162.0 !O!

Noise: PO7200 - 2024-10

Source	Source/Date	Creator	Edited
Vestas	31.10.2024	USER	24.4.2026 12.27
Document no.: 0180-4981 V00			
Date 2024-10-31			

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	149,0	8,0	104,3	No	From nearest other wind speed	92,4	96,1	96,3	95,7	98,5	96,8	90,2	76,7

WTG: VESTAS V162 5600 162.0 !O!

Noise: Level 0 - Estimated - Mode 0 - 01-2019

Source	Source/Date	Creator	Edited
Manufacturer	23.1.2019	USER	24.4.2026 12.30
Blades with serrated trailing edge.			
Document no. 0081-5298_01.			

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data								
						63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]	
From Windcat	200,0	8,0	104,0	2,0	No	From nearest other wind speed	84,9	92,6	97,4	99,1	98,0	93,9	86,8	76,7

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: Bredåsen

Source	Source/Date	Creator	Edited
	24.4.2026	USER	24.4.2026 12.33

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	190,0	8,0	106,4	No	Generic data	88,0	95,0	98,4	101,0	100,8	97,9	93,1	83,6

WTG: LAGERWEY L100-2.5MW 2520 100.0 !O!

Noise: Mustaisneva

Source	Source/Date	Creator	Edited
	24.4.2026	USER	24.4.2026 12.24

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	135,0	8,0	106,0	No	Generic data	87,6	94,6	98,0	100,6	100,4	97,5	92,7	83,2

WTG: LAGERWEY L82-2.3MW 2300 82.0 !O!

Noise: Level 0 - Calculated - Standard L82-2.3MW - 08-2015

Source	Source/Date	Creator	Edited
Manufacturer - SD104R2	18.8.2015	USER	24.4.2026 12.10

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	100,0	8,0	103,7	No	Generic data	85,3	92,3	95,7	98,3	98,1	95,2	90,4	80,9

Noise sensitive area: R01 Noise sensitive point: Finnish normal frequency - User defined (89)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

Noise sensitive area: R02 Noise sensitive point: Finnish normal frequency - User defined (90)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R03 Noise sensitive point: Finnish normal frequency - User defined (91)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R04 Noise sensitive point: Finnish normal frequency - User defined (92)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R05 Noise sensitive point: Finnish normal frequency - User defined (93)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R06 Noise sensitive point: Finnish normal frequency - User defined (94)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R07 Noise sensitive point: Finnish normal frequency - User defined (95)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R08 Noise sensitive point: Finnish normal frequency - User defined (96)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R09 Noise sensitive point: Finnish normal frequency - User defined (97)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R10 Noise sensitive point: Finnish normal frequency - User defined (98)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R11 Noise sensitive point: Finnish normal frequency - User defined (99)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R12 Noise sensitive point: Finnish normal frequency - User defined (100)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R13 Noise sensitive point: Finnish normal frequency - User defined (101)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R14 Noise sensitive point: Finnish normal frequency - User defined (102)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R15 Noise sensitive point: Finnish normal frequency - User defined (103)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R16 Noise sensitive point: Finnish normal frequency - User defined (104)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

Noise sensitive area: R17 Noise sensitive point: Finnish normal frequency - User defined (105)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R18 Noise sensitive point: Finnish normal frequency - User defined (106)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R19 Noise sensitive point: Finnish normal frequency - User defined (107)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R20 Noise sensitive point: Finnish normal frequency - User defined (108)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R21 Noise sensitive point: Finnish normal frequency - User defined (109)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R22 Noise sensitive point: Finnish normal frequency - User defined (119)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R23 Noise sensitive point: Finnish normal frequency - User defined (110)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R24 Noise sensitive point: Finnish normal frequency - User defined (111)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE1 yhteisvaikutukset

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R25 Noise sensitive point: Finnish normal frequency - User defined (112)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R26 Noise sensitive point: Finnish normal frequency - User defined (113)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R27 Noise sensitive point: Finnish normal frequency - User defined (114)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R28 Noise sensitive point: Finnish normal frequency - User defined (115)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R29 Noise sensitive point: Finnish normal frequency - User defined (116)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R30 Noise sensitive point: Finnish normal frequency - User defined (117)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R31 Noise sensitive point: Finnish normal frequency - User defined (118)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

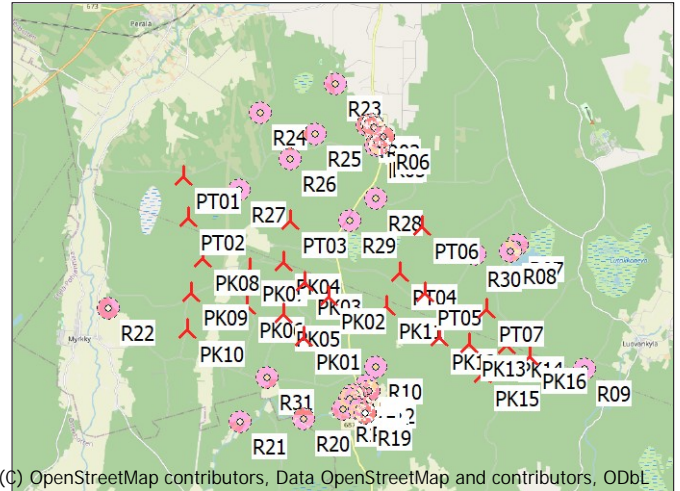
Pure tone penalty: 0 dB

## DECIBEL - Main Result

### Calculation: Lautamäki melu VE2

Calculation is done according to Finnish guideline " Ympäristöhallinnon ohjeita 2 | 2014" from the Ministry of the Environment of Finland

All coordinates are in  
Finish TM ETRS-TM35FIN-ETRS89



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL  
Scale 1:200 000  
New WTG Noise sensitive area

### WTGs

	East	North	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.	Type-generator				Creator	Name			
PK01	224 674	6 927 880	53,9	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK02	225 419	6 928 888	71,4	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK03	224 825	6 929 323	70,7	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK04	224 298	6 929 908	67,1	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK05	224 183	6 928 518	61,0	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK06	223 254	6 928 853	70,7	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK07	223 394	6 929 822	64,0	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK08	222 195	6 930 180	73,0	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK09	221 791	6 929 296	66,7	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK10	221 615	6 928 352	62,9	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK11	226 930	6 928 530	78,9	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK12	228 297	6 927 589	73,3	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK13	229 048	6 927 350	77,8	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK14	230 058	6 927 243	91,9	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK15	229 345	6 926 545	78,1	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PK16	230 631	6 926 906	116,7	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT01	221 854	6 932 408	60,0	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT02	221 890	6 931 295	70,6	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT03	224 571	6 931 002	74,0	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT04	227 350	6 929 377	79,2	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT05	228 006	6 928 782	77,5	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT06	228 084	6 930 556	76,9	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	
PT07	229 588	6 928 234	91,7	NORDEX N163/6.X 6800 163..... No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0 g	

g) Data calculated from data for other wind speed (uncertain)

## Calculation Results

### Sound level

Noise sensitive area  
No. Name

No.	Name	East	North	Z	Immission height [m]	Sound level			WTG+Uncertainty margin [dB(A)]	2 dB penalty applied for one or more WTGs
						From WTGs [dB(A)]	Uncertainty margin [dB]	WTG+Uncertainty margin [dB(A)]		
R01	Noise sensitive point: Finnish normal frequency - User defined (58)	226 831	6 933 348	61,0	4,0	29,3	2,0	31,3	No	
R02	Noise sensitive point: Finnish normal frequency - User defined (59)	226 950	6 933 365	59,2	4,0	29,2	2,0	31,2	No	
R03	Noise sensitive point: Finnish normal frequency - User defined (60)	227 021	6 933 297	58,1	4,0	29,3	2,0	31,3	No	
R04	Noise sensitive point: Finnish normal frequency - User defined (61)	227 000	6 932 793	63,7	4,0	30,6	2,0	32,6	No	
R05	Noise sensitive point: Finnish normal frequency - User defined (62)	227 106	6 932 798	62,9	4,0	30,5	2,0	32,5	No	
R06	Noise sensitive point: Finnish normal frequency - User defined (63)	227 242	6 933 003	61,0	4,0	29,9	2,0	31,9	No	
R07	Noise sensitive point: Finnish normal frequency - User defined (64)	230 553	6 929 857	98,1	4,0	33,0	2,0	35,0	No	
R08	Noise sensitive point: Finnish normal frequency - User defined (65)	230 367	6 929 703	98,3	4,0	33,9	2,0	35,9	No	
R09	Noise sensitive point: Finnish normal frequency - User defined (66)	232 062	6 926 422	112,7	4,0	32,9	2,0	34,9	No	
R10	Noise sensitive point: Finnish normal frequency - User defined (67)	226 525	6 926 964	62,9	4,0	35,9	2,0	37,9	No	

To be continued on next page...

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2

...continued from previous page

Noise sensitive area

No.	Name	East	North	Z	Immission height	Sound level			2 dB penalty applied for one or more WTGs
						From WTGs	Uncertainty margin	WTG+Uncertainty margin	
					[m]	[dB(A)]	[dB]	[dB(A)]	
R11	Noise sensitive point: Finnish normal frequency - User defined (68)	226 226	6 926 485	60,4	4,0	34,3	2,0	36,3	No
R12	Noise sensitive point: Finnish normal frequency - User defined (69)	226 288	6 926 314	58,4	4,0	33,8	2,0	35,8	No
R13	Noise sensitive point: Finnish normal frequency - User defined (70)	225 975	6 926 261	59,3	4,0	33,6	2,0	35,6	No
R14	Noise sensitive point: Finnish normal frequency - User defined (71)	225 848	6 926 257	59,1	4,0	33,5	2,0	35,5	No
R15	Noise sensitive point: Finnish normal frequency - User defined (72)	225 775	6 926 147	56,9	4,0	33,2	2,0	35,2	No
R16	Noise sensitive point: Finnish normal frequency - User defined (73)	225 568	6 925 885	55,3	4,0	32,4	2,0	34,4	No
R17	Noise sensitive point: Finnish normal frequency - User defined (74)	226 081	6 925 918	58,0	4,0	32,6	2,0	34,6	No
R18	Noise sensitive point: Finnish normal frequency - User defined (75)	226 021	6 925 845	57,8	4,0	32,4	2,0	34,4	No
R19	Noise sensitive point: Finnish normal frequency - User defined (76)	226 143	6 925 729	57,0	4,0	32,1	2,0	34,1	No
R20	Noise sensitive point: Finnish normal frequency - User defined (77)	224 503	6 925 724	52,7	4,0	31,8	2,0	33,8	No
R21	Noise sensitive point: Finnish normal frequency - User defined (78)	222 838	6 925 787	39,5	4,0	30,9	2,0	32,9	No
R22	Noise sensitive point: Finnish normal frequency - User defined (88)	219 560	6 929 092	33,4	4,0	31,5	2,0	33,5	No
R23	Noise sensitive point: Finnish normal frequency - User defined (79)	226 076	6 934 488	60,4	4,0	27,3	2,0	29,3	No
R24	Noise sensitive point: Finnish normal frequency - User defined (80)	224 030	6 933 901	73,9	4,0	29,9	2,0	31,9	No
R25	Noise sensitive point: Finnish normal frequency - User defined (81)	225 437	6 933 245	83,5	4,0	30,6	2,0	32,6	No
R26	Noise sensitive point: Finnish normal frequency - User defined (82)	224 719	6 932 622	79,9	4,0	33,3	2,0	35,3	No
R27	Noise sensitive point: Finnish normal frequency - User defined (83)	223 298	6 931 904	72,7	4,0	36,6	2,0	38,6	No
R28	Noise sensitive point: Finnish normal frequency - User defined (84)	226 873	6 931 422	70,2	4,0	34,8	2,0	36,8	No
R29	Noise sensitive point: Finnish normal frequency - User defined (85)	226 155	6 930 851	75,5	4,0	36,3	2,0	38,3	No
R30	Noise sensitive point: Finnish normal frequency - User defined (86)	229 383	6 929 720	93,0	4,0	36,4	2,0	38,4	No
R31	Noise sensitive point: Finnish normal frequency - User defined (87)	223 642	6 926 920	44,3	4,0	35,8	2,0	37,8	No

