TYSVÆR VINDPARK

07.08.2019

RAPPORT STØY

TYSVÆR VINDPARK

STØYANALYSE

Denne rapporten beskriver metode og resultater for støyanalysene utført for Tysvær Vindpark.

Beregningene er utført av Meventus AS, med bistand fra Stormvind AS.

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1 STØY FRA VINDKRAFTVERK

Dette kapittelet omhandler støy fra vindkraftverk. Innholdet er i hovedsak hentet fra NVEs temarapport om nabovirkninger (Nr. 72/2018 - *Temarapport om nabovirkninger*), som ble utarbeidet i forbindelse med Nasjonal Ramme for vindkraft. Rapporten finnes på NVE sine nettsider: http://webfileservice.nve.no/API/PublishedFiles/Download/201903419/2731443

1.1 Om støy

Støy er definert som uønsket lyd. Opplevd støy vil være betinget av subjektive oppfatninger av et lydbilde. I det følgende presenteres begreper knyttet til lyd som er sentrale for å forstå grunnlaget for vurdering av støy fra vindkraftverk. Mye av faktakunnskapen i det følgende er hentet fra Miljødirektoratets veileder til retningslinje for behandling av støy i arealplanlegging (M-128).

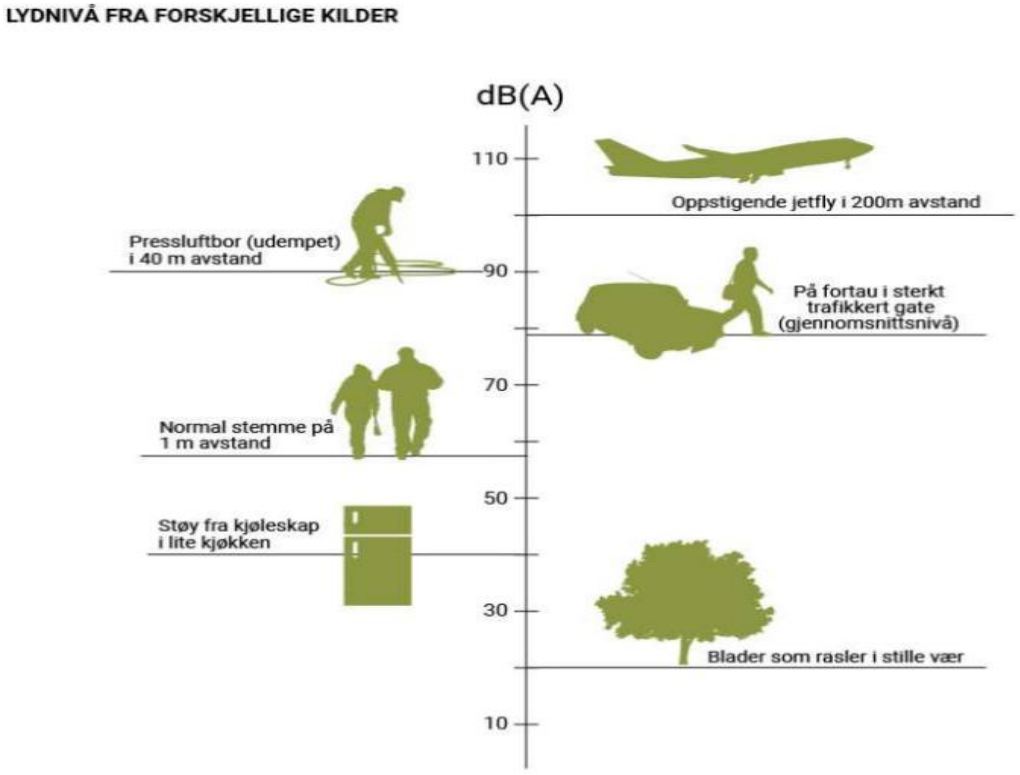
Frekvens

Lyd forekommer i en rekke frekvenser, fra veldig lave frekvenser som lyden fra torden på lang avstand, til veldig høye frekvenser som lyden fra en hundefløyte. For å beskrive frekvensen benyttes måleenheten hertz (Hz), som angir svingninger per sekund. Litt avhengig av alder kan mennesket høre fra 20 Hz til 20 000 Hz. Lyd med frekvenser fra 20 til 160 Hz kalles ofte lavfrekvent lyd, og frekvenser under 20 Hz kalles infralyd.

Lydnivå og kildestøy/lydeffektnivå

Lydnivå måles vanligvis i desibel, med forkortelsen dB. Mennesket hører lyder med en styrke fra 0 dB til 120 dB+, og for de fleste vil 120-125 dB etter kort tid oppleves som smertefullt. Langvarige kraftige støybelastninger over 80-85 dB, eller veldig høye kortvarige lydimpulser med toppverdier over 130-140 dB, kan gi permanente hørselsskader. Et kjøleskap summer normalt på ca. 40 dB og en gressklipper gir lyd i størrelsesorden 85-90 dB (se oversikt i Figur 1).

Desibel vektes i vindkraftsammenheng normalt på to forskjellige måter, dBA eller dBC. dBA-skalaen legger vekt på de frekvensene som ørene våre oppfatter best, og er mest brukt. dBC-skalaen vektlegger alle hørbare frekvenser likt, med unntak av noe reduksjon for de høyeste og laveste frekvensene. Denne skalaen er mindre brukt i vindkraftsammenheng, men dBC blir av og til brukt for å beskrive lavfrekvent lyd.



FIGUR 1 – LYDNIVÅ FRA FORSKJELLIGE KILDER. KILDE: NORSK FORENING MOT STØY / MILJØSTATUS

Et lydnivå er sjelden konstant over tid. For å si noe om lyden man opplever, benyttes normalt gjennomsnittsverdier. Følgende begreper er vanlige å bruke i vindkraftsammenheng:

> **L_{Aeq}** (L = lydnivå, A = a-vekting, eq = ekvivalentnivå. «LpAeq, T» brukes også): Det ekvivalente støynivået L_{Aeq} er et mål på det gjennomsnittlige (energimidlede) nivået for varierende støy over en bestemt tidsperiode T. Ekvivalentnivå gjelder for en viss tidsperiode T, f.eks. 10 sekunder, 1/2 time, 8 timer eller 24 timer.
>
> **L_{den}** (L = lydnivå, den = day, evening, night): A-veiet ekvivalent støynivå for dag-kveld-natt med 5 dB/10 dB ekstra tillegg på henholdsvis natt og kveld. Tidspunktene for de ulike periodene er dag: 07-19, kveld: 19-23 og natt: 23-07. L_{den} er nærmere definert i EUs rammedirektiv for støy (Direktiv 2002/49/EF).

I den norske retningslinjen for støy (T-1442-2016) benyttes i hovedsak den årsmidlede L_{den}-formen. Forskjellen på L_{den} og L_{Aeq} er 5.4 dB hvis det antas et jevnt støynivå over året.

Lydnivået ved lydkilden kalles kildestøy eller lydeffektnivå. LWA benyttes til å angi lydnivået på kildestøy.

1.2 Vindturbiner som støykilde

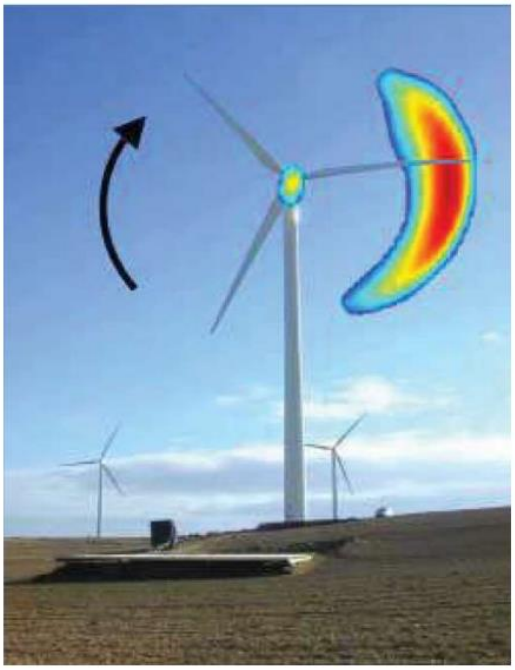
1.2.1 Generelt

En vindturbin består av tårn, maskinhus og vinger. Høyden på tårnet i moderne vindturbiner er 80 -140 meter, og lengden på vingene 40-70 meter. De fleste vindturbiner produserer kraft ved vindhastigheter mellom 3 og 25 m/s, og stenges ned ved vindhastighet over 25 m/s. Kildestøyen varierer med vindhastigheten, og den maksimale kildestøyen fra en moderne vindturbin er typisk 105-110 dB.

Støy fra vindturbiner oppstår først og fremst ved at vingene skjærer gjennom luften. Støynivået avhenger i hovedsak av vingenes hastighet, vingenes form og turbulens. I tillegg avgir vindturbinene maskinstøy fra gir, vifter og generatorer. Lyd fra vindturbiner er bredspektret, fra ikke hørbar infralyd under 20 Hz, til hørbar lavfrekvent og høyfrekvent lyd.

Av og til kan det høres såkalt rentonelyd/rentonestøy fra vindturbiner. Dette er tydelige toner, som normalt stammer fra gir, generator og vifter i vindturbinene, og mekaniske lyder fra nedbremsing. Slitte turbinvinger og feil pitch (turbinvingenes stilling mot vinden) kan også medføre rentonestøy. Rentonestøy oppleves ofte som mer forstyrrende enn annen støy fra vindkraftverket.

Lyden fra vindturbiner karakteriseres ofte som en «svisje»-lyd. Dette forårsakes av at lydnivået fra vingene er høyest når de skjærer ned mot bakken, som vist på figur under. Denne rytmiske endringen i lydbildet kalles amplitudemodulasjon (AM). AM brukes også som begrep for andre typer endringer i lydbildet, såkalt unaturlig amplitudemodulasjon (UAM). Dette kan være forårsaket av blant annet spesielle atmosfæriske betingelser som temperatur og vindskjær. Med vindskjær menes forskjellen på trykk, temperatur og vindhastighet mellom vingetuppens øverste og nederste punkt i en rotasjon. UAM kan av og til føre til økte støyvirkninger.