## Distances (m)

NSA		WTG																				
PK01	PK02	PK03	PK04	PK05	PK06	PK07	PK08	PK09	PK10	PK11	PK12	PK13	PK14	PK15	PK16	PT01	PT02	PT03	PT04	PT05	PT06	
R01	5873	4674	4493	4268	5503	5739	4920	5610	6461	7216	4815	5937	6389	6899	7246	7473	5060	5346	3255	4001	4711	3058
R02	5933	4727	4562	4353	5576	5827	5015	5718	6564	7314	4831	5926	6365	6860	7222	7428	5180	5462	3350	4004	4699	3027
R03	5898	4687	4536	4343	5553	5820	5018	5739	6579	7320	4764	5844	6278	6767	7135	7334	5238	5502	3354	3930	4617	2938
R04	5431	4209	4092	3949	5115	5432	4668	5465	6268	6974	4260	5358	5810	6331	6667	6910	5156	5320	3015	3431	4131	2483
R05	5482	4255	4153	4026	5178	5509	4753	5560	6359	7059	4268	5359	5779	6286	6636	6860	5261	5423	3104	3427	4112	2444
R06	5725	4496	4399	4268	5424	5750	4988	5778	6586	7294	4480	5511	5929	6405	6785	6969	5416	5613	3334	3624	4285	2585
R07	6197	5220	5748	6250	6503	7361	7153	8357	8772	9056	3855	3196	2922	2658	3522	2949	9057	8774	6085	3236	2762	2564
R08	5973	5010	5550	6067	6291	7157	6968	8178	8578	8848	3629	2956	2695	2478	3317	2807	8924	8617	5934	3032	2532	2435
R09	7524	7080	7790	8503	8146	9129	9303	10549	10656	10614	5543	3938	3151	2164	2718	1509	11823	11269	8772	5557	4689	5732
R10	2063	2217	2905	3688	2808	3774	4235	5389	5272	5098	1616	1878	2550	3541	2849	4103	7167	6338	4482	2548	2343	3912
R11	2085	2533	3162	3925	2880	3797	4373	5463	5246	4970	2161	2345	2949	3903	3117	4421	7355	6470	4806	3100	2903	4471
R12	2247	2714	3343	4104	3045	3952	4543	5625	5391	5093	2305	2377	2946	3880	3063	4380	7529	6638	4988	3239	3004	4602
R13	2075	2683	3268	4011	2879	3755	4394	5440	5164	4831	2460	2672	3257	4196	3379	4696	7394	6477	4940	3403	3234	4781
R14	2001	2663	3229	3963	2805	3667	4324	5356	5064	4719	2515	2785	3378	4320	3506	4822	7327	6401	4909	3460	3318	4841
R15	2051	2761	3312	4037	2853	3695	4375	5388	5074	4704	2646	2902	3484	4417	3589	4910	7381	6444	4998	3590	3449	4972
R16	2184	3004	3514	4215	2972	3760	4493	5456	5085	4655	2973	3215	3773	4687	3831	5161	7499	6536	5209	3917	3783	5301
R17	2412	3040	3626	4366	3216	4072	4735	5763	5456	5082	2744	2773	3291	4188	3320	4652	7738	6811	5299	3681	3448	5047
R18	2438	3099	3674	4409	3241	4083	4762	5777	5454	5065	2832	2864	3377	4268	3393	4726	7767	6832	5352	3770	3541	5138
R19	2602	3238	3825	4564	3406	4251	4926	5944	5622	5228	2907	2843	3324	4194	3301	4636	7930	6998	5497	3839	3573	5198
R20	2161	3291	3610	4185	2809	3366	4241	5013	4480	3901	3707	4224	4823	5754	4907	6236	7183	6147	5273	4627	4646	6009
R21	2782	4031	4053	4368	3042	3091	4070	4436	3658	2839	4922	5744	6398	7359	6546	7866	6688	5584	5491	5761	5968	7084
R22	5250	5857	5265	4803	4654	3698	3899	2848	2238	2182	7384	8857	9637	10649	10101	11274	4028	3203	5357	7788	8443	8640
R23	6749	5633	5310	4909	6257	6296	5377	5793	6726	7579	6013	7241	7725	8260	8582	8837	4702	5260	3794	5263	6018	4411
R24	6050	5197	4643	3999	5381	5103	4125	4145	5116	6046	6099	7612	8245	8974	9067	9610	2637	3369	2947	5607	6476	5251
R25	5414	4353	3966	3522	4886	4900	3982	4457	5369	6203	4941	6332	6907	7568	7749	8188	3676	4044	2402	4311	5145	3770
R26	4738	3795	3297	2744	4135	4040	3095	3509	4427	5274	4647	6169	6815	7572	7630	8216	2870	3122	1625	4173	5050	3945
R27	4249	3684	2996	2231	3497	3049	2082	2045	3009	3927	4953	6598	7329	8204	8073	8867	1528	1533	1559	4771	5644	4968
R28	4165	2919	2930	2984	3955	4434	3826	4835	5504	6083	2890	4085	4612	5250	5463	5870	5110	4980	2338	2098	2870	1488
R29	3317	2095	2024	2081	3052	3519	2944	4013	4628	5177	2445	3899	4538	5311	5354	5961	4570	4284	1590	1896	2774	1950
R30	5051	4047	4571	5084	5332	6184	5984	7196	7597	7880	2724	2390	2392	2565	3173	3076	7987	7650	4975	2060	1665	1543
R31	1408	2649	2676	3056	1686	1970	2910	3564	3009	2480	3658	4699	5418	6418	5710	6983	5767	4709	4183	4444	4740	5735

## WTG

NSA	PT07
R01	5805
R02	5764
R03	5672

To be continued on next page...

Project:

319110\_Lautamäki\_YVA

Licensed user:

WSP Finland Oy / WSP Finland Ltd.

Pasilan Asema-aukio 1

FI-00520 Helsinki

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Julia Turku / julia.turku@wsp.com

Calculated:

21.4.2026 15.17/4.2.285

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2

...continued from previous page

	WTG
NSA	PT07
R04	5238
R05	5191
R06	5310
R07	1887
R08	1662
R09	3064
R10	3313
R11	3786
R12	3815
R13	4113
R14	4227
R15	4343
R16	4652
R17	4199
R18	4289
R19	4256
R20	5666
R21	7174
R22	10055
R23	7166
R24	7931
R25	6501
R26	6548
R27	7276
R28	4184
R29	4313
R30	1499
R31	6084

Project:  
319110\_Lautamäki\_YVA

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Calculated:  
21.4.2026 15.17/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2

Noise calculation model:

ISO 9613-2:2024 Finland

Wind speed (at 10 m height):

8,0 m/s

Ground attenuation:

General, Ground factor: 0,4

Meteorological coefficient, CO:

Selected option: Fixed value: 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 tones penalty is added to total noise impact at receptors

Noise sensitive area

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

Uncertainty margin:

Uncertainty added to source noise level of the WTGs in the calculation

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0,0 dB(A)

Octave data required

Input parameters for calculation of air absorption:

Temperature 15,0 °C

Relative humidity 70,0 %

Pressure 101,325 kPa

Frequency dependent 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	1,1	2,4	4,1	8,7	26,4	93,7

All coordinates are in

Finish TM ETRS-TM35FIN-ETRS89

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: N163/6.X\_R02 HH164\_STE STE Mode 1

Source Source/Date Creator Edited

NORDEX 6.12.2021 USER 6.12.2021 9.07

F008\_277\_A06\_R02, F008\_277\_A12\_R02, F008\_277\_A13\_R02, F008\_277\_A14\_R02, F008\_277\_A15\_R02, F008\_277\_A17\_R02, F008\_277\_A19\_R02, F008\_277\_A20\_R02

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones No	Octave data							
						63	125	250	500	1000	2000	4000	8000
						[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
Interpolated	210,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8

Noise sensitive area: R01 Noise sensitive point: Finnish normal frequency - User defined (58)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R02 Noise sensitive point: Finnish normal frequency - User defined (59)

No noise demand

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R03 Noise sensitive point: Finnish normal frequency - User defined (60)

No noise demand

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2

Noise sensitive area: R04 Noise sensitive point: Finnish normal frequency - User defined (61)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R05 Noise sensitive point: Finnish normal frequency - User defined (62)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R06 Noise sensitive point: Finnish normal frequency - User defined (63)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R07 Noise sensitive point: Finnish normal frequency - User defined (64)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R08 Noise sensitive point: Finnish normal frequency - User defined (65)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R09 Noise sensitive point: Finnish normal frequency - User defined (66)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R10 Noise sensitive point: Finnish normal frequency - User defined (67)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R11 Noise sensitive point: Finnish normal frequency - User defined (68)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R12 Noise sensitive point: Finnish normal frequency - User defined (69)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R13 Noise sensitive point: Finnish normal frequency - User defined (70)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R14 Noise sensitive point: Finnish normal frequency - User defined (71)  
No noise demand

No distance demand  
Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2

Noise sensitive area: R15 Noise sensitive point: Finnish normal frequency - User defined (72)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R16 Noise sensitive point: Finnish normal frequency - User defined (73)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R17 Noise sensitive point: Finnish normal frequency - User defined (74)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R18 Noise sensitive point: Finnish normal frequency - User defined (75)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R19 Noise sensitive point: Finnish normal frequency - User defined (76)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R20 Noise sensitive point: Finnish normal frequency - User defined (77)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R21 Noise sensitive point: Finnish normal frequency - User defined (78)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R22 Noise sensitive point: Finnish normal frequency - User defined (88)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R23 Noise sensitive point: Finnish normal frequency - User defined (79)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R24 Noise sensitive point: Finnish normal frequency - User defined (80)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R25 Noise sensitive point: Finnish normal frequency - User defined (81)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Project:  
319110\_Lautamäki\_YVA

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Julia Turku / julia.turku@wsp.com  
Calculated:  
21.4.2026 15.17/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2

Noise sensitive area: R26 Noise sensitive point: Finnish normal frequency - User defined (82)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R27 Noise sensitive point: Finnish normal frequency - User defined (83)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R28 Noise sensitive point: Finnish normal frequency - User defined (84)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R29 Noise sensitive point: Finnish normal frequency - User defined (85)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R30 Noise sensitive point: Finnish normal frequency - User defined (86)

No noise demand

No distance demand  
Pure tone penalty: 0 dB

Noise sensitive area: R31 Noise sensitive point: Finnish normal frequency - User defined (87)

No noise demand

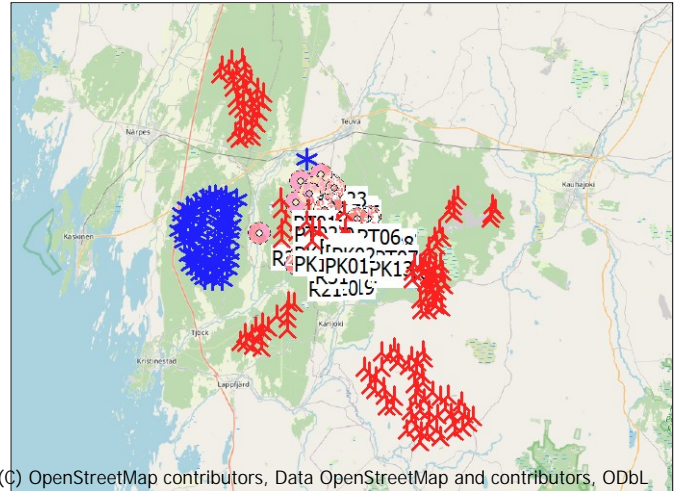
No distance demand  
Pure tone penalty: 0 dB

## DECIBEL - Main Result

### Calculation: Lautamäki melu VE2 yhteisvaikutukset

Calculation is done according to Finnish guideline " Ympäristöhallinnon ohjeita 2 | 2014" from the Ministry of the Environment of Finland

All coordinates are in  
Finish TM ETRS-TM35FIN-ETRS89



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:750 000

- ▲ New WTG
- ★ Existing WTG
- Noise sensitive area

### WTGs

	East	North	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LWA,ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.	Type-generator				Creator	Name			
				[m]											
100	233 629	6 912 886	118,3	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
101	233 962	6 912 087	118,1	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
102	233 658	6 911 155	114,2	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
103	234 552	6 911 250	113,0	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
104	235 445	6 911 963	118,2	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
105	236 149	6 911 383	111,0	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
106	233 097	6 910 195	107,9	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
107	234 086	6 910 233	109,3	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
108	234 827	6 910 071	105,7	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
109	236 986	6 911 469	111,9	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
110	236 501	6 910 261	111,2	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
111	235 731	6 909 539	105,0	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
112	234 732	6 908 768	102,7	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
113	233 059	6 909 329	105,0	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
114	232 564	6 908 293	97,9	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
115	233 439	6 908 512	98,7	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
116	233 981	6 907 979	98,1	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
117	234 561	6 907 865	100,1	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
118	235 521	6 908 188	105,2	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
119	237 043	6 909 577	112,2	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
120	237 956	6 909 900	120,4	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
121	238 222	6 910 642	121,5	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
122	238 498	6 909 510	131,6	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
123	239 268	6 909 149	129,6	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
124	238 754	6 908 635	127,4	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
125	238 117	6 908 169	117,9	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
126	237 205	6 908 635	106,3	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
127	237 328	6 907 903	108,5	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
128	235 835	6 907 333	104,6	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
129	233 772	6 907 047	96,0	VESTAS V162 5600 162.0 IOI hub...Yes	Yes	VESTAS	V162-5 600	5 600	162.0	200.0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0 i
130	218 236	6 938 576	35,5	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
131	218 883	6 938 859	49,9	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
132	219 579	6 938 725	50,4	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
133	218 920	6 939 588	53,0	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
134	217 904	6 939 202	35,4	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
135	218 413	6 939 846	50,8	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
136	218 979	6 940 722	60,3	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
137	220 097	6 939 978	69,9	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
138	219 761	6 940 507	66,3	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
139	220 435	6 941 112	86,2	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
140	220 926	6 942 098	89,3	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
141	219 779	6 941 463	78,2	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
142	220 287	6 942 388	83,2	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
143	221 082	6 942 909	85,9	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
144	219 632	6 942 354	63,6	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
145	219 412	6 943 338	61,1	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
146	219 004	6 942 365	57,4	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
147	218 889	6 941 526	55,3	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
148	218 364	6 942 657	58,5	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
149	218 311	6 941 841	45,4	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
150	218 101	6 943 686	46,5	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
151	218 086	6 944 470	49,2	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
152	218 574	6 945 308	53,4	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
153	219 113	6 943 922	58,1	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
154	219 911	6 944 279	63,8	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0	106,4	0,0 h
155	220 426	6 943 459	69,0	NORDEX N163/6.X 6800 163.0 IO...No	No	NORDEX	N163/6.X-6 800	6 800	163.0	190.0	USER	Bredåsen	8,0</		

## DECIBEL - Main Result

## Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

	East North Z			Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA.ref [dB(A)]	Uncertainty [dB(A)]
					Valid	Manufact.	Type-generator				Creator	Name			
			[m]												
164	239 454	6 931 126	147,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
165	239 074	6 930 759	153,3	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
166	238 846	6 930 228	149,9	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
167	238 488	6 929 761	146,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
168	238 907	6 929 430	131,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
169	242 870	6 930 086	132,2	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
170	243 080	6 929 473	146,2	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
171	242 602	6 929 156	132,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
172	242 524	6 928 659	144,4	LAGERWEY L100-2.5MW 2520 10...Yes	LAGERWEY	L100-2.5MW-2 520	2 520	100,0	135,0	USER	Mustaisneva	8,0	106,0	0,0	h
173	224 711	6 936 070	68,4	LAGERWEY L82-2.3MW 2300 82.0...Yes	LAGERWEY	L82-2.3MW-2 300	2 300	82,0	100,0	USER	Level 0 - Calculated - Standard L82-2.3MW - 08-2015	8,0	103,7	0,0	h
174	211 879	6 930 909	29,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
175	211 992	6 931 693	31,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
176	212 257	6 930 704	31,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
177	211 658	6 930 064	22,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
178	212 004	6 929 605	36,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
179	212 577	6 929 589	45,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
180	213 465	6 929 787	53,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
181	212 845	6 929 161	48,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
182	211 949	6 928 883	43,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
183	214 190	6 928 730	55,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
184	213 930	6 927 830	57,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
185	213 357	6 927 216	60,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
186	212 386	6 926 676	51,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
187	212 363	6 927 541	51,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
188	212 940	6 927 613	60,5	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
189	213 778	6 930 498	57,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
190	213 062	6 931 339	38,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
191	212 529	6 932 360	46,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
192	212 959	6 932 067	51,6	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
193	213 499	6 932 574	55,5	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
194	214 174	6 932 972	52,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
195	214 839	6 933 102	47,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
196	215 418	6 933 215	48,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
197	215 905	6 932 897	55,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
198	214 191	6 931 385	48,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
199	214 372	6 932 224	53,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
200	215 135	6 932 455	51,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
201	215 873	6 932 155	66,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
202	216 470	6 932 996	61,6	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
203	217 466	6 932 644	61,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
204	216 935	6 931 698	67,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
205	216 179	6 931 742	66,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
206	216 442	6 930 950	78,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
207	215 807	6 930 906	64,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
208	215 505	6 930 106	60,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
209	215 969	6 929 875	65,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
210	215 419	6 929 045	62,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
211	216 738	6 930 269	75,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
212	216 417	6 929 528	71,2	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
213	216 395	6 928 775	69,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
214	215 891	6 928 074	52,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
215	215 237	6 928 171	44,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
216	216 229	6 927 430	55,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
217	215 371	6 927 402	44,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
218	214 736	6 926 742	45,6	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	159,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
219	213 980	6 926 126	49,8	NORDEX N16											

## DECIBEL - Main Result

### Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

	East North Z			Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	LwA.ref [dB(A)]	Uncertainty [dB(A)]
	Valid	Manufact.			Valid	Manufact.					Creator	Name			
60	217 217	6 918 287	20,9	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
61	217 914	6 918 033	22,6	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
62	218 745	6 917 761	21,4	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
63	217 217	6 919 231	30,5	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
64	217 863	6 919 009	23,2	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
65	218 675	6 918 737	35,2	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
66	218 288	6 919 796	27,5	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
67	219 024	6 919 339	40,3	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
68	218 979	6 920 100	36,9	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
69	219 613	6 919 656	34,8	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
70	220 570	6 920 734	39,7	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
71	221 445	6 919 345	53,0	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
72	221 559	6 920 385	53,2	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
73	221 623	6 921 146	50,1	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
74	222 326	6 921 862	57,6	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
75	221 781	6 921 983	47,6	VESTAS V162-7.2 7200 162.0 IOI...Yes	VESTAS	V162-7.2-7 200	7 200	162,0	149,0	USER	P07200 - 2024-10	8,0	104,3	0,0	i
76	230 596	6 916 280	76,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
77	231 908	6 916 613	84,6	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
78	231 442	6 915 900	93,7	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
79	232 336	6 915 995	99,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
80	232 193	6 915 120	109,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
81	230 510	6 914 807	86,3	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
82	228 789	6 914 864	71,6	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
83	229 274	6 914 360	78,1	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
84	229 864	6 913 865	81,1	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
85	229 198	6 913 114	77,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
86	229 702	6 912 610	86,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
87	230 558	6 912 686	92,6	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
88	230 567	6 912 020	90,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
89	231 566	6 911 745	96,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
90	230 662	6 910 917	87,2	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
91	231 404	6 910 851	90,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
92	233 534	6 915 510	112,9	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
93	233 230	6 914 683	109,3	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
94	234 076	6 915 025	128,5	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
95	234 875	6 915 358	128,1	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
96	234 808	6 916 062	126,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
97	233 952	6 914 227	120,4	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
98	234 485	6 913 732	120,8	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
99	234 552	6 912 952	120,5	VESTAS V162 5600 162.0 IOI hub...Yes	VESTAS	V162-5 600	5 600	162,0	200,0	USER	Level 0 - Estimated - Mode 0 - 01-2019	8,0	104,0	2,0	i
PK01	224 674	6 927 880	53,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK02	225 419	6 928 888	71,4	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK03	224 825	6 929 323	70,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK04	224 298	6 929 908	67,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK05	224 183	6 928 518	61,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK06	223 254	6 928 853	70,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK07	223 394	6 929 822	64,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK08	222 195	6 930 180	73,0	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK09	221 791	6 929 296	66,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK10	221 615	6 928 352	62,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK11	226 930	6 928 530	78,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK12	228 297	6 927 589	73,3	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK13	229 048	6 927 350	77,8	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK14	230 058	6 927 243	91,9	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK15	229 345	6 926 545	78,1	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4	2,0	g
PK16	230 631	6 926 906	116,7	NORDEX N163/6.X 6800 163.0 IO...No	NORDEX	N163/6.X-6 800	6 800	163,0	210,0	USER	N163/6.X_R02 HH164_STE STE Mode 1	8,0	106,4		