FIGUR 2 – LYD FRA EN VINDTURBIN (KILDE: S. OERLEMANS (2009))

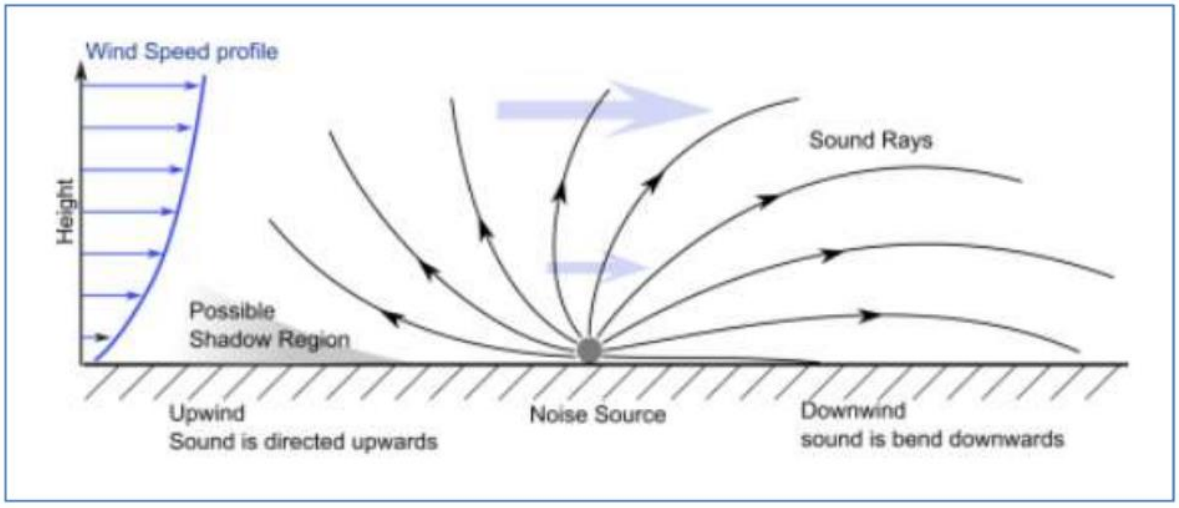
1.2.2 Lavfrekvent støy

I det danske regelverket opererer de også med grenseverdier for lavfrekvent støy. Innendørs lavfrekvent støynivå skal ikke overstige LAeq 20 dBA (Energistyrelsen – Danmark). På bakgrunn av at Danmark innførte egne grenseverdier for lavfrekvent støy i 2011, ønsket Miljødirektoratet å undersøke om det var hensiktsmessig å innføre dette også i Norge. Det ble derfor utført et arbeid for å belyse problemstillingen i 2012. Utredningen viste at den gjeldende anbefalte norske støygrensen utendørs (Lden 45 dBA) også sikrer at innendørsstøy i frekvensområdet 20-160/200 Hz ikke overskrider 20 dBA, som er grensen i Danmark. Miljødirektoratet konkluderte på bakgrunn av dette med at det ikke er behov for å innføre egne grenseverdier for lavfrekvent støy i Norge.

1.2.3 Faktorer som påvirker støyutbredelse fra vindkraftverk

Støynivået fra en vindturbin bestemmes av en rekke faktorer, som avstand mellom vindturbin og støymottaker, vindretning og -hastighet, trykk- og temperaturforhold og markabsorpsjon. Når avstanden mellom vindturbin og mottaker øker, blir lyden spredt over et større område, og støynivået blir lavere.

Lydbølger kan bøyes av vinden. Vanligvis øker vinden med høyden over bakken. Da bøyes lyden ned mot bakken i medvindssonen og opp fra bakken i motvindssonen. Dette kan medføre en lyddempning på 5-10 dB eller mer i motvindsonen sammenliknet med medvindssonen. Avstand til vindturbinen, vindretning og marktype vil være avgjørende for hvor stor dempingen blir. Myk mark demper mer enn hard mark, spesielt i motvindsonen. For lydutbredelse over vann eller slett fjell blir det normalt liten markdempning. Dersom vinden øker med høyden, vil det kunne oppstå skyggesonedempning.

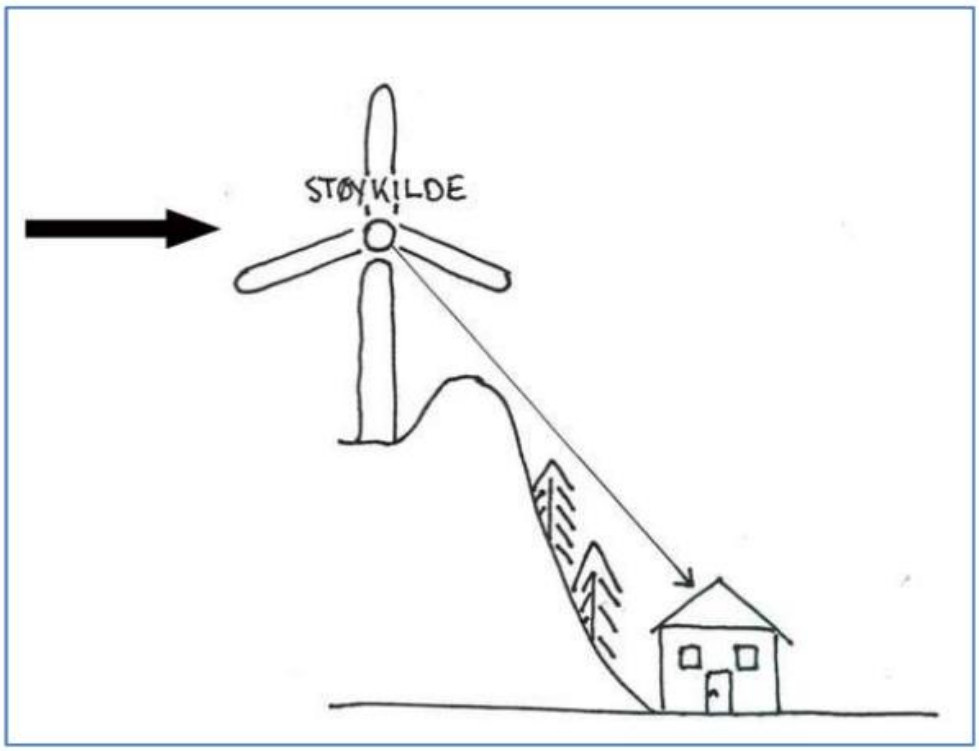


FIGUR 3 - LYDUTBREDELSE FRA VINDTURBIN MED VINDGRADIENT. LYDEN BØYES NEDOVER I MEDVINDSSONEN (TIL HØYRE I FIGUREN) OG OPPOVER I MOTVINDSSONEN (TIL VENSTRE). KILDE: RECORDINGS OF NATURE.

Støyspredning påvirkes av trykk- og temperaturforskjeller mellom vindturbinenes øvre vingetipp og støymottakers plassering i terrenget. Når det er varmt på bakkenivå og kaldere over, vil lydbølgene normalt bøyes oppover. I motsatt tilfelle (inversjon) kan lydbølgene bøyes nedover. Det siste er ofte vanlig på kalde vinterkvelder og om natten. Støynivået på bakkenivå er derfor

ofte høyere på kvelds- og nattestid. Samtidig som det da er lite annen bakgrunnsstøy betyr dette at vindturbinene ofte høres bedre.

Ulike typer bakgrunnsstøy kan maskere støy fra vindturbiner. Ved vindstyrke over 8-10 m/s er det naturlige vindsuset vanligvis høyere enn vindturbinenes støynivå. Da vil støyen fra vindturbinene normalt bli maskert av bakgrunnsstøyen. Hvis mottakeren er skjermet fra vinden kan imidlertid maskeringen fra vindsuset reduseres vesentlig. Mottakeren ligger da i vindskygge (se illustrasjon i Figur 4 under), som gjør at støyen fra vindturbinene kan være hørbar også ved vindstyrke over 8-10 m/s, og tiltar ved høyere vindhastighet.



FIGUR 4 – ILLUSTRASJON AV VINDSKYGGE. KILDE: NVE

2 RETNINGSLINJER FOR ANALYSE AV STØY FRA VINDKRAFTVERK

Klima- og miljødepartementet har i «Retningslinje for behandling av støy i arealplanlegging (T-1442)» anbefalt en grenseverdi for støy fra vindkraftverk. Formålet med retningslinjen er å legge til rette for en langsiktig arealdisponering som forebygger støyproblemer (herunder støyplage, søvnforstyrrelser etc.). Grenseverdien er ikke en juridisk fastsatt støygrense, men en anbefaling om maksimalt utendørs støynivå ved nabobebyggelse. Slike grenseverdier er satt for en rekke støykilder.

Veilederen til T-1442 (2016) heter M-128 (2014). M-128 ble sist oppdatert i august 2018 og utførte beregninger har tatt utgangspunkt i denne siste oppdaterte veilederen. Veilederen beskriver mer i detalj hvordan ulike støykilder, herunder vindturbiner, skal håndteres og angir hvilke parametere som skal legges til grunn ved beregning av støy fra vindturbiner.

Bebyggelse med støyfølsom bruk defineres i T-1442 som boliger, sykehus, pleieinstitusjoner, fritidsboliger, skoler, barnehager, kontorer og overnattingssteder. Retningslinjen definerer også rom med støyfølsomt bruksformål. Dette kan være rom for varig opphold, som stue/soverom eller undervisningsrom og lignende.

2.1.1 Anbefalte grenseverdier for støy (gjeldende og tidligere retningslinjer)

Anbefalt grenseverdi for støy fra vindkraftverk er fastsatt til L_{den} 45 dBA for bygg med støyfølsom bruk. Støynivået vil normalt ikke overstige grenseverdien ved avstander over 800 meter. Dette vil imidlertid variere fra sted til sted, avhengig av hvor bygget ligger i forhold til vindkraftverket. Det er i tillegg satt en egen grenseverdi på L_{den} 40 dBA for «grønne soner». Dette er arealer som kommunene har definert som stille områder som er viktige for natur og friluftsinteresser. Arealene skal være markert med grønn farge i kommuneplanens arealdel.

Før 2005 ble støygrensene for vindkraftverk satt i tråd med retningslinjen for industristøy. Da brukte man ikke L_{den}, men i stedet maksimalt ekvivalentnivå for dag (50 dBA), kveld (45 dBA) og natt (40 dBA). Grensen var i praksis 40 dBA, fordi det ikke er aktuelt å stoppe turbinene på natten. Retningslinjen T-1442, som trådte i kraft i 2005, var harmonisert med EUs regler og metoder for støy og støyberegning. Dette medførte blant annet at utbygger skulle lage støysonekart med gule og røde soner. Grenseverdiene i T-1442 var i stor grad ment å skulle tilsvare de tidligere retningslinjene. Det ble lagt til grunn at et gjennomsnitt på L_{den} 45 dBA tilsvarer et ekvivalentnivå på omtrent 40 dBA. I 2005 ble det også introdusert en differensiering mellom boliger utenfor og innenfor vindskygge. Denne differensieringen ble fjernet i revideringen 2012, og det er ikke satt spesielle støykrav ved vindskygge i dagens retningslinje. Den norske retningslinjen har per i dag heller ikke anbefalt lavere grenseverdier for støy med tydelig rentonekarakter fra vindkraft, slik det gjøres for industristøy og havner/terminaler.