## DECIBEL - Main Result

## Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

Noise sensitive area

No. Name

No.	Name	East	North	Z	Immission height	Demands			Sound level			WTG+Uncertainty margin	2 dB penalty applied for one or more WTGs
						Noise	From WTGs	Uncertainty margin	[dB(A)]	[dB(A)]	[dB]		
R11	Noise sensitive point: Finnish normal frequency - User defined (99)	226 226	6 926 485	60,4	[m]	4,0	0,0	35,1	1,9	37,1	No		
R12	Noise sensitive point: Finnish normal frequency - User defined (100)	226 288	6 926 314	58,4	[m]	4,0	0,0	34,8	1,9	36,7	No		
R13	Noise sensitive point: Finnish normal frequency - User defined (101)	225 975	6 926 261	59,3	[m]	4,0	0,0	34,6	1,9	36,5	No		
R14	Noise sensitive point: Finnish normal frequency - User defined (102)	225 848	6 926 257	59,1	[m]	4,0	0,0	34,6	1,9	36,5	No		
R15	Noise sensitive point: Finnish normal frequency - User defined (103)	225 775	6 926 147	56,9	[m]	4,0	0,0	34,3	1,9	36,2	No		
R16	Noise sensitive point: Finnish normal frequency - User defined (104)	225 568	6 925 885	55,3	[m]	4,0	0,0	33,8	1,9	35,6	No		
R17	Noise sensitive point: Finnish normal frequency - User defined (105)	226 081	6 925 918	58,0	[m]	4,0	0,0	33,9	1,9	35,8	No		
R18	Noise sensitive point: Finnish normal frequency - User defined (106)	226 021	6 925 845	57,8	[m]	4,0	0,0	33,7	1,9	35,6	No		
R19	Noise sensitive point: Finnish normal frequency - User defined (107)	226 143	6 925 729	57,0	[m]	4,0	0,0	33,5	1,9	35,4	No		
R20	Noise sensitive point: Finnish normal frequency - User defined (108)	224 503	6 925 724	52,7	[m]	4,0	0,0	33,5	1,8	35,3	No		
R21	Noise sensitive point: Finnish normal frequency - User defined (109)	222 838	6 925 787	39,5	[m]	4,0	0,0	33,2	1,8	35,0	No		
R22	Noise sensitive point: Finnish normal frequency - User defined (110)	219 560	6 929 092	33,4	[m]	4,0	0,0	35,6	1,9	37,5	No		
R23	Noise sensitive point: Finnish normal frequency - User defined (111)	224 719	6 934 488	60,4	[m]	4,0	0,0	30,6	1,5	32,1	No		
R24	Noise sensitive point: Finnish normal frequency - User defined (112)	224 030	6 933 901	73,9	[m]	4,0	0,0	32,3	1,7	34,0	No		
R25	Noise sensitive point: Finnish normal frequency - User defined (113)	225 437	6 933 245	83,5	[m]	4,0	0,0	32,3	1,8	34,1	No		
R26	Noise sensitive point: Finnish normal frequency - User defined (114)	224 719	6 932 622	79,9	[m]	4,0	0,0	34,3	1,9	36,2	No		
R27	Noise sensitive point: Finnish normal frequency - User defined (115)	223 298	6 931 904	72,7	[m]	4,0	0,0	37,2	1,9	39,2	No		
R28	Noise sensitive point: Finnish normal frequency - User defined (116)	226 873	6 931 422	70,2	[m]	4,0	0,0	35,4	1,9	37,3	No		
R29	Noise sensitive point: Finnish normal frequency - User defined (117)	226 155	6 930 851	75,5	[m]	4,0	0,0	36,8	2,0	38,8	No		
R30	Noise sensitive point: Finnish normal frequency - User defined (118)	229 383	6 929 720	93,0	[m]	4,0	0,0	36,9	2,0	38,9	No		
R31	Noise sensitive point: Finnish normal frequency - User defined (119)	223 642	6 926 920	44,3	[m]	4,0	0,0	36,6	1,9	38,5	No		

## Distances (m)

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
100	21543	21522	21436	20964	20936	21088	17233	17116	13615	15755	15470	15291	15397	15457	15399	15282	15047	15014	14853	15738	16805	21442
101	22405	22384	22298	21826	21798	21950	18078	17964	14448	16618	16330	16151	16255	16314	16256	16137	15905	15871	15710	16582	17632	22264
102	23199	23181	23095	22619	22594	22750	18942	18822	15337	17328	17021	16841	16932	16987	16923	16790	16579	16542	16383	17192	18182	22793
103	23387	23365	23278	22808	22779	22928	19015	18906	15362	17630	17346	17167	17273	17333	17275	17157	16923	16890	16729	17605	18653	23283
104	23035	23006	22917	22457	22423	22562	18535	18437	14837	17438	17186	17009	17135	17202	17152	17055	16791	16764	16600	17566	18693	23340
105	23839	23808	23719	23262	23226	23362	19286	19195	15571	18298	18054	17878	18008	18077	18028	17936	17666	17640	17475	18458	19595	24243
106	23965	23951	23867	23386	23364	23527	19809	19682	16246	17995	17664	17483	17558	17607	17537	17388	17202	17161	17005	17733	18648	23224
107	24206	24187	24101	23626	23600	23755	19923	19806	16301	18344	18037	17857	17948	18002	17938	17804	17594	17557	17398	18200	19178	23783
108	24591	24569	24482	24011	23982	24133	20225	20115	16569	18807	18515	18335	18436	18494	18433	18309	18084	18050	17889	18735	19750	24368
109	24100	24066	23975	23526	23487	23615	19464	19382	15730	18680	18457	18283	18424	18497	18454	18374	18086	18065	17899	18932	20111	24761
110	25008	24979	24889	24432	24396	24533	20461	20370	16745	19438	19187	19010	19135	19202	19151	19053	18791	18764	18599	19555	20664	25307
111	25396	25371	25283	24818	24786	24931	20950	20848	17263	19691	19413	19234	19343	19404	19347	19231	18994	18962	18800	19682	20724	25351
112	25796	25776	25690	25216	25189	25343	21480	21367	17839	19944	19636	19455	19545	19599	19534	19399	19191	19154	18995	19785	20745	25339
113	24791	24778	24695	24212	24191	24356	20662	20533	17107	18790	18450	18269	18337	18383	18311	18155	17980	17937	17783	18477	19356	23911
114	25680	25670	25589	25102	25084	25254	21639	21504	18121	19606	19247	19066	19121	19162	19084	18915	18763	18716	18565	19188	19998	24507
115	25678	25664	25581	25099	25077	25241	21521	21395	17948	19688	19350	19168	19238	19284	19212	19056	18881	18838	18683	19377	20251	24800
116	26334	26319	26235	25755	25732	25893	22126	22004	18527	20379	20047	19866	19940	19988	19918	19766	19584	19542	19387	20100	20988	25545
117	26606	26589	26503	26027	26002	26159	22335	22218	18709	20703	20382	20202	20283	20334	20266	20122	19928	19888	19731	20479	21397	25969
118	26595	26573	26486	26016	25987	26137	22212	22105	18543	20802	20505	20325	20421	20477	20415	20286	20069	20033	19873	20692	21674	26277
119	25850	25819	25729	25274	25237	25372	21275	21187	17552	20304	20055	19878	20004	20071	20021	19924	19660	19634	19469	20427	21535	26178
120	25931	25896	25804	25358	25317	25444	21268	21190	17527	20521	20296	20121	20261	20333	20289	20206	19922	19900	19734	20752	21912	26561
121	25382	25344	25252	24810	24768	24890	20672	20599	16926	20064	19855	19682	19831	19907	19866	19794	19496	19477	19310	20371	21570	26219
122	26517	26480	26389	25945	25903	26028	21825	21751	18080	21148	20928	20754	20896	20969	20926	20846	20559	20537	20371	21400	22567	27217
123	27185	27146	27054	26615	26571	26691	22449	22380	18701	21885	21676	21502	21650	21725	21684	21610	21315	21295	21121	22179	23363	28013
124	27415	27379	27288	26843	26802	26927	22732	22657	18988	22015	21789	21614	21752	21824	21779	21694	21413	21390	21224	22233	23379	28027
125	27569	27536	27446	26994	26956	27087	22950	22867	19215	22063	21818	21642	21770	21838	21788	21692	21426	21400	21236	22196	23300	27942
126	26779	26749	26659	26202	26166	26303	22221	22131	18500	21195	20937	20760	20881	20946	20893	20790	20535	20507	20343	21274	22354	26991
127	27502	27472	27383	26924	26889	27027	22956	22865	19237	21891	21627	21449	21566	21630	21576	21468	21219	21189	21026	21937	22997	27628
128	27506	27483	27396	26926	26897	27047	23116	23010	19442	21709	21409	21229	21324	21380	21317	21186	20971	20935	20776	21584	22552	27148
129	27177	27164	27081	26598	26577	26741	23016	22891	19434	21176	20833	20651	20717	20762	20688	20529	20360	20315	20162	20832	21677	26205
130	10051	10144	10239	10490	10576	10581	15077	15016	18392	14254	14479	14656	14531	14468	14523	14643	14878	14909	15071	14285	13579	9567
131	9663	9751	9848	10124	10205	10197	14725	14674	18104	14125	14376	14554	14444	14385	14447	14581	14795	14829	14989	14273	13644	9781
132	9020	9105	9202	9492	9571	9555	14096	14050	17511	13646	13916	14095	13996	13942	14008	14155	14350	14388	14546	13889	13330	9624
133	10066	10149	10247	10548	10625	10603	15153	15110	18586	14724	14988	15167	15065	15010	15074	15216	15418	15455	15614	14932	14333	10505
134	10665	10756	10852	11117	11200	11198	15712	15656	19056	14956	15184	15360	15237	15174	15230	15351	15585	15615	15778	14992	14280	10235
135	10624	10708	10806	11102	11180	11160	15707	15663	19127	15209	15463	15642	15534	15476	15537	15673	15885	15920	16080	15364	14725	10805
136	10762	10837	10935	11268	11340	11297	15860	15831	19364	15677	15961											

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
144	11519	11580	11678	12060	12120	12045	16581	16576	20189	16847	17169	17350	17282	17239	17316	17490	17640	17686	17838	17312	16859	13250
145	12432	12490	12586	12979	13037	12955	17473	17474	21104	17836	18162	18343	18278	18236	18314	18490	18636	18682	18834	18318	17865	14233
146	11929	11994	12092	12461	12524	12459	17009	16997	20589	17123	17429	17610	17532	17485	17558	17722	17888	17931	18086	17509	16999	13272
147	11389	11460	11558	11908	11976	11923	16484	16463	20023	16427	16720	16900	16814	16764	16835	16992	17169	17121	17367	16754	16212	12440
148	12572	12640	12737	13098	13164	13104	17659	17644	21222	17672	17965	18146	18060	18010	18080	18237	18415	18456	18612	17994	17437	13605
149	12019	12091	12189	12533	12602	12553	17116	17092	20641	16978	17260	17440	17347	17295	17362	17512	17701	17740	17988	17249	16664	12798
150	13518	13582	13680	14053	14116	14047	18592	18583	22182	18706	19006	19186	19104	19055	19127	19286	19460	19502	19657	19051	18498	14653
151	14135	14196	14293	14677	14737	14661	19191	19188	22806	19416	19723	19904	19826	19780	19852	20016	20183	20226	20380	19795	19260	15434
152	14520	14574	14670	15073	15128	15038	19533	19542	23187	19974	20300	20481	20415	20373	20450	20625	20773	20819	20971	20442	19962	16231
153	13079	13136	13232	13628	13685	13600	18114	18117	21750	18490	18815	18996	18930	18888	18965	19139	19288	19334	19486	18961	18496	14823
154	12925	12975	13070	13485	13536	13438	17907	17922	21580	18518	18864	19045	18994	18957	19039	19226	19352	19402	19551	19097	18705	15177
155	11958	12008	12103	12518	12569	12470	16943	16956	20613	17570	17921	18103	18054	18020	18103	18294	18413	18464	18612	18180	17819	14379
156	15070	15127	15224	15616	15674	15592	20109	20112	23741	20406	20717	20898	20822	20776	20850	21015	21179	21222	21377	20798	20263	16422
157	15667	15719	15815	16223	16277	16183	20665	20677	24330	21147	21473	21654	21588	21546	21622	21796	21946	21992	22144	21610	21118	17345
158	13796	13846	13942	14354	14406	14309	18783	18797	22453	19351	19691	19872	19815	19777	19857	20040	20174	20222	20372	19891	19466	15851
159	14421	14467	14562	14984	15033	14929	19375	19395	23062	20048	20395	20576	20524	20487	20569	20756	20883	20932	21081	20621	20212	16618
160	15156	15201	15295	15720	15768	15662	20094	20117	23788	20805	21152	21334	21282	21246	21328	21515	21641	21691	21840	21380	20967	17350
161	15807	15867	15963	16352	16410	16332	20855	20855	24479	21089	21392	21573	21492	21444	21515	21675	21848	21890	22045	21438	20870	16959
162	15395	15459	15557	15930	15992	15924	20468	20460	24059	20537	20826	21006	20916	20865	20934	21085	21271	21311	21468	20820	20211	16237
163	9468	9548	9646	9957	10033	10004	14560	14522	18020	14256	14536	14716	14624	14572	14640	14792	14978	15018	15175	14543	14003	10310
164	12807	12693	12611	12555	12451	12345	8984	8984	9190	8754	13571	14007	14006	14318	14439	14544	14830	14339	14421	14351	15884	17438
165	12503	12391	12308	12234	12131	12033	8562	8562	8764	8238	13100	13529	13526	13838	13960	14064	14347	13854	13935	13864	15404	16967
166	12403	12293	12207	12110	12009	11921	8295	8489	7773	12736	13153	13143	13457	13580	13682	13959	13462	13542	13465	15021	16599	19302
167	12186	12078	11990	11871	11771	11694	7929	8115	7236	12276	12682	12667	12982	13106	13206	13478	12978	13056	12976	14544	16134	18923
168	12685	12577	12489	12362	12262	12189	8358	8358	8538	7471	12615	13008	12988	13304	13428	13525	13791	13287	13364	13279	14861	16463
169	16354	16241	16158	16086	15983	15885	12309	12499	11403	16627	17015	16992	17308	17433	17528	17790	17284	17360	17271	18862	20471	23311
170	16691	16580	16495	16406	16304	16213	12523	12705	11423	16731	17103	17073	17389	17515	17607	17861	17352	17426	17332	18936	20558	23503
171	16305	16195	16109	16007	15906	15821	12060	12238	10880	16213	16579	16546	16863	16989	17080	17331	16821	16924	16798	18407	20033	23022
172	16365	16256	16169	16052	15952	15874	12021	12192	10690	16076	16429	16391	16708	16834	16922	17167	16656	16727	16627	18244	19878	22948
173	3447	3508	3606	3994	4051	3973	8521	8509	12119	9276	9695	9873	9881	9870	9971	10212	10235	10299	10430	10338	10443	8665
174	15135	15255	15314	15223	15329	15490	18686	18510	20657	15153	14999	15109	14829	14709	14675	14568	15039	15007	15161	13634	12085	7886
175	14917	15037	15099	15034	15140	15292	18634	18465	20731	15268	15142	15260	14987	14870	14843	14752	15212	15185	15342	13848	12337	7995
176	14798	14918	14975	14876	14981	15146	18298	18121	20244	14736	14578	14687	14406	14286	14252	14143	14615	14953	14736	13207	11656	7472
177	15510	15629	15684	15568	15673	15844	18878	18695	20707	15172	14987	15088	14800	14678	14637	14510	14983	14956	15105	13545	11958	7954
178	15278	15397	15449	15317	15421	15598	18533	18346	20290	14745	14546	14644	14352	14230	14185	14051	14538	14499	14647	13075	11476	7566
179	14727	14846	14898	14761	14865	15043	17961	17774	19722	14179	13984	14083	13792	13670	13627	13496	13981	13943	14091	12524	10932	6994
180	13819	13938	13989	13852	13956	14134	17072	16886	18882	13349	13169	13272	12985	12864	12825	12704	13184	13148	13299	11750	10181	6129
181	14586	14704	14753	14600	14703	14887	17705	17514	19393	13842	13633	13728	13434	13311	13264	13125	13615	13574	13721	12142	10537	6709
182	15523	15641	15690	15536	15639	15823	18612	18419	20244	14688	14463	14553	14256	14131	14081	13932	14426	14383	14526	12932	11309	7607
183	13446	13563	13606	13426	13528	13721	16387	16191	18004	12449	12232	12325	12030	11906	11858	11717	12208	12166	12312	10731	9126	5377
184	14018	14134	14173	13967	14068	14268	16731	16528	18170	12613	12358	12439	12135	12010	11953	11788	12289	12242	12381	10770	9130	5764
185	14790	14905	14941	14725	14825	15029	17381	17175	18705	13158	12878	12950	12642	12516	12452	12271	12778	12726	12860	11234	9578	6475
186	15896	16011	16047	15828	15927	16132	18426	18217	19659	14128	13828	13893	13583	13456	13387	13193	13703	13648	13776	12142	10479	7563
187	15575	15692	15732	15536	15637	15835	18320	18116	19712	14160	13890	13965	13659	13533	13472	13296	13801	13750	13885	12263	10610	7355
188	15014	15130	15170	14907	15071	15270	17739	17535	19141	12967	13321	13398	13093	12967	12906	12733	13238	13188	13324	11705	10055	6777
189	13348	13467	13522	13407	13512	13682	16772	16592	18716	13215	13067	13178	12900	12781	12750	12648	13116	13085	13240	11728	10201	5945
190	13902	14022	14082	14000	14106	14264	17537	17366	19608	14142	14017	14135	13863	13746	13719	13630	14089	14062	14220	12732	11231	6869
191	14323	14442	14508	14464	14569	14713	18180	18018	20397	14986	14890	15014	14751	14637	14617	14544	14991	14969	15129	13676	12214	7746
192	13918	14038	14102	14046	14152	14300	17716	17551	19901	14480	14380	14503	14239	14125	14104	14029	14478	14455	14614	13159	11694	7234
193	13342	13461	13528	13490	13596	13737	17253	17094	19538	14169	14095	14225	13969	13858	13844	13785	14221	14202	14364	12949	11533	6984
194	12651	12770	12838																			