2.1.2 Beregning av støy fra vindkraftverk

På grunn av alle faktorene som påvirker støyutbredelse fra vindturbiner, kan beregning av støyeksponering være utfordrende. NVE fikk i 2017 laget en utredning om støy fra vindkraftverk i kompleks topografi (NVE rapport 13, 2017). Her fremgår det at det med dagens verktøy for beregning av støy fra vindturbiner er vanskelig å ta høyde for alle mulige påvirkningsfaktorer,

som ekkovirkninger og unaturlig amplitudemodulasjon. Dette gjelder spesielt i terreng med store høydeforskjeller og reflekterende terrengformasjoner, og ved værforhold som kan gi rim/is på vinger. På bakgrunn av dette er det i siste versjon av støyretningslinjen lagt som krav at beregningene skal utføres ved hjelp av beregningsmodellen Nord2000, som gir en bedre representasjon av terrengeffekter ved støyutbredelse. Tidligere retningslinje tillot derimot bruk av den enklere beregningsmodellen ISO 9613-2.

Ved vindstyrke over 8-10 m/s vil vindturbinenes støynivå vanligvis overdøves av lyd fra naturlig vindsus, slik at støyen fra vindturbinene maskeres av bakgrunnsstøyen. Det er derfor vanlig å legge 8 m/s i 10 meters høyde til grunn i såkalte «worst case» støyberegninger. Utreder bør imidlertid være oppmerksom på bebyggelse som ligger i vindskygge, der maksimalt støynivå kan inntreffe ved vindhastigheter over 8 m/s. I slike tilfeller bør maksimalt kildestøynivå legges til grunn for støyberegninger.

I behandlingen av vindkraftsøknader skal støyutredninger baseres på worst case-beregninger. I detaljplanfasen kan det i tillegg fremlegges en kompletterende beregning som tar høyde for lokale vindforhold («real case»-beregning). Det er resultatene fra worst case-beregningen som skal brukes for å avklare om grenseverdien overskrides, men den kompletterende beregningen kan brukes som et grunnlag for skjønnsutøvelsen til myndigheten som gir tillatelse. Det er viktig å påpeke at grenseverdien er en anbefaling, og at det i noen tilfeller kan tillates at støynivået ved berørte boliger er over grenseverdien. En slik praksis tilsvarer praksisen fra andre sektorer med anbefalte grenseverdier for støy, for eksempel vei- og jernbanesektoren.

2.1.3 Måling av støy fra vindkraftverk

Det finnes to ulike måter å måle støy fra vindkraftverk på. Emisjonsmåling er måling av støy ved vindkraftverket. Ved emisjonsmåling måles kildestøy ved 8 m/s i 10 m høyde eller vindhastighet som tilsvarer maksimalt støynivå. Dette legges deretter til grunn for beregning av støynivå i mottakerpunkt.

Immisjonsmåling er måling av støy ved støymottaker. I veilederen for støy fra vindkraftverk anbefales det å benytte emisjonsmålinger fremfor immisjonsmålinger for etterprøving av støyberegninger. Dette skyldes først og fremst usikkerhet tilknyttet resultatene fra immisjonsmålinger, der blant annet lyd fra andre kilder er en stor utfordring for å oppnå korrekt måling av lydnivå i mottakerpunktet.

2.1.4 Worst case vs. Real case

Dagens retningslinjer anbefaler at støyberegningene skal ta utgangspunkt i et såkalt «worst case»-scenario. Dette er et teoretisk scenario som forutsetter medvind i alle retninger. Dette innebærer at vindstyrken er like sterk i samtlige retninger rundt vindkraftverket. I tillegg forutsetter et worst case-scenario at vindstyrken til enhver tid er på det nivået hvor vindkraftverket støyer som mest. Dette er normalt ved mellom 8 til 10 m/s.

Som nevnt over kan det i detaljplanleggingen også fremlegges kompletterende støyberegninger hvor de lokale vindforholdene er hensyntatt. Dette betegnes som en «real case»-beregning. Denne beregningen tar hensyn til hvilken retning vinden kommer fra til enhver tid, samt at vindstyrken varierer over tid, både over døgnet og over årstider.

Det beregnede støynivået for bygg vil være forskjellig i «worst case» og «real case». Særskilt gjelder i tilfeller der vinden ikke blåser fra vindkraftverket og på bygget. Her vil det beregnede støynivået for bygget være lavere i «real case» enn «worst case». Det er fordi «real case»-beregningen tar hensyn til at vinden ikke går i motsatt retning, altså fra bygget. «Real case»-beregningen tar også hensyn til at vinden varierer over døgnet og over året. «Worst case» forutsetter at turbinen til enhver tid opererer når støyen er på sitt maksimale (8-10 m/s). En «real case»-beregning tar hensyn til at turbinene ofte opererer på lavere vindhastigheter enn 8-10 m/s.

En «real case»-beregning er derfor en mer realistisk fremstilling av det faktiske støybildet for byggene rundt vindkraftverket. NVE krever imidlertid at «worst case»-beregninger skal legges til grunn for å vurdere om bygg utsettes for støy innenfor grenseverdiene.

2.1.5 Myndighet for behandling av støy fra vindkraftverk

NVE behandler søknader om å bygge og drive vindkraftverk i medhold av energiloven. Små vindkraftverk (anlegg med inntil fem turbiner/10 MW) behandles av kommunene i medhold av plan- og bygningsloven. Vurdering av støy er en viktig del av denne behandlingen.

Fylkesmannen er høringsinstans ved behandling av alle vindkraftsaker, og har innsigelses- og klagerett i sakene. Fylkesmannen kan behandle søknader om utslippstillatelse etter forurensningsloven § 7, for de tilfeller at støyfølsom bebyggelse blir eksponert for vesentlig høyere støynivåer enn den anbefalte grenseverdien på L_{den} 45 dBA. Støy fra vindkraftverk krever normalt ikke behandling i medhold av forurensningsloven, ettersom dette behandles som en viktig del av NVEs konsesjonsbehandling.

Stortinget har besluttet at myndighet for støy for blant annet vindkraftverk fra og med 1.1.2020 skal flyttes fra fylkesmennene til kommunene. Dette er nærmere beskrevet i Prop. 91 L (2016-2017).

3 STØY I ANLEGGSFASEN

Anleggsarbeidet vil medføre støy, spesielt i forbindelse med bygging og utbedring av veier og oppstillingsplasser. I tillegg vil det være støy knyttet til transporten av turbinkomponenter og annet materiell til byggeplass.

Miljøverndepartementets retningslinjer for støy i arealplanlegging gir anbefalte grenseverdier. I tillegg kan kommunen stille egne krav. Forbigående støy over anbefalte grenseverdier kan tolereres, men det stilles krav til varsling og eventuelt avbøtende tiltak. Omfanget og konsekvens av sprenging er vanskelig å forutsi. Arbeidet vil medføre sjenerende støy, men må kunne betraktes som enkelthendelser.

Støv fra anleggsarbeidet antas ikke å være sjenerende utenfor planområdet, bortsett fra byggingen av tilkomstveien som vil omfatte mindre sprenginger.

I anleggsfasen vil prosjektet innføre følgende tiltak for å redusere ulempene knyttet til støy:

- Kommune, lokalbefolkning og grunneiere skal varsles før anleggsstart
- De samme interessenter varsles 1 uke før sprengningsarbeid eller annet spesielt støyende arbeid
- Entreprenørens utstyr skal tilfredsstille forskriftskrav mht. lydeffekt
- Ved støyende anleggsarbeider nært opp til bebyggelse skal man søke å unngå arbeider utenfor tidsrommet 22:00 til 06:30

4 STØY I DRIFTSFASEN

4.1 Bakgrunn og regelverk

NVE ga 20.12.2006 Tysvær Vindpark AS konsesjon til å bygge og drive Tysvær vindkraftverk med tilhørende nettilknytning. Dette vedtaket ble stadfestet etter klagebehandling i Olje- og energidepartementet 24.06.2008. Konsesjonsvilkårene har senere blitt endret i samsvar med dagens praksis og anleggskonsesjonen ble på bakgrunn av dette oppdatert 24.09.2015.

Dersom parken hadde blitt bygget da opprinnelig anleggskonsesjon var gjeldende ville støyberegningene vært utført i henhold til den tids gjeldende retningslinje T-1442/2005 og dens veileder TA-2115. Ettersom gjeldende anleggskonsesjon ble gitt i 2015 er det imidlertid vedtatt av NVE at oppdatert retningslinje fra 2012 (T-1442) og dens veileder (M-128) skal følges i støyutredningen av Tysvær vindkraftanlegg.

På bakgrunn av dette har Meventus AS utført en oppdatert støyutredning for Tysvær vindkraftverk. Beregningene er utført i henhold til gjeldende regelverk og grenseverdier, som presentert i kapittel 2. For å få et best mulig vurderingsgrunnlag er også kompletterende beregninger utført i henhold til tidligere retningslinje inkludert.

Inngangsverdiene, tekniske data og parametere som ligger til grunn for støyberegningene er presentert i de etterfølgende delkapitlene. Resultater er presentert i form av beregnede støyverdier for nærliggende støysensitiv bebyggelse, samt i form av støysonekart for området.

I henhold til retningslinjen og veilederen skal støysonekart som viser gul og rød sone legges til grunn for støyvurderingen.

TABELL 1 – OVERSIKT OVER STØYSONER SOM SKAL BENYTTES VED BEREGNING AV STØY FRA VINDTURBINER

Støykilde	**Støysone**			
	Gul sone		**Rød sone**	
	Utendørs støynivå	Utendørs støynivå i nattperioden kl. 23 - 07	Utendørs støynivå	Utendørs støynivå i nattperioden kl. 23 - 07
Vindturbiner	45 dB L_{den}	-	55 dB L_{den}	-

- Rød sone: Angir et område som ikke er egnet til støyfølsomme bruksformål.
- Gul sone: Vurderingssone.