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

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WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
221	15602	15713	15741	15482	15578	15794	17772	17555	18776	13297	12958	13009	12694	12567	12489	12272	12786	12724	12844	11205	9543	7186
222	15618	15732	15764	15525	15622	15833	17977	17764	19107	13596	13278	13337	13024	12897	12824	12620	13132	13074	13199	11561	9897	7227
223	15480	15589	15613	15337	15431	15652	17476	17255	18369	12925	12567	12611	12295	12168	12086	11859	12373	12308	12423	10786	9131	7073
224	15028	15136	15157	14868	14960	15184	16904	16682	17742	12316	11950	11990	11674	11547	11462	11231	11745	11679	11792	10157	8506	6651
225	14182	14291	14315	14036	14130	14351	16204	15985	17184	11705	11365	11416	11101	10974	10897	10681	11195	11134	11254	9616	7952	5782
226	13401	13511	13537	13271	13366	13584	15574	15359	16697	11178	10866	10928	10616	10489	10419	10222	10733	10676	10804	9170	7506	4986
227	14254	14360	14377	14069	14160	14387	15965	15740	16738	11332	10956	10993	10676	10550	10464	10228	10741	10675	10785	9153	7507	5961
228	13158	13265	13286	12996	13089	13313	15109	14890	16106	10616	10282	10336	10022	9895	9819	9610	10123	10063	10186	8548	6883	4795
229	12581	12691	12715	12442	12537	12756	14729	14514	15887	10358	10056	10122	9812	9685	9618	9429	9938	9884	10015	8385	6726	4176
24	16502	16444	16347	15961	15901	15979	11498	11476	7832	12352	12356	12218	12465	12574	12587	12652	12210	12230	12069	13549	15109	19454
25	15977	15920	15824	15432	15373	15456	10997	10968	7306	11755	11755	11616	11861	11971	11983	12047	11605	11625	11464	12942	14503	18849
26	15811	15760	15665	15256	15202	15298	10916	10867	7178	11303	11266	11120	11352	11457	11461	11505	11081	11094	10930	12366	13896	18306
27	15472	15415	15318	14928	14869	14950	10488	10459	6800	11310	11323	11187	11437	11548	11563	11636	11188	11209	11050	12546	14121	18436
28	15632	15571	15474	15097	15034	15106	10603	10588	6972	11677	11714	11583	11841	11955	11975	12060	11602	11628	11470	12991	14581	18845
29	14791	14736	14640	14243	14185	14272	9841	9803	6126	10553	10564	10428	10678	10789	10804	10877	10428	10450	10291	11790	13368	17674
30	15137	15067	14969	14625	14554	14603	10046	10064	6626	11756	11864	11750	12029	12149	12185	12308	11825	11862	11713	13295	14928	19013
31	15029	14964	14867	14502	14436	14499	9968	9966	6409	11329	11402	11280	11549	11666	11695	11801	11329	11360	11207	12764	14380	18551
32	14638	14577	14480	14103	14039	14112	9613	9596	5978	10750	10806	10679	10944	11060	11085	11183	10716	10745	10590	12134	13743	17949
33	14439	14372	14274	13918	13850	13908	9364	9369	5863	10923	11025	10909	11187	11306	11341	11463	10981	11017	10867	12448	14081	18174
34	14092	14029	13932	13559	13495	13564	9054	9042	5444	10326	10404	10282	10554	10671	10702	10812	10337	10370	10217	11783	13406	17553
35	14506	14434	14337	13999	13926	13972	9411	9434	6049	11277	11408	11300	11586	11707	11748	11885	11395	11435	11290	12889	14534	18547
36	13636	13572	13475	13106	13041	13107	8589	8580	5004	9980	10077	9960	10238	10357	10391	10513	10031	10067	9917	11499	13133	17227
37	13916	13848	13750	13397	13328	13384	8836	8844	5364	10503	10623	10512	10795	10915	10954	11087	10599	10638	10491	12086	13728	17767
38	14130	14054	13956	13636	13560	13594	9033	9073	5839	11215	11382	11284	11577	11701	11750	11906	11407	11453	11313	12932	14588	18490
39	13552	13479	13381	13048	12975	13017	8454	8483	5161	10498	10658	10559	10851	10975	11023	11177	10679	10724	10584	12201	13857	17773
40	13335	13267	13169	12816	12747	12803	8256	8263	4787	9970	10103	9995	10282	10404	10446	10587	10094	10136	9992	11596	13245	17240
41	12644	12577	12479	12123	12055	12112	7571	7574	4091	9317	9464	9361	9652	9774	9821	9971	9474	9518	9377	10991	12646	16591
42	13155	13078	12980	12666	12589	12619	8061	8107	4972	10437	10635	10546	10847	10972	11028	11201	10696	10747	10613	12244	13907	17701
43	12899	12826	12728	12393	12320	12364	7802	7828	4517	9893	10068	9973	10269	10393	10445	10607	10105	10153	10016	11641	13301	17167
44	12004	11934	11836	11491	11420	11471	6916	6930	3555	8937	9121	9029	9328	9452	9507	9677	9172	9222	9088	10717	12380	16209
45	12427	12349	12252	11937	11860	11891	7332	7379	4296	9802	10019	9936	10240	10366	10427	10612	10102	10157	10028	11664	13329	17053
46	11997	11915	11818	11522	11442	11460	6924	6989	4164	9720	9973	9902	10211	10338	10407	10609	10096	10156	10035	11674	13337	16929
47	11725	11641	11544	11263	11180	11190	6682	6763	4165	9717	9996	9933	10245	10372	10446	10661	10147	10210	10095	11732	13391	16883
48	11742	11650	11555	11315	11226	11212	6826	6940	4841	10314	10634	10585	10901	11028	11110	11344	10830	10898	10793	12419	14066	17373
49	12438	12344	12249	12022	11932	11911	7569	7691	5613	11099	11415	11365	11681	11807	11889	12120	11606	11674	11567	13195	14844	18158
50	12215	12127	12030	11770	11684	11682	7225	7321	4886	10429	10717	10656	10970	11097	11172	11390	10876	10940	10826	12462	14119	17569
51	12344	12271	12173	11838	11765	11809	7247	7273	3985	9406	9596	9505	9805	9929	9985	10157	9651	9702	9568	11199	12861	16675
52	11781	11683	11589	11385	11292	11258	7021	7161	5473	10831	11182	11144	11461	11587	11676	11923	11413	11485	11387	12999	14631	17779
53	11497	11430	11333	10975	10907	10966	6428	6429	2964	8310	8492	8400	8699	8823	8878	9049	8543	8594	8460	10091	11754	15583
54	11961	11900	11803	11424	11362	11435	6950	6926	3302	8330	8457	8350	8636	8758	8801	8944	8450	8492	8349	9958	11610	15597
55	12562	12505	12409	12017	11958	12041	7601	7563	3891	8624	8706	8586	8860	8978	9011	9128	8649	8684	8533	10111	11745	15856
56	13602	13522	13425	13119	13041	13065	8515	8569	5496	10973	11173	11084	11385	11510	11567	11740	11234	11285	11152	12783	14446	18235
57	15411	15363	15269	14851	14799	14902	10575	10514	6827	10764	10712	10563	10790	10893	10894	10930	10513	10524	10359	11778	13297	17728
58	14579	14528	14433	14025	13970	14066	9688	9637	5947	10163	10152	10011	10254	10363	10374	10436	9996	10015	9853	11331	12895	17238
59	18023	18105	18090	17667	17734	17979	17972	17731	17347	13030	12493	12432	12157	12057	11931	11604	12024	11932	11957	10697	9587	11008
60	17852	17930	17912	17480	17544	17790	17639	17398	16913	12713	12169	12101	11834	11737	11609	11280	11686	11593	11611	10402	9364	11046
61	17705	17780	17757	17316	17376	17622	17291	17051	16433	12394	11843	11766	11508	11416	11287	10954	11342	11248	11256	10118	9176	11750
62	17544	17614	17587	17134	17190	17435	16889	16649	15872	12040	11482	11394	11149	11064	10933	10599	10961	10867	10863	9818	9001	11310
63	17064	17145	17129	16706	16773	17018	17036	16795	16480	12090	11555	11498	11220	11119	10993	10667	11093	11002	11030	9750	8627	10125
64	16896	16974	16954	16521	16584	16830	16679	16438	16003	11749	11206	11140	10870	10773	10646	10316	10726	10633	10653	9434	8399	10214
65	16718	16791	16767	16321	16380	16625	16256	16016	15422	11361	10809	10731	10474	10383	10253	9921	10307	10213	10211	9090	8179	10383

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

WTG	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22
92	19039	19014	18926	18460	18429	18573	14641	14530	11001	13417	13174	12998	13131	13201	13154	13069	12790	12766	12601	13622	14820	19469
93	19714	19692	19605	19135	19106	19257	15395	15278	11787	13980	13712	13533	13651	13716	13663	13560	13305	13276	13113	14061	15195	19843
94	19686	19658	19570	19108	19075	19216	15231	15127	11564	14114	13878	13703	13839	13911	13866	13784	13500	13477	13312	14344	15546	20195
95	19689	19657	19566	19114	19076	19208	15116	15024	11406	14285	14081	13908	14062	14139	14102	14039	13730	13713	13546	14651	15913	20552
96	19022	18988	18897	18447	18408	18538	14424	14334	10709	13680	13490	13319	13481	13561	13527	13475	13153	13139	12971	14115	15410	20039
97	20387	20362	20274	19808	19777	19922	15982	15873	12331	14732	14477	14300	14426	14493	14443	14348	14082	14055	13891	14870	16023	20672
98	21038	21011	20923	20460	20427	20569	16583	16480	12908	15428	15180	15004	15132	15201	15152	15060	14790	14764	14600	15589	16748	21397
99	21789	21763	21675	21211	21179	21323	17356	17251	13686	16134	15875	15697	15819	15885	15833	15733	15474	15446	15282	16237	17361	22008
PK01	5873	5933	5898	5431	5482	5725	6197	5973	7524	2063	2085	2247	2075	2001	2051	2184	2412	2438	2602	2161	2782	5250
PK02	4674	4727	4687	4209	4255	4496	5220	5010	7080	2217	2533	2714	2683	2663	2761	3004	3040	3099	3238	3291	4031	5857
PK03	4493	4562	4536	4092	4153	4399	5748	5550	7790	2905	3162	3343	3268	3229	3312	3514	3626	3674	3825	3610	4053	5265
PK04	4268	4353	4343	3949	4026	4268	6250	6067	8503	3688	3925	4104	4011	3963	4037	4215	4366	4409	4564	4185	4368	4803
PK05	5503	5576	5553	5115	5178	5424	6503	6291	8146	2808	2880	3045	2879	2805	2853	2972	3216	3241	3406	2809	3042	4654
PK06	5739	5827	5820	5432	5509	5750	7361	7157	9129	3774	3797	3952	3755	3667	3695	3760	4072	4083	4251	3366	3091	3698
PK07	4920	5015	5018	4668	4753	4988	7153	6968	9303	4235	4373	4543	4394	4324	4375	4493	4735	4762	4926	4241	4070	3899
PK08	5610	5718	5739	5465	5560	5778	8357	8178	10549	5389	5463	5625	5440	5356	5388	5456	5763	5777	5944	5013	4436	2848
PK09	6461	6564	6579	6268	6359	6586	8772	8578	10656	5272	5246	5391	5164	5064	5074	5085	5456	5454	5622	4480	3658	2238
PK10	7216	7314	7320	6974	7059	7294	9056	8848	10614	5098	4970	5093	4831	4719	4704	4655	5082	5065	5228	3901	2839	2182
PK11	4815	4831	4764	4260	4268	4480	3855	3629	5543	1616	2161	2305	2460	2515	2646	2973	2744	2832	2907	3707	4922	7384
PK12	5937	5926	5844	5358	5339	5511	3196	2956	3938	1878	2345	2377	2672	2785	2902	3215	2773	2864	2843	4224	5744	8857
PK13	6389	6365	6278	5810	5779	5929	2922	2695	3151	2550	2949	2946	3257	3378	3484	3773	3291	3377	3324	4823	6398	9637
PK14	6899	6860	6767	6331	6286	6405	2658	2478	2164	3541	3903	3880	4196	4320	4417	4687	4188	4268	4194	5754	7359	10649
PK15	7246	7222	7135	6667	6636	6785	3522	3317	2718	2849	3117	3063	3379	3506	3589	3831	3320	3393	3301	4907	6546	10101
PK16	7473	7428	7334	6910	6860	6969	2949	2807	1509	4103	4421	4380	4696	4822	4910	5161	4652	4726	4636	6236	7866	11274
PT01	5060	5180	5238	5156	5261	5416	9057	8924	11823	7167	7355	7529	7394	7327	7381	7499	7738	7767	7930	7183	6688	4028
PT02	5346	5462	5502	5320	5423	5613	8774	8617	11269	6338	6470	6638	6477	6401	6444	6536	6811	6832	6998	6147	5584	3203
PT03	3255	3350	3354	3015	3104	3334	6085	5934	8772	4482	4806	4988	4940	4909	4998	5209	5299	5352	5497	5273	5491	5357
PT04	4001	4004	3930	3431	3427	3624	3236	3032	5557	2548	3100	3239	3403	3460	3590	3917	3681	3770	3839	4627	5761	7788
PT05	4711	4699	4617	4131	4112	4285	2762	2532	4689	2343	2903	3004	3234	3318	3449	3783	3448	3541	3573	4646	5968	8443
PT06	3058	3027	2938	2483	2444	2585	2564	2435	5732	3912	4471	4602	4781	4841	4972	5301	5047	5138	5198	6009	7084	8640
PT07	5805	5764	5672	5238	5191	5310	1887	1662	3064	3313	3786	3815	4113	4227	4343	4652	4199	4289	4256	5666	7174	10055

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
100	22865	23084	21926	21635	21624	19712	19441	17347	17210
101	23728	23948	22791	22499	22484	20576	20306	18203	18054
102	24512	24678	23549	23233	23171	21354	21058	19035	18661
103	24714	24954	23788	23504	23500	21565	21305	19163	19077
104	24374	24709	23497	23257	23329	21245	21031	18747	19036
105	25183	25550	24324	24098	24192	22063	21864	19529	19928
106	25265	25359	24268	23920	23797	22102	21772	19858	19196
107	25521	25693	24562	24248	24187	22364	22072	20030	19668
108	25915	26139	24982	24691	24669	22765	22497	20372	20206
109	25452	25882	24628	24431	24574	22350	22184	19755	20398
110	26352	26705	25486	25253	25330	23228	23023	20702	21026
111	26729	27003	25822	25553	25566	23588	23345	21138	21153
112	27114	27293	26159	25847	25784	23957	23669	21605	21253
113	26087	26155	25078	24718	24573	22922	22582	20702	19935
114	26963	26969	25927	25540	25342	23798	23430	21643	20635
115	26976	27053	25973	25616	25474	23812	23476	21574	20834
116	27638	27742	26648	26303	26179	24476	24153	22203	21560
117	27918	28061	26946	26618	26524	24758	24454	22441	21942
118	27920	28139	26986	26691	26657	24770	24501	22371	22161
119	27195	27563	26338	26111	26196	24076	23878	21533	21898
120	27284	27725	26467	26273	26416	24187	24025	21577	22219
121	26738	27224	25946	25774	25955	23657	23518	21009	21834
122	27872	28335	27068	26884	27042	24784	24632	22152	22867
123	28543	29042	27760	27592	27776	25468	25335	22804	23644
124	28770	29218	27958	27767	27911	25677	25518	23054	23701
125	28918	29310	28075	27858	27957	25807	25621	23234	23667
126	28122	28470	27255	27018	27084	24998	24791	22470	22746
127	28843	29177	27969	27725	27777	25716	25502	23199	23409
128	28831	29048	27897	27600	27561	25681	25411	23279	23052
129	28474	28541	27467	27106	26950	25310	24971	23074	22286
130	8834	7438	8951	8794	8367	11204	11052	14223	12837
131	8409	7140	8622	8534	8230	10905	10807	13907	12841
132	7749	6557	8014	7972	7761	10312	10249	13300	12473
133	8779	7638	9086	9056	8835	11388	11333	14369	13507
134	9426	8093	9595	9465	9066	11862	11728	14875	13544
135	9342	8171	9630	9580	9315	11928	11857	14915	13931
136	9438	8479	9871	9919	9809	12187	12192	15128	14555
137	8110	7232	8586	8680	8677	10904	10944	13824	13518

To be continued on next page...

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
138	8716	7858	9209	9306	9293	11527	11570	14441	14117
139	8693	8050	9314	9501	9634	11623	11737	14473	14536
140	9180	8757	9927	10198	10456	12209	12392	14977	15405
141	9388	8667	9968	10118	10176	12283	12369	15156	15033
142	9785	9267	10484	10715	10897	12780	12931	15581	15813
143	9782	9469	10590	10901	11215	12852	13070	15569	16178
144	10159	9519	10792	10971	11064	13100	13211	15944	15932
145	11068	10496	11744	11947	12065	14046	14178	16862	16938
146	10576	9834	11150	11285	11297	13466	13541	16344	16111
147	10050	9187	10547	10633	10574	12866	12901	15781	15346
148	11224	10419	11762	11867	11820	14080	14132	16978	16583
149	10684	9776	11155	11217	11108	13473	13489	16401	15830
150	12163	11430	12749	12880	12865	15064	15138	17937	17641
151	12774	12114	13405	13566	13591	15716	15815	18562	18391
152	13154	12632	13866	14083	14199	16162	16309	18951	19056
153	11715	11152	12398	12603	12714	14699	14833	17510	17578
154	11560	11155	12329	12598	12818	14607	14795	17353	17739
155	10592	10205	11367	11646	11895	13642	13836	16386	16833
156	13706	13093	14367	14545	14589	16674	16788	19500	19395
157	14301	13803	15029	15253	15370	17322	17476	20098	20220
158	12430	11993	13185	13439	13623	15469	15645	18224	18522
159	13056	12684	13849	14127	14345	16120	16319	18843	19258
160	13792	13440	14597	14882	15104	16865	17070	19574	20016
161	14445	13795	15087	15246	15254	17397	17497	20236	20026
162	14039	13288	14619	14736	14676	16936	16999	19813	19397
163	8169	7096	8519	8527	8384	10829	10803	13794	13133
164	13783	15659	14165	14798	16161	12574	13291	10160	16348
165	13511	15356	13850	14463	15804	12209	12909	9739	15889
166	13450	15252	13733	14316	15625	12023	12696	9469	15547
167	13270	15026	13497	14051	15328	11724	12371	9098	15103
168	13780	15521	13988	14530	15791	12188	12820	9521	15457
169	17347	19207	17703	18312	19640	16040	16719	13481	19471
170	17714	19542	18027	18614	19914	16311	16967	13688	19589
171	17351	19153	17631	18201	19483	15879	16521	13220	19076
172	17436	19207	17677	18226	19482	15880	16502	13173	18946
173	2088	2271	2914	3445	4395	5122	5410	7876	9204
174	14627	12502	13744	12941	11451	14988	14262	17528	12409
175	14345	12227	13521	12749	11297	14869	14174	17486	12578
176	14314	12188	13410	12597	11095	14620	13885	17138	11986
177	15067	12941	14127	13296	11773	15261	14504	17712	12378
178	14881	12758	13904	13056	11514	14965	14192	17363	11932
179	14347	12226	13356	12503	10957	14399	13623	16791	11371
180	13446	11327	12449	11595	10049	13494	12722	15903	10563
181	14250	12136	13225	12356	10796	14195	13404	16532	11017
182	15184	13069	14162	13293	11733	15124	14328	17438	11845
183	13195	11105	12108	11215	9636	12953	12140	15211	9615
184	13838	11773	12705	11794	10206	13419	12581	15554	9745
185	14637	12582	13488	12571	10980	14142	13291	16205	10279
186	15747	13690	14597	13678	12088	15230	14374	17251	11248
187	15358	13275	14250	13347	11762	15006	14170	17143	11285
188	14812	12736	13694	12788	11201	14430	13593	16562	10714
189	12917	10792	11966	11135	9614	13115	12370	15610	10483
190	13377	11252	12509	11716	10242	13798	13089	16386	11455
191	13700	11593	12926	12181	10768	14361	13696	17043	12361
192	13326	11211	12521	11762	10330	13916	13239	16575	11847
193	12710	10604	11945	11210	9812	13411	12760	16123	11601
194	11987	9890	11255	10541	9177	12781	12156	15538	11226
195	11312	9217	10589	9882	8535	12139	11527	14918	10747
196	10724	8631	10009	9311	7981	11583	10984	14382	10347
197	10285	8179	9529	8810	7452	11056	10442	13834	9768
198	12272	10146	11388	10590	9113	12670	11964	15269	10443
199	11910	9793	11101	10345	8923	12515	11851	15204	10670
200	11118	9003	10322	9577	8174	11772	11125	14495	10140
201	10457	8334	9617	8850	7422	11014	10354	13715	9359
202	9712	7607	8962	8250	6908	10511	9910	13310	9391
203	8797	6677	7986	7246	5873	9477	8864	12259	8413

To be continued on next page...

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
204	9549	7422	8633	7831	6360	9932	9250	12592	8227
205	10261	8135	9370	8577	7114	10689	10006	13345	8877
206	10254	8134	9274	8436	6915	10432	9704	12987	8243
207	10866	8743	9900	9067	7550	11067	10338	13615	8782
208	11433	9323	10406	9542	7990	11433	10666	13870	8730
209	11100	9002	10040	9162	7597	11003	10223	13402	8215
210	11955	9877	10852	9955	8374	11687	10876	13967	8485
211	10237	8139	9185	8313	6754	10191	9426	12645	7666
212	10848	8771	9746	8851	7273	10616	9818	12955	7674
213	11231	9188	10077	9161	7572	10797	9969	13010	7474
214	12025	10000	10846	9921	8331	11470	10623	13579	7829
215	12534	10485	11381	10465	8875	12070	11231	14217	8490
216	12104	10126	10880	9942	8358	11357	10489	13340	7423
217	12826	10816	11628	10697	9107	12173	11311	14189	8277
218	13720	11721	12510	11575	9988	12996	12124	14933	8899
219	14691	12694	13475	12539	10953	13925	13047	15802	9685
220	14550	12522	13366	12439	10849	13922	13057	15899	9881
221	15575	13580	14355	13417	11833	14777	13894	16605	10431
222	15530	13502	14344	13414	11825	14874	14004	16805	10718
223	15510	13550	14261	13318	11743	14582	13690	16315	10076
224	15102	13175	13833	12886	11322	14079	13180	15748	9478
225	14227	12283	12970	12025	10454	13281	12390	15040	8841
226	13414	11453	12172	11230	9652	12553	11670	14404	8300
227	14394	12519	13097	12147	10604	13232	12327	14814	8509
228	13246	11340	11969	11021	9462	12215	11320	13945	7749
229	12621	10684	11365	10420	8848	11712	10827	13558	7477
24	17865	18744	17311	17346	17897	14997	15081	12077	14835
25	17341	18190	16766	16786	17320	14449	14518	11547	14230
26	17177	17929	16537	16510	16969	14219	14234	11382	13689
27	16836	17696	16268	16296	16844	13952	14030	11044	13817
28	16992	17918	16470	16532	17131	14161	14276	11216	14236
29	16156	16982	15564	15576	16105	13246	13307	10360	13058
30	16481	17562	16072	16218	16943	13794	14002	10786	14450
31	16384	17374	15907	16005	16661	13609	13764	10632	13962
32	15999	16928	15477	15544	16156	13169	13290	10221	13350
33	15790	16821	15343	15464	16158	13053	13236	10060	13607
34	15450	16405	14946	15028	15667	12642	12781	9681	12968
35	15846	16956	15459	15622	16377	13189	13418	10173	14008
36	14993	15969	14504	14598	15260	12203	12358	9232	12657
37	15265	16313	14830	14962	15677	12545	12741	9545	13216
38	15458	16640	15127	15331	16147	12883	13158	9855	13995
39	14889	16023	14519	14699	15485	12259	12509	9237	13270
40	14684	15733	14248	14383	15105	11964	12164	8963	12704
41	13995	15036	13552	13686	14412	11267	11468	8268	12073
42	14479	15686	14168	14390	15238	11936	12235	8906	13253
43	14237	15367	13863	14044	14836	11603	11856	8581	12684
44	13349	14438	12942	13105	13879	10672	10908	7657	11739
45	13750	14961	13441	13668	14528	11213	11520	8183	12636
46	13305	14584	13052	13320	14239	10858	11212	7835	12581
47	13020	14351	12812	13111	14073	10648	11037	7638	12591
48	12994	14450	12901	13273	14329	10821	11288	7871	13195
49	13673	15169	13618	14009	15086	11563	12046	8630	13979
50	13489	14884	13339	13672	14676	11212	11635	8223	13305
51	13682	14814	13309	13493	14294	11051	11310	8028	12214
52	12989	14544	12993	13423	14553	10996	11523	8122	13705
53	12849	13891	12405	12546	13292	10123	10335	7120	11109
54	13322	14262	12804	12887	13547	10499	10644	7543	11058
55	13926	14797	13360	13404	14000	11047	11145	8133	11278
56	14917	16158	14634	14872	15740	12415	12730	9385	13791
57	16776	17476	16102	16049	16471	13785	13771	10991	13112
58	15945	16710	15312	15294	15778	12993	13019	10150	12619
59	18579	17098	17185	16286	14984	16498	15607	16992	10971
60	18448	17020	17052	16164	14899	16287	15405	16680	10751
61	18351	16990	16954	16082	14865	16095	15224	16359	10563
62	18247	16968	16853	16002	14844	15882	15028	15992	10377
63	17626	16160	16231	15334	14043	15537	14646	16049	10010

To be continued on next page...