I støysonekartene som inngår i denne rapporten er det benyttet en soneinndeling som angitt under. Denne inndelingen legger til rette for en noe mer nyansert analyse enn ved kun å benytte rød og gul sone. Grå, rød og oransje sone tilsvarer rød sone iht. T-1442. Lysegul og gul sone tilsvarer gul sone iht. grenseverdien i T-1442. Grønn sone er et område med opptil 5 dB lavere nivåer enn grenseverdi for gul sone, men er inkludert for å synliggjøre områder og støyfølsomme bygninger som ligger i nærheten av gul sone.

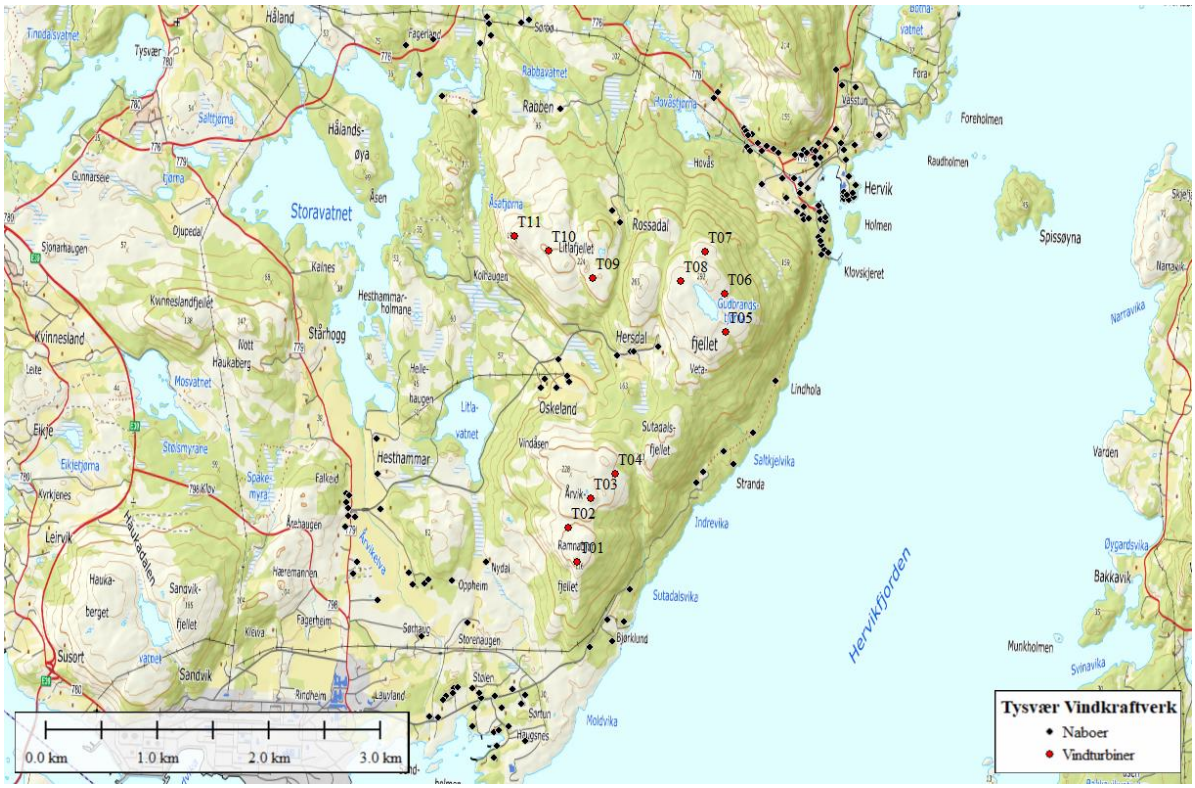
Støynivå L_{den} dB(A)

	>= 65
	60 - 65
	55 - 60
	50 - 55
	45 - 50
	40 - 45
	< 40

Tiltakshaver forholder seg i utredningen til gjeldende retningslinje hvor det fremgår at støynivået ved bebyggelse med støyfølsomt bruk ikke skal overstige L_{den}=45 dB.

4.2 Turbinposisjoner og nabobebyggelse

Beregningene er utført for en utbyggingsløsning med 11 turbiner av typen Siemens S130 4.3 MW med navhøyde på 85 m. Lokalisering av bygninger i nærheten av planområdet er innhentet fra N50 kartdata fra Statens Kartverk. Samtlige bygg med støyfølsomt bruk innenfor en radius på 2 km fra turbinene er inkludert i beregningene, dette omfatter 142 bygninger. I tillegg er det lagt til 3 bygg som ikke er inkludert i dette datasettet, men som er identifisert som støysensitive bygg ut ifra matrikkeldata og oppdatert kartgrunnlag. Antall bygninger som er hensyntatt i beregningene er dermed 145.



FIGUR 5 – OVERSIKT OVER TURBINLOKASJONER OG SAMTLIGE STØYSENSITIVE BYGG INNENFOR 2 KM FRA TURBINENE

4.3 Turbindata

Støydata som angir kildestøy fra de aktuelle vindturbinene, har blitt formidlet fra oppdragsgiver. Kildestøyen er oppgitt i lydeffektnivå i hvert 1/1 oktavbånd mellom 63 Hz og 8000 Hz. Høyeste lydeffektnivå for standard modus for turbinen nås ved vindhastighet over 9 m/s i navhøyde, med et lydeffektnivå (LWA) på 106.0 dB(A). Lydeffektnivå for standard modus og utvalgte støyreduserte modus for den aktuelle turbintypen er presentert i **Feil! Fant ikke referansekilden.**

TABELL 2 – LYDEFFEKTNIVÅ, LWA [DB(A)] FOR AKTUELL TURBINTYPE PÅ TYSVÆR (VINDHASTIGHET I 10 M HØDYE)

Vindhastighet [m/s]	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Mode 1 (Standard)	93.4	97.7	103.2	106.0	106.0	106.0	106.0	106.0	106.0	106.0
Mode 2	93.4	97.7	103.2	105.0	105.0	105.0	105.0	105.0	105.0	105.0
Mode 6	93.4	97.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

4.4 Støyberegning med oppdatert regelverk (T-1442/2016)

Støyretningslinjen T-1442 ble oppdatert ytterligere i 2016 og det er denne versjonen av retningslinjen som ligger til grunn i beregningene. Beregningene er utført i Nord2000-modulen i WindPRO versjon 3.2.734.

I henhold til veilederen, M-128, er det gjennomført beregninger med forutsetning om at vinden alltid er på et nivå som gir maksimal støy fra turbinene og at det alltid blåser fra vindturbinene mot støymottakerne (medvind fra alle retninger). Dette anses som en verste scenario beregningssituasjon. Med god kjennskap til vindforholdene i området er det også utført kompletterende beregning som tar høyde for lokale vindforhold.

Benyttede data og parametervalg som ligger til grunn i beregningene er beskrevet i de etterfølgende delkapitlene.

4.4.1 Terreng- og ruhetsbeskrivelse

For beskrivelse av terrenget er det benyttet digitale terrengdata (DTM) fra Statens kartverk med 10 m oppløsning, samt ruhetsdata fra Corine Landdekke (EEA) med 100 m oppløsning.

Marktypene som forekommer i og i nærheten av Tysvær vindpark er identifisert ut ifra datasettet arealdekke fra Statens kartverk (N50). De forskjellige marktypene er deretter gitt en hardhet i forhold til forhåndsdefinerte hardhetstyper i WindPRO. Høy hardhet gir mindre demping (mer støyrefleksjon). Av marktypene som er identifisert i det aktuelle området er det skog som gir mest demping og hav/innsjø som gir minst demping. Følgende marktyper og korresponderende hardhet ligger til grunn for beregningene.

Skog, Myr = 31.5 (B)

Dyrket mark/Gravplass = 200 (D)

Åpent område/Steinbrudd = 2000 (F)

Havflate/Innsjø = 20000 (G)

Markens hardhet er holdt konstant gjennom året, uten å ta hensyn til eventuelt snødekke på vinteren. Et eventuelt snødekke vinterstid vil føre til økt markabsorpsjon, og dermed et lavere støynivå enn det som her beregnes. Et kart som viser marktypene som ligger til grunn i støyberegningene er presentert i vedlegg 1.9.

4.4.2 Luftfuktighet og temperatur

Både luftfuktighet og temperatur har innvirkning på demping av støy i atmosfæren. Luftfuktigheten er i beregningene satt til 70 % og temperaturen til 6.5 °C i 2 m høyde. 70 % luftfuktighet anses som et representativt nivå for norske kystområder. Temperaturen på 6.5 °C er basert på målt gjennomsnittstemperatur fra nærliggende meteorologiske stasjoner, korrigert for høydeforskjell.

4.4.3 Ytterligere parametervalg

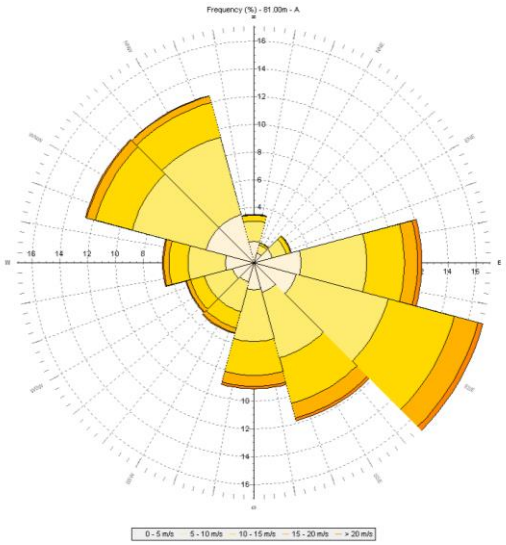
Det er lagt til grunn 100 % driftstid i beregningene, det vil si at turbinene er i drift alle årets timer.

Begningshøyden for støymottakerne satt til 4.0 m over terrenget.

4.4.4 Real-case beregninger

Mens det i gjeldende retningslinje oppgis at støyvurderinger alltid skal baseres på beregninger av verste scenario, oppgis det også at lokale vindforhold kan hensyntas dersom kjennskap til disse tilsier at virkninger for berørt bebyggelse reduseres.

Basert på kjennskap til vindforholdene på Tysvær er det også utført beregning av sannsynlig scenario («real case») av støynivået for nærliggende bebyggelse. Denne beregningen er basert på langtidskorrigerte måledata fra området. Det er tidligere gjennomført vindmålinger i to ulike posisjoner innenfor planområdet. Høyden på målemastene er 50 og 81 m, og det er utført målinger på mastene i henholdsvis 6.3 og 1.5 år. Kun vindstatistikk fra de to mastene var tilgjengelig for denne analysen. Vindfordeling basert på langtidskorrigerte data fra mast 342 (81 m) er vist i Figur 6.



FIGUR 6 - REPRESENTATIV VINDFORDELING PÅ TYSVÆR (BASERT PÅ DATA FRA MAST 342 - 81 M)

Som det fremgår av vindrosen i Figur 6 er fremherskende vindretning i dette området øst-sørøst og nordvest. Ettersom støynivået generelt er høyest når mottaker ligger nedstrøms vindturbinene (når det blåser i retning fra turbinene mot mottaker) betyr dette at støymottakere (bygg) som ikke ligger nærme turbiner i en eller begge disse retningene vil få redusert støynivå når faktisk vindfordeling hensyntas.

I tillegg ligger vindhastigheten i området i stor grad under vindhastigheten som gir maksimal støy. Bruk av faktiske vindhastigheter i beregninger fører derfor til en ytterligere reduksjon i støynivået.

4.5 Støyberegning med tidligere regelverk (TA-2115)

Støyretningslinjen som var gjeldende da Tysvær vindkraftverk fikk endelig anleggskonsesjon i 2008 var T-1442/2005. I likhet med dagens støykrav var det i denne versjonen av retningslinjen krav om støysonegrenser på L_{den} 45 dB for gul sone og L_{den} 55 dB for rød sone. For boliger som ikke ligger i vindskygge kunne imidlertid støynivå opp til L_{den} 50 dB godkjennes.

Den største forskjellen mellom tidligere og dagens gjeldende regelverk er metodikken som benyttes i støyutredningen. Mens tidligere støyberegninger i all hovedsak ble utført ved bruk av ISO 9613-2-metodikken, er det per i dag den mer konservative Nord2000-metodikken som ligger til grunn for de fleste støyutredninger. Dette er en noe mer kompleks metode som setter større krav til utrederens parametervalg og kjennskap til lokale forhold. I tillegg var det i veilederen til retningslinjen (TA-2115) oppgitt at det skulle antas en driftstid på 7000 timer per år (80 %), mens dette er endret til 8760 timer per år (100%) i M-128 (veilederen til T-1442/2016). Det medfører en økning i beregnet støynivå på ca. 1 dB når turbinen kjører i samme modus hele døgnet.

Beregninger i henhold til T-1442/2005 er utført med ISO 9613-2-metoden i programvaren WindPRO versjon 3.2.743. Ettersom de fleste bygg i området rundt Tysvær vindpark anses å ligge i vindskygge mer enn 30 % av tiden er det tatt utgangspunkt i 45 dB som grense for samtlige nabobygg.

Følgende parametervalg ligger til grunn i beregningene:

- 80 % driftstid på turbinene (7000 timer)
- Beregningshøyde for støymottaker på 4 m
- Uniform retningsfordeling

Beregnet støynivå for de mest støyutsatte nabobyggene er presentert i Tabell 4, mens fullstendige beregningsrapporter fra WindPRO er inkludert i vedlegg 1.1 og 1.2.

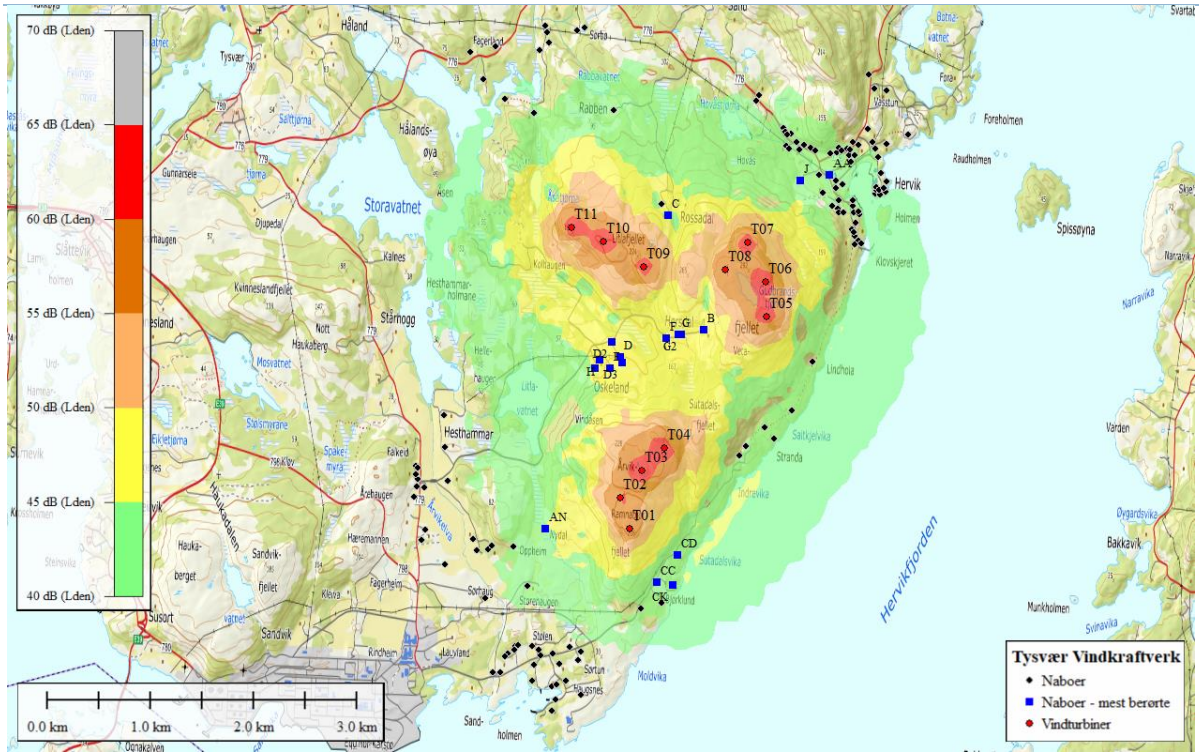
4.6 Resultater

Støypåvirkningen fra de aktuelle vindturbinene på nærliggende bebyggelse ble beregnet i henhold til retningslinjene beskrevet i de foregående kapitlene. En plan for bruk av støyreduserte modus på turbinene ble satt opp for å overholde støygrensen på 45 dB i beregningene utført i henhold til tidligere retningslinje (T-1442/2005), samt for å sikre at alle naboer som ikke er grunneiere vil få støynivå under 45 dB ved verste scenario-beregning i Nord2000 (dagens retningslinje). Planen for støyreduksjon er presentert i Tabell 3 under, mens tilhørende reduksjon i kildestøy er presentert i kapittelet om turbindata (kapittel 4.3).

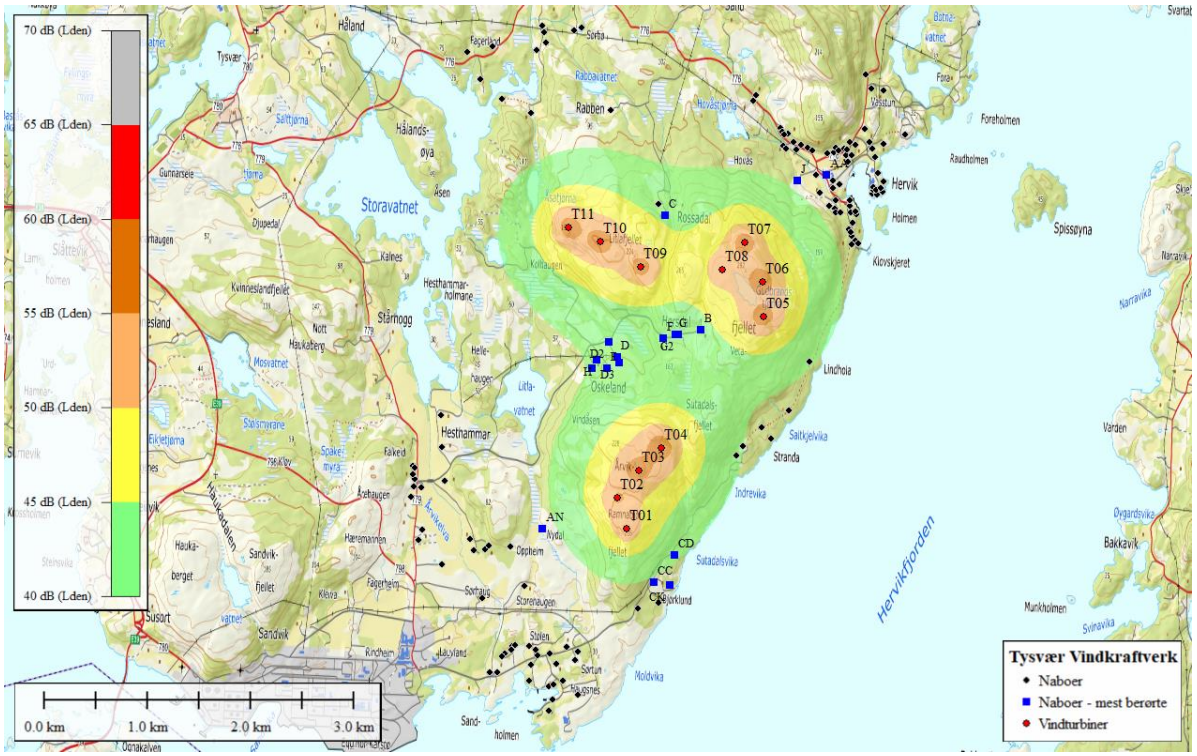
TABELL 3 - AKTUELL PLAN FOR BRUK AV STØYREDUSERTE MODUS PÅ TURBINENE

Turbin nr.	Støymodus		
	Dag	Kveld	Natt
T01	1	1	6
T02	1	1	6
T03	1	1	1
T04	1	1	1
T05	2	2	2
T06	1	1	1
T07	2	2	2
T08	2	2	6
T09	2	2	2
T10	1	1	1
T11	1	1	1

Beregnet støynivå rundt de planlagte vindturbinene er presentert i form av støysonekart i Figur 7 (worst-case-beregning i henhold til dagens retningslinje (T-1442/2016 og beregning med Nord2000)) og i Figur 8 (worst-case-beregning i henhold til tidligere retningslinje (T-1442/2005 og beregning med ISO 9613-2)). Bruk av støyreduserte modus som presentert i Tabell 3 ligger til grunn i begge beregningene.