## DECIBEL - Main Result

Calculation: Lautamäki melu VE2 yhteisvaikutukset

...continued from previous page

WTG	R23	R24	R25	R26	R27	R28	R29	R30	R31
64	17506	16103	16109	15227	13980	15323	14442	15715	9787
65	17387	16067	15991	15129	13942	15090	14224	15325	9564
66	16613	15215	15217	14335	13092	14439	13556	14872	8903
67	16695	15384	15299	14439	13260	14395	13529	14652	8868
68	16028	14683	14632	13762	12558	13789	12914	14157	8254
69	16164	14900	14770	13922	12778	13813	12954	14014	8299
70	14802	13602	13412	12579	11488	12397	11546	12575	6900
71	15820	14770	14448	13661	12683	13228	12421	13051	7879
72	14795	13727	13419	12626	11639	12238	11420	12169	6852
73	14053	12969	12674	11875	10878	11529	10701	11554	6111
74	13159	12148	11789	11012	10080	10576	9761	10552	5221
75	13210	12118	11830	11027	10027	10715	9879	10837	5271
76	18744	18788	17716	17350	17229	15579	15219	13483	12699
77	18785	18982	17830	17533	17533	15628	15343	13337	13200
78	19330	19450	18339	18007	17941	16166	15844	13961	13489
79	19506	19721	18562	18272	18281	16351	16076	14027	13949
80	20293	20460	19326	19014	18979	17133	16835	14855	14559
81	20157	20146	19106	18716	18540	16994	16610	14943	13913
82	19793	19606	18668	18202	17887	16654	16189	14856	13097
83	20363	20215	19254	18805	18518	17215	16769	15348	13753
84	20949	20849	19861	19432	19179	17794	17371	15849	14448
85	21582	21401	20461	19997	19677	18439	17980	16593	14869
86	22157	22014	21052	20604	20311	19007	18566	17098	15526
87	22238	22177	21168	20755	20525	19078	18674	17060	15811
88	22892	22816	21816	21396	21152	19733	19324	17724	16416
89	23376	23382	22337	21952	21770	20211	19840	18092	17104
90	23991	23900	22910	22483	22221	20833	20419	18830	17459
91	24209	24180	23155	22754	22540	21046	20659	18961	17830
92	20373	20683	19479	19232	19310	17235	17008	14791	15087
93	21039	21288	20114	19838	19862	17890	17633	15508	15532
94	21024	21364	20146	19912	20009	17894	17682	15413	15809
95	21038	21463	20206	20012	20176	17931	17763	15363	16106
96	20373	20825	19555	19374	19565	17274	17120	14684	15561
97	21720	22016	20819	20564	20622	18580	18346	16140	16339
98	22375	22698	21490	21246	21321	19242	19022	16768	17058
99	23123	23422	22226	21971	22022	19985	19753	17531	17708
PK01	6749	6050	5414	4738	4249	4165	3317	5051	1408
PK02	5633	5197	4353	3795	3684	2919	2095	4047	2649
PK03	5310	4643	3966	3297	2996	2930	2024	4571	2676
PK04	4909	3999	3522	2744	2231	2984	2081	5084	3056
PK05	6257	5381	4886	4135	3497	3955	3052	5332	1686
PK06	6296	5103	4900	4040	3049	4434	3519	6184	1970
PK07	5377	4125	3982	3095	2082	3826	2944	5984	2910
PK08	5793	4145	4457	3509	2045	4835	4013	7196	3564
PK09	6726	5116	5369	4427	3009	5504	4628	7597	3009
PK10	7579	6046	6203	5274	3927	6083	5177	7880	2480
PK11	6013	6099	4941	4647	4953	2890	2445	2724	3658
PK12	7241	7612	6332	6169	6598	4085	3899	2390	4699
PK13	7725	8245	6907	6815	7329	4612	4538	2392	5418
PK14	8260	8974	7568	7572	8204	5250	5311	2565	6418
PK15	8582	9067	7749	7630	8073	5463	5354	3173	5710
PK16	8837	9610	8188	8216	8867	5870	5961	3076	6983
PT01	4702	2637	3676	2870	1528	5110	4570	7987	5767
PT02	5260	3369	4044	3122	1533	4980	4284	7650	4709
PT03	3794	2947	2402	1625	1559	2338	1590	4975	4183
PT04	5263	5607	4311	4173	4771	2098	1896	2060	4444
PT05	6018	6476	5145	5050	5644	2870	2774	1665	4740
PT06	4411	5251	3770	3945	4968	1488	1950	1543	5735
PT07	7166	7931	6501	6548	7276	4184	4313	1499	6084

Project:

319110\_Lautamäki\_YVA

Licensed user:

WSP Finland Oy / WSP Finland Ltd.

Pasilan Asema-aukio 1

FI-00520 Helsinki

+358 2078 6411

Julia Turku / julia.turku@wsp.com

Calculated:

25.4.2026 2.48/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

Noise calculation model:

ISO 9613-2:2024 Finland

Wind speed (at 10 m height):

8,0 m/s

Ground attenuation:

General, Ground factor: 0,4

Meteorological coefficient, CO:

Selected option: Fixed value: 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 tones penalty is added to total noise impact at receptors

Noise sensitive area

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

Uncertainty margin:

Uncertainty added to source noise level of the WTGs in the calculation

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0,0 dB(A)

Octave data required

Input parameters for calculation of air absorption:

Temperature 15,0 °C

Relative humidity 70,0 %

Pressure 101,325 kPa

Frequency dependent 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	1,1	2,4	4,1	8,7	26,4	93,7

All coordinates are in

Finish TM ETRS-TM35FIN-ETRS89

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: N163/6.X\_R02 HH164\_STE STE Mode 1

Source Source/Date Creator Edited

NORDEX 6.12.2021 USER 6.12.2021 9.07

F008\_277\_A06\_R02, F008\_277\_A12\_R02, F008\_277\_A13\_R02, F008\_277\_A14\_R02, F008\_277\_A15\_R02, F008\_277\_A17\_R02, F008\_277\_A19\_R02, F008\_277\_A20\_R02

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data							
						63	125	250	500	1000	2000	4000	8000
From other hub height	159,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8
Interpolated	210,0	8,0	106,4	2,0	No	92,4	97,1	99,4	99,9	100,3	98,2	88,7	69,8

WTG: VESTAS V172-7.2 7200 250.0 !O!

Noise: P07200 - 2024-11

Source Source/Date Creator Edited

Vestas 11.5.2024 USER 24.4.2026 10.20

DMS no.: 0180-4980\_V01 Sound Oerformance Specification

Issued by: Vestas Power Solutions EnVentusTM

Type: T05 V172-7.2MW 50/60Hz

Date 2024-11-05

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data							
						63	125	250	500	1000	2000	4000	8000
From Windcat	225,0	8,0	106,9	2,0	No	93,6	97,9	98,9	98,4	100,8	100,3	94,4	81,8

Project:

319110\_Lautamäki\_YVA

Licensed user:

WSP Finland Oy / WSP Finland Ltd.

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FI-00520 Helsinki

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Julia Turku / julia.turku@wsp.com

Calculated:

25.4.2026 2.48/4.2.285

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

WTG: VESTAS V162-7.2 7200 162.0 !O!

Noise: PO7200 - 2024-10

Source	Source/Date	Creator	Edited
Vestas	31.10.2024	USER	24.4.2026 12.27
Document no.: 0180-4981 V00			
Date 2024-10-31			

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	149,0	8,0	104,3	No	From nearest other wind speed	92,4	96,1	96,3	95,7	98,5	96,8	90,2	76,7

WTG: VESTAS V162 5600 162.0 !O!

Noise: Level 0 - Estimated - Mode 0 - 01-2019

Source	Source/Date	Creator	Edited
Manufacturer	23.1.2019	USER	24.4.2026 12.30
Blades with serrated trailing edge.			
Document no. 0081-5298_01.			

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Uncertainty [dB(A)]	Pure tones	Octave data								
						63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]	
From Windcat	200,0	8,0	104,0	2,0	No	From nearest other wind speed	84,9	92,6	97,4	99,1	98,0	93,9	86,8	76,7

WTG: NORDEX N163/6.X 6800 163.0 !O!

Noise: Bredåsen

Source	Source/Date	Creator	Edited
	24.4.2026	USER	24.4.2026 12.33

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	190,0	8,0	106,4	No	Generic data	88,0	95,0	98,4	101,0	100,8	97,9	93,1	83,6

WTG: LAGERWEY L100-2.5MW 2520 100.0 !O!

Noise: Mustaisneva

Source	Source/Date	Creator	Edited
	24.4.2026	USER	24.4.2026 12.24

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	135,0	8,0	106,0	No	Generic data	87,6	94,6	98,0	100,6	100,4	97,5	92,7	83,2

WTG: LAGERWEY L82-2.3MW 2300 82.0 !O!

Noise: Level 0 - Calculated - Standard L82-2.3MW - 08-2015

Source	Source/Date	Creator	Edited
Manufacturer - SD104R2	18.8.2015	USER	24.4.2026 12.10

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	100,0	8,0	103,7	No	Generic data	85,3	92,3	95,7	98,3	98,1	95,2	90,4	80,9

Noise sensitive area: R01 Noise sensitive point: Finnish normal frequency - User defined (89)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

Noise sensitive area: R02 Noise sensitive point: Finnish normal frequency - User defined (90)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R03 Noise sensitive point: Finnish normal frequency - User defined (91)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R04 Noise sensitive point: Finnish normal frequency - User defined (92)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R05 Noise sensitive point: Finnish normal frequency - User defined (93)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R06 Noise sensitive point: Finnish normal frequency - User defined (94)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R07 Noise sensitive point: Finnish normal frequency - User defined (95)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R08 Noise sensitive point: Finnish normal frequency - User defined (96)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R09 Noise sensitive point: Finnish normal frequency - User defined (97)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R10 Noise sensitive point: Finnish normal frequency - User defined (98)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R11 Noise sensitive point: Finnish normal frequency - User defined (99)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R12 Noise sensitive point: Finnish normal frequency - User defined (100)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R13 Noise sensitive point: Finnish normal frequency - User defined (101)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R14 Noise sensitive point: Finnish normal frequency - User defined (102)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R15 Noise sensitive point: Finnish normal frequency - User defined (103)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R16 Noise sensitive point: Finnish normal frequency - User defined (104)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

Noise sensitive area: R17 Noise sensitive point: Finnish normal frequency - User defined (105)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R18 Noise sensitive point: Finnish normal frequency - User defined (106)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R19 Noise sensitive point: Finnish normal frequency - User defined (107)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R20 Noise sensitive point: Finnish normal frequency - User defined (108)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R21 Noise sensitive point: Finnish normal frequency - User defined (109)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R22 Noise sensitive point: Finnish normal frequency - User defined (119)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R23 Noise sensitive point: Finnish normal frequency - User defined (110)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R24 Noise sensitive point: Finnish normal frequency - User defined (111)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

## DECIBEL - Assumptions for noise calculation

Calculation: Lautamäki melu VE2 yhteisvaikutukset

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R25 Noise sensitive point: Finnish normal frequency - User defined (112)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R26 Noise sensitive point: Finnish normal frequency - User defined (113)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R27 Noise sensitive point: Finnish normal frequency - User defined (114)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R28 Noise sensitive point: Finnish normal frequency - User defined (115)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R29 Noise sensitive point: Finnish normal frequency - User defined (116)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R30 Noise sensitive point: Finnish normal frequency - User defined (117)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB

Noise sensitive area: R31 Noise sensitive point: Finnish normal frequency - User defined (118)

Predefined calculation standard:

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

Uncertainty margin: Use default value from calculation model

No temporal binning

Noise demand: 0,0 dB(A)

No distance demand

Pure tone penalty: 0 dB