FIGUR 7 – STØYSONEKART BASERT PÅ BEREGNET STØYNIVÅ (LDEN) FOR WORST CASE (NORD2000) VED BRUK AV STØYREDUSERTE MODUS PÅ UTVALGTE TURBINER (T-1442/2016)



FIGUR 8 – STØYSONEKART BASERT PÅ BEREGNET STØYNIVÅ (LDEN) FOR WORST CASE (ISO 9613-2) VED BRUK AV STØYREDUSERTE MODUS PÅ UTVALGTE TURBINER (T-1442/2005)

Beregningene viser at 71 støymottakere vil eksponeres for støyverdier over 40 dB (L_{den}) ved beregning av verste støyscenario med curtailment (94 uten støyreduksjon). 11 av disse vil eksponeres for støyverdier over grenseverdien på 45 dB (L_{den}) (gul vurderingssone) med curtailment (17 uten støyreduksjon).

Beregning av verste scenario angir som nevnt tidligere en situasjon som i realiteten ikke kan forekomme, hvor vinden konstant blåser fra vindturbinene og mot hver støymottaker. Som det fremgår av kartet i Figur 7 er det i stor grad bebyggelsen sentralt i området som får de høyeste støyverdiene (B, D, D2, D3, E, F, G, G2, H og K). Disse boligene vil ved beregning av verste scenario få støybidrag fra samtlige tre grupper med turbiner (turbin nr. 1-4, 5-8 og 9-11).

Grunnet formen på parken kan imidlertid ikke disse støymottakerne ligge nedstrøms samtlige tre grupper med turbiner til samme tid. Når den faktiske vindfordelingen hensyntas reduseres derfor støynivået betydelig.

En detaljert oversikt over beregnede støyverdier for de mest utsatte nabobyggene er presentert i Tabell 4 under. Som det fremgår av tabellen reduseres støynivået markant når det i beregningene tas hensyn til de reelle vindforholdene. Beregninger utført i henhold til tidligere retningslinje er også signifikant lavere.

TABELL 4 - BEREGNEDE STØYVERDIER FOR DE MEST UTSATTE NABOENE (> 45 DB (L_{DEN})

Angivelse på kart	Grunn-eier	Avstand til nærmeste turbin [m]	Støyverdier (L_{den}) (uten støyreduksjon)			Støyverdier (L_{den}) (med støyreduksjon)		
			NORD2000 Worst Case	NORD2000 Real Case	ISO 9613-2	NORD2000 Worst Case	NORD2000 Real Case	ISO 9613-2
B	Ja	616	49.8	43.3	46.4	48.3	42.4	44.8
C	Ja	553	47.5	41.4	45.8	45.6	39.9	44.5
D	Ja	903	47.1	42.3	43.5	46.2	42.0	42.7
D2	Ja	792	48.7	43.3	43.7	47.7	42.9	42.9
D3	Ja	924	47.2	42.5	43.5	46.3	42.2	42.7
E	Ja	931	46.9	42.2	43.1	46.0	41.9	42.4
F	Ja	721	48.6	43.2	44.8	47.4	42.8	43.7
G	Ja	739	49.4	44.2	45.3	48.0	43.3	44.0
G2	Ja	750	49.6	44.5	45.4	48.0	43.5	44.0
H	Ja	996	46.4	41.8	42.7	45.6	41.6	42.0
J	Ja	784	45.1	38.9	41.2	43.7	38.5	40.0
K	Ja	1023	46.3	40.8	42.4	45.4	40.4	41.6
AA	Nei	1026	45.2	38.7	39.4	44.0	38.3	38.3
AN	Nei	793	47.3	42.5	42.8	45.0	40.9	40.2
CC	Nei	582	46.7	40.2	43.1	44.2	38.2	40.3
CD	Nei	533	46.0	39.2	44.1	43.8	37.3	41.6
CK	Nei	684	46.2	40.7	42.0	43.8	38.2	39.6

Beregnet støynivå ved verste scenario-beregning i henhold til dagens retningslinje vil som nevnt overstige 45 dB for 17 nabobygg dersom turbinene kjøres i standard modus (uten støyreduksjon), med de høyeste verdiene rett i underkant av 50 dB. Ved beregning med tidligere retningslinje (TA-2115/2005) vil kun 4 av disse ligge over grenseverdien, med høyest beregnet verdi på 46.4 dB. Dersom de lokale vindforholdene hensyntas (real-case-beregning i henhold til dagens

retningslinje) reduseres støynivået til under 45 dB for samtlige nabobygg, med høyest verdi på 44.5 dB.

Ved bruk av foreslått strategi for bruk av støyreduserte modus på utvalgte turbiner (presentert i Tabell 3) reduseres antall naboer med beregnet støynivå over 45 dB ved worst-case-beregning med dagens retningslinje til 10 bygg. Real-case-beregninger med denne strategien for støyreduksjon og bruk av dagens retningslinje gir en maksimal verdi på 43.5 dB, mens samtlige nabobygg ligger under 45 dB ved bruk av tidligere retningslinje.

Fullstendige beregningsrapporter fra WindPRO, for beregning i henhold til T-1442/2005, for utbyggingsløsning med og uten støyreduksjon er lagt ved denne rapporten som vedlegg 1.1 og 1.2.

Fullstendige beregningsrapporter fra WindPRO for verste scenario- og sannsynlig scenario-beregning av støynivå i henhold til T-1442/2016, med og uten bruk av støyreduserte modus er lagt ved denne rapporten som vedlegg 1.3 – 1.6.

4.7 Konklusjon

Tysvær Vindkraftverk fikk endelig anleggskonsesjon i 2008, men grunnet utsatt igangsetting av utbyggingen og endrede konsesjonsvilkår ble konsesjonen oppdatert i 2015. I mellomtiden var det innført en ny støyretningslinje og dagens støyutredning må derfor følge den noe mer konservative retningslinjen som tredde i kraft i 2012 (med oppdatering i 2016).

Resultater basert på den tidligere retningslinjen er inkludert som referanse, men tiltakshaver er bevisst på at vilkårene er endret og det er derfor utført beregninger i henhold til gjeldende regelverk. I tråd med retningslinjen er det gjennomført beregning av både verste scenario og kompletterende beregning av sannsynlig scenario av støy fra de aktuelle turbinene.

Beregning av sannsynlig støynivå (real case) er basert på flere år med vindmålinger fra vindmålemaster i området. Vindfordelingen i dette området er slik at en stor andel av naboene i liten grad ligger nedstrøms vindturbinene og vi mener derfor at det i dette tilfellet er riktig å basere vurderingene på sannsynlig scenario, ettersom verste scenario beskriver en situasjon som her er langt fra det som vil være reelt. For enkelte nabobygg vil imidlertid kort avstand til vindturbinene medføre at beregning med faktisk vindfordeling (real-case-beregning) ikke gir den signifikante støyreduksjonen som oppnås for andre nabobygg. På bakgrunn av dette vil tiltakshaver benytte tiltak for å redusere støynivået ytterligere. Ved å kjøre enkelte turbiner i støyreduserte modus deler av døgnet (se Tabell 3) reduseres støynivået betydelig og sannsynlig støynivå for den mest utsatte støymottakeren beregnes til 43.5 dB (L_{den}). Beregnet støynivå er dermed godt under grenseverdien på 45 dB for samtlige nabobygg.

Det er imidlertid viktig å påpeke at L_{den} er et årsmidlet mål på støynivået, mens støynivået i perioder vil kunne ligge over dette.

Project:
Tysvaer

Licensed user:
Meventus AS
Konsgård Allé 59
NO-4632 Kristiansand
+47 3860 7115
Data / data@meventus.com
Calculated:
06.08.2019 15:14/3.2.743

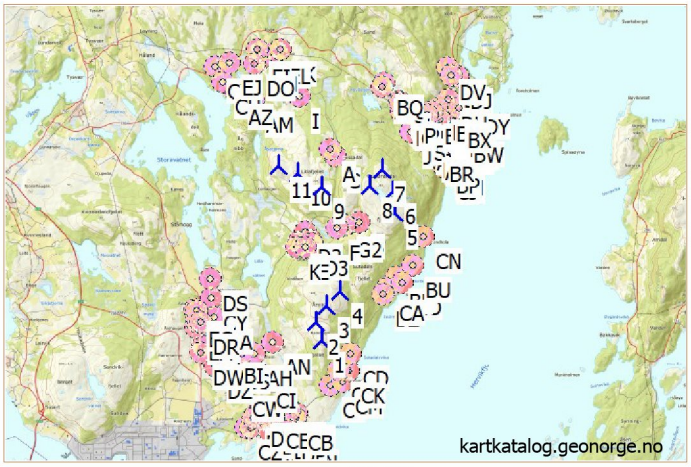
DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Norwegian rules for noise calculation.
The calculation is based on "Veileder til Miljøverndepartementets retningslinje for behandling av støy I arealplanlegning (støyretningslinjen)", SFT, 2005
The calculation is based on ISO 9613-2 and assumes uniform directional distribution

Noise values in calculation:
Total noise values are Lden values

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:125,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 Wood...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0	106.0	No

Calculation Results

Sound level

Noise sensitive area No.	Name	Easting	Northing	Z [m]	Imission height [m]	Demands Noise [dB]	Sound level From WTGs [dB]	Demands fulfilled ? Noise
A	Noise sensitive point: Norwegian - Yellow zone (297)	304,363	6,580,595	148.8	4.0	45.0	44.9	Yes
A	Day						38.5	
A	Evening						38.5	
A	Night						38.5	
AA	Noise sensitive point: Norwegian - Yellow zone (326)	305,987	6,580,880	28.0	4.0	45.0	39.4	Yes
AA	Day						33.0	
AA	Evening						33.0	
AA	Night						33.0	
AB	Noise sensitive point: Norwegian - Yellow zone (327)	305,922	6,580,706	31.9	4.0	45.0	40.4	Yes

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
AB Day						34.0	
AB Evening						34.0	
AB Night						34.0	
AC Noise sensitive point: Norwegian - Yellow zone (328)	306,226	6,580,512	17.9	4.0	45.0	39.2	Yes
AC Day						32.9	
AC Evening						32.9	
AC Night						32.9	
AD Noise sensitive point: Norwegian - Yellow zone (329)	306,048	6,580,824	22.2	4.0	45.0	39.3	Yes
AD Day						32.9	
AD Evening						32.9	
AD Night						32.9	
AE Noise sensitive point: Norwegian - Yellow zone (330)	306,217	6,580,580	10.5	4.0	45.0	39.0	Yes
AE Day						32.6	
AE Evening						32.6	
AE Night						32.6	
AF Noise sensitive point: Norwegian - Yellow zone (331)	306,272	6,580,496	14.3	4.0	45.0	38.9	Yes
AF Day						32.6	
AF Evening						32.6	
AF Night						32.6	
AG Noise sensitive point: Norwegian - Yellow zone (332)	306,111	6,580,791	17.9	4.0	45.0	39.0	Yes
AG Day						32.6	
AG Evening						32.6	
AG Night						32.6	
AH Noise sensitive point: Norwegian - Yellow zone (333)	302,926	6,577,281	37.5	4.0	45.0	39.4	Yes
AH Day						33.1	
AH Evening						33.1	
AH Night						33.1	
AI Noise sensitive point: Norwegian - Yellow zone (334)	306,271	6,580,526	8.4	4.0	45.0	38.8	Yes
AI Day						32.4	
AI Evening						32.4	
AI Night						32.4	
AJ Noise sensitive point: Norwegian - Yellow zone (335)	306,212	6,580,636	2.5	4.0	45.0	38.8	Yes
AJ Day						32.4	
AJ Evening						32.4	
AJ Night						32.4	
AK Noise sensitive point: Norwegian - Yellow zone (336)	302,716	6,577,288	27.4	4.0	45.0	36.8	Yes
AK Day						30.4	
AK Evening						30.4	
AK Night						30.4	
AL Noise sensitive point: Norwegian - Yellow zone (337)	305,999	6,581,087	31.2	4.0	45.0	38.3	Yes
AL Day						31.9	
AL Evening						31.9	
AL Night						31.9	
AM Noise sensitive point: Norwegian - Yellow zone (338)	303,122	6,581,476	27.5	4.0	45.0	37.3	Yes
AM Day						30.9	
AM Evening						30.9	
AM Night						30.9	
AN Noise sensitive point: Norwegian - Yellow zone (339)	303,231	6,577,449	32.2	4.0	45.0	42.8	Yes
AN Day						36.4	
AN Evening						36.4	
AN Night						36.4	
AO Noise sensitive point: Norwegian - Yellow zone (340)	305,446	6,578,325	9.8	4.0	45.0	39.9	Yes
AO Day						33.5	
AO Evening						33.5	
AO Night						33.5	
AP Noise sensitive point: Norwegian - Yellow zone (341)	306,239	6,580,417	25.6	4.0	45.0	39.5	Yes
AP Day						33.1	
AP Evening						33.1	
AP Night						33.1	
AQ Noise sensitive point: Norwegian - Yellow zone (342)	305,273	6,581,596	54.7	4.0	45.0	36.8	Yes
AQ Day						30.4	
AQ Evening						30.4	
AQ Night						30.4	
AR Noise sensitive point: Norwegian - Yellow zone (343)	306,069	6,580,552	25.3	4.0	45.0	40.0	Yes
AR Day						33.6	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
AR Evening						33.6	
AR Night						33.6	
AS Noise sensitive point: Norwegian - Yellow zone (344)	306,208	6,580,354	23.5	4.0	45.0	39.2	Yes
AS Day						32.8	
AS Evening						32.8	
AS Night						32.8	
AT Noise sensitive point: Norwegian - Yellow zone (345)	306,192	6,581,001	11.9	4.0	45.0	37.6	Yes
AT Day						31.2	
AT Evening						31.2	
AT Night						31.2	
AU Noise sensitive point: Norwegian - Yellow zone (346)	306,432	6,580,695	5.7	4.0	45.0	37.5	Yes
AU Day						31.1	
AU Evening						31.1	
AU Night						31.1	
AV Noise sensitive point: Norwegian - Yellow zone (347)	306,436	6,580,736	6.9	4.0	45.0	37.4	Yes
AV Day						31.0	
AV Evening						31.0	
AV Night						31.0	
AW Noise sensitive point: Norwegian - Yellow zone (348)	306,438	6,580,761	5.7	4.0	45.0	37.3	Yes
AW Day						30.9	
AW Evening						30.9	
AW Night						30.9	
AX Noise sensitive point: Norwegian - Yellow zone (349)	306,477	6,580,690	2.4	4.0	45.0	37.2	Yes
AX Day						30.8	
AX Evening						30.8	
AX Night						30.8	
AY Noise sensitive point: Norwegian - Yellow zone (350)	306,466	6,580,731	5.9	4.0	45.0	37.2	Yes
AY Day						30.8	
AY Evening						30.8	
AY Night						30.8	
AZ Noise sensitive point: Norwegian - Yellow zone (351)	302,838	6,581,615	28.7	4.0	45.0	34.4	Yes
AZ Day						28.0	
AZ Evening						28.0	
AZ Night						28.0	
B Noise sensitive point: Norwegian - Yellow zone (298)	304,772	6,579,374	174.3	4.0	45.0	46.4	**No**
B Day						40.0	
B Evening						40.0	
B Night						40.0	
BA Noise sensitive point: Norwegian - Yellow zone (352)	306,056	6,581,093	28.8	4.0	45.0	38.0	Yes
BA Day						31.6	
BA Evening						31.6	
BA Night						31.6	
BB Noise sensitive point: Norwegian - Yellow zone (353)	306,079	6,581,138	34.2	4.0	45.0	37.7	Yes
BB Day						31.3	
BB Evening						31.3	
BB Night						31.3	
BC Noise sensitive point: Norwegian - Yellow zone (354)	306,102	6,581,110	28.6	4.0	45.0	37.7	Yes
BC Day						31.3	
BC Evening						31.3	
BC Night						31.3	
BD Noise sensitive point: Norwegian - Yellow zone (355)	306,173	6,581,067	20.4	4.0	45.0	37.5	Yes
BD Day						31.1	
BD Evening						31.1	
BD Night						31.1	
BE Noise sensitive point: Norwegian - Yellow zone (356)	306,155	6,581,131	29.3	4.0	45.0	37.3	Yes
BE Day						30.9	
BE Evening						30.9	
BE Night						30.9	
BF Noise sensitive point: Norwegian - Yellow zone (357)	305,356	6,578,435	23.1	4.0	45.0	40.4	Yes
BF Day						34.0	
BF Evening						34.0	
BF Night						34.0	
BG Noise sensitive point: Norwegian - Yellow zone (358)	306,184	6,581,124	29.3	4.0	45.0	37.2	Yes
BG Day						30.9	
BG Evening						30.9	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
BG Night						30.9	
BH Noise sensitive point: Norwegian - Yellow zone (359)	306,227	6,581,064	18.5	4.0	45.0	37.2	Yes
BH Day						30.8	
BH Evening						30.8	
BH Night						30.8	
BI Noise sensitive point: Norwegian - Yellow zone (360)	302,537	6,577,353	21.2	4.0	45.0	35.0	Yes
BI Day						28.6	
BI Evening						28.6	
BI Night						28.6	
BJ Noise sensitive point: Norwegian - Yellow zone (361)	306,527	6,580,713	1.7	4.0	45.0	36.9	Yes
BJ Day						30.5	
BJ Evening						30.5	
BJ Night						30.5	
BK Noise sensitive point: Norwegian - Yellow zone (362)	306,514	6,580,747	3.2	4.0	45.0	36.9	Yes
BK Day						30.5	
BK Evening						30.5	
BK Night						30.5	
BL Noise sensitive point: Norwegian - Yellow zone (363)	306,265	6,580,240	15.4	4.0	45.0	39.1	Yes
BL Day						32.7	
BL Evening						32.7	
BL Night						32.7	
BM Noise sensitive point: Norwegian - Yellow zone (364)	306,231	6,580,285	22.0	4.0	45.0	39.3	Yes
BM Day						32.9	
BM Evening						32.9	
BM Night						32.9	
BN Noise sensitive point: Norwegian - Yellow zone (365)	306,017	6,580,580	28.5	4.0	45.0	39.7	Yes
BN Day						33.3	
BN Evening						33.3	
BN Night						33.3	
BO Noise sensitive point: Norwegian - Yellow zone (366)	306,073	6,580,516	29.4	4.0	45.0	39.6	Yes
BO Day						33.2	
BO Evening						33.2	
BO Night						33.2	
BP Noise sensitive point: Norwegian - Yellow zone (367)	306,224	6,580,320	23.0	4.0	45.0	39.2	Yes
BP Day						32.8	
BP Evening						32.8	
BP Night						32.8	
BQ Noise sensitive point: Norwegian - Yellow zone (368)	305,303	6,581,653	49.9	4.0	45.0	36.4	Yes
BQ Day						30.0	
BQ Evening						30.0	
BQ Night						30.0	
BR Noise sensitive point: Norwegian - Yellow zone (369)	306,120	6,580,518	21.4	4.0	45.0	39.7	Yes
BR Day						33.3	
BR Evening						33.3	
BR Night						33.3	
BS Noise sensitive point: Norwegian - Yellow zone (370)	306,210	6,581,199	28.2	4.0	45.0	36.7	Yes
BS Day						30.3	
BS Evening						30.3	
BS Night						30.3	
BT Noise sensitive point: Norwegian - Yellow zone (371)	306,267	6,581,170	23.1	4.0	45.0	36.6	Yes
BT Day						30.2	
BT Evening						30.2	
BT Night						30.2	
BU Noise sensitive point: Norwegian - Yellow zone (372)	305,623	6,578,601	19.6	4.0	45.0	40.2	Yes
BU Day						33.8	
BU Evening						33.8	
BU Night						33.8	
BV Noise sensitive point: Norwegian - Yellow zone (373)	306,483	6,580,899	4.7	4.0	45.0	36.5	Yes
BV Day						30.1	
BV Evening						30.1	
BV Night						30.1	
BW Noise sensitive point: Norwegian - Yellow zone (374)	306,537	6,580,816	2.6	4.0	45.0	36.5	Yes
BW Day						30.1	
BW Evening						30.1	
BW Night						30.1	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
BX Noise sensitive point: Norwegian - Yellow zone (375)	306,456	6,581,051	6.6	4.0	45.0	36.1	Yes
BX Day						29.7	
BX Evening						29.7	
BX Night						29.7	
BY Noise sensitive point: Norwegian - Yellow zone (376)	306,432	6,581,132	14.3	4.0	45.0	36.0	Yes
BY Day						29.6	
BY Evening						29.6	
BY Night						29.6	
BZ Noise sensitive point: Norwegian - Yellow zone (377)	305,114	6,578,156	28.5	4.0	45.0	41.4	Yes
BZ Day						35.0	
BZ Evening						35.0	
BZ Night						35.0	
C Noise sensitive point: Norwegian - Yellow zone (299)	304,426	6,580,485	161.8	4.0	45.0	45.8	**No**
C Day						39.4	
C Evening						39.4	
C Night						39.4	
CA Noise sensitive point: Norwegian - Yellow zone (378)	305,173	6,578,252	36.8	4.0	45.0	41.2	Yes
CA Day						34.8	
CA Evening						34.8	
CA Night						34.8	
CB Noise sensitive point: Norwegian - Yellow zone (379)	303,549	6,576,179	13.6	4.0	45.0	35.8	Yes
CB Day						29.4	
CB Evening						29.4	
CB Night						29.4	
CC Noise sensitive point: Norwegian - Yellow zone (380)	304,314	6,576,932	37.5	4.0	45.0	43.1	Yes
CC Day						36.7	
CC Evening						36.7	
CC Night						36.7	
CD Noise sensitive point: Norwegian - Yellow zone (381)	304,518	6,577,201	32.2	4.0	45.0	44.1	Yes
CD Day						37.7	
CD Evening						37.7	
CD Night						37.7	
CE Noise sensitive point: Norwegian - Yellow zone (382)	303,184	6,576,228	5.0	4.0	45.0	35.2	Yes
CE Day						28.8	
CE Evening						28.8	
CE Night						28.8	
CF Noise sensitive point: Norwegian - Yellow zone (383)	303,469	6,576,305	10.1	4.0	45.0	36.5	Yes
CF Day						30.1	
CF Evening						30.1	
CF Night						30.1	
CG Noise sensitive point: Norwegian - Yellow zone (384)	303,169	6,576,276	8.0	4.0	45.0	35.5	Yes
CG Day						29.1	
CG Evening						29.1	
CG Night						29.1	
CH Noise sensitive point: Norwegian - Yellow zone (385)	303,577	6,576,257	16.2	4.0	45.0	36.4	Yes
CH Day						30.0	
CH Evening						30.0	
CH Night						30.0	
CI Noise sensitive point: Norwegian - Yellow zone (386)	303,059	6,576,901	15.1	4.0	45.0	38.7	Yes
CI Day						32.3	
CI Evening						32.3	
CI Night						32.3	
CJ Noise sensitive point: Norwegian - Yellow zone (387)	306,234	6,580,201	20.1	4.0	45.0	39.5	Yes
CJ Day						33.1	
CJ Evening						33.1	
CJ Night						33.1	
CK Noise sensitive point: Norwegian - Yellow zone (388)	304,468	6,576,910	16.1	4.0	45.0	42.0	Yes
CK Day						35.7	
CK Evening						35.7	
CK Night						35.7	
CL Noise sensitive point: Norwegian - Yellow zone (389)	304,155	6,576,682	37.4	4.0	45.0	40.5	Yes
CL Day						34.1	
CL Evening						34.1	
CL Night						34.1	
CM Noise sensitive point: Norwegian - Yellow zone (390)	304,362	6,576,737	16.1	4.0	45.0	40.8	Yes

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
CM Day						34.4	
CM Evening						34.4	
CM Night						34.4	
CN Noise sensitive point: Norwegian - Yellow zone (391)	305,824	6,579,068	21.2	4.0	45.0	42.2	Yes
CN Day						35.8	
CN Evening						35.8	
CN Night						35.8	
CO Noise sensitive point: Norwegian - Yellow zone (392)	303,305	6,576,243	11.7	4.0	45.0	35.7	Yes
CO Day						29.3	
CO Evening						29.3	
CO Night						29.3	
CP Noise sensitive point: Norwegian - Yellow zone (393)	303,105	6,576,312	4.2	4.0	45.0	35.4	Yes
CP Day						29.0	
CP Evening						29.0	
CP Night						29.0	
CQ Noise sensitive point: Norwegian - Yellow zone (394)	303,373	6,576,142	6.4	4.0	45.0	35.1	Yes
CQ Day						28.8	
CQ Evening						28.8	
CQ Night						28.8	
CR Noise sensitive point: Norwegian - Yellow zone (395)	306,292	6,580,217	10.5	4.0	45.0	38.9	Yes
CR Day						32.5	
CR Evening						32.5	
CR Night						32.5	
CS Noise sensitive point: Norwegian - Yellow zone (396)	302,569	6,577,243	21.0	4.0	45.0	36.3	Yes
CS Day						29.9	
CS Evening						29.9	
CS Night						29.9	
CT Noise sensitive point: Norwegian - Yellow zone (397)	306,407	6,581,196	22.3	4.0	45.0	35.9	Yes
CT Day						29.5	
CT Evening						29.5	
CT Night						29.5	
CU Noise sensitive point: Norwegian - Yellow zone (398)	302,633	6,581,808	23.8	4.0	45.0	33.7	Yes
CU Day						27.3	
CU Evening						27.3	
CU Night						27.3	
CV Noise sensitive point: Norwegian - Yellow zone (399)	302,070	6,577,445	26.2	4.0	45.0	33.9	Yes
CV Day						27.5	
CV Evening						27.5	
CV Night						27.5	
CW Noise sensitive point: Norwegian - Yellow zone (400)	302,651	6,576,781	19.2	4.0	45.0	35.6	Yes
CW Day						29.2	
CW Evening						29.2	
CW Night						29.2	
CX Noise sensitive point: Norwegian - Yellow zone (401)	302,508	6,582,069	27.9	4.0	45.0	32.2	Yes
CX Day						25.8	
CX Evening						25.8	
CX Night						25.8	
CY Noise sensitive point: Norwegian - Yellow zone (402)	302,257	6,578,238	31.6	4.0	45.0	35.6	Yes
CY Day						29.2	
CY Evening						29.2	
CY Night						29.2	
CZ Noise sensitive point: Norwegian - Yellow zone (403)	302,719	6,576,059	6.6	4.0	45.0	32.8	Yes
CZ Day						26.4	
CZ Evening						26.4	
CZ Night						26.4	
D Noise sensitive point: Norwegian - Yellow zone (300)	303,960	6,579,112	97.0	4.0	45.0	43.5	Yes
D Day						37.1	
D Evening						37.1	
D Night						37.1	
D2 Noise sensitive point: Norwegian - Yellow zone (301)	303,877	6,579,257	84.9	4.0	45.0	43.7	Yes
D2 Day						37.3	
D2 Evening						37.3	
D2 Night						37.3	
D3 Noise sensitive point: Norwegian - Yellow zone (302)	303,973	6,579,061	102.8	4.0	45.0	43.5	Yes
D3 Day						37.1	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
D3 Evening						37.1	
D3 Night						37.1	
DA Noise sensitive point: Norwegian - Yellow zone (404)	302,285	6,577,919	26.2	4.0	45.0	35.4	Yes
DA Day						29.0	
DA Evening						29.0	
DA Night						29.0	
DB Noise sensitive point: Norwegian - Yellow zone (405)	301,976	6,578,061	29.3	4.0	45.0	34.0	Yes
DB Day						27.6	
DB Evening						27.6	
DB Night						27.6	
DC Noise sensitive point: Norwegian - Yellow zone (406)	301,996	6,577,931	27.7	4.0	45.0	34.0	Yes
DC Day						27.6	
DC Evening						27.6	
DC Night						27.6	
DD Noise sensitive point: Norwegian - Yellow zone (407)	302,001	6,578,045	27.2	4.0	45.0	34.1	Yes
DD Day						27.7	
DD Evening						27.7	
DD Night						27.7	
DE Noise sensitive point: Norwegian - Yellow zone (408)	302,871	6,576,242	12.2	4.0	45.0	34.2	Yes
DE Day						27.8	
DE Evening						27.8	
DE Night						27.8	
DF Noise sensitive point: Norwegian - Yellow zone (409)	302,944	6,576,312	17.3	4.0	45.0	34.9	Yes
DF Day						28.5	
DF Evening						28.5	
DF Night						28.5	
DG Noise sensitive point: Norwegian - Yellow zone (410)	301,990	6,577,859	31.3	4.0	45.0	34.0	Yes
DG Day						27.6	
DG Evening						27.6	
DG Night						27.6	
DH Noise sensitive point: Norwegian - Yellow zone (411)	302,798	6,576,057	7.3	4.0	45.0	33.0	Yes
DH Day						26.6	
DH Evening						26.6	
DH Night						26.6	
DI Noise sensitive point: Norwegian - Yellow zone (412)	303,122	6,576,138	0.4	4.0	45.0	34.4	Yes
DI Day						28.0	
DI Evening						28.0	
DI Night						28.0	
DJ Noise sensitive point: Norwegian - Yellow zone (413)	306,537	6,581,697	28.3	4.0	45.0	32.1	Yes
DJ Day						25.7	
DJ Evening						25.7	
DJ Night						25.7	
DK Noise sensitive point: Norwegian - Yellow zone (414)	306,420	6,581,716	37.6	4.0	45.0	32.5	Yes
DK Day						26.1	
DK Evening						26.1	
DK Night						26.1	
DL Noise sensitive point: Norwegian - Yellow zone (415)	302,846	6,576,212	8.5	4.0	45.0	33.9	Yes
DL Day						27.5	
DL Evening						27.5	
DL Night						27.5	
DM Noise sensitive point: Norwegian - Yellow zone (416)	303,109	6,575,978	4.5	4.0	45.0	33.5	Yes
DM Day						27.1	
DM Evening						27.1	
DM Night						27.1	
DN Noise sensitive point: Norwegian - Yellow zone (417)	303,576	6,575,847	12.4	4.0	45.0	33.7	Yes
DN Day						27.3	
DN Evening						27.3	
DN Night						27.3	
DO Noise sensitive point: Norwegian - Yellow zone (418)	303,178	6,582,088	22.8	4.0	45.0	33.5	Yes
DO Day						27.1	
DO Evening						27.1	
DO Night						27.1	
DP Noise sensitive point: Norwegian - Yellow zone (419)	303,431	6,575,976	9.5	4.0	45.0	34.2	Yes
DP Day						27.8	
DP Evening						27.8	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
DP Night						27.8	
DQ Noise sensitive point: Norwegian - Yellow zone (420)	302,972	6,576,322	12.4	4.0	45.0	35.0	Yes
DQ Day						28.6	
DQ Evening						28.6	
DQ Night						28.6	
DR Noise sensitive point: Norwegian - Yellow zone (421)	302,057	6,577,852	25.0	4.0	45.0	34.2	Yes
DR Day						27.9	
DR Evening						27.9	
DR Night						27.9	
DS Noise sensitive point: Norwegian - Yellow zone (422)	302,252	6,578,552	25.8	4.0	45.0	35.5	Yes
DS Day						29.2	
DS Evening						29.2	
DS Night						29.2	
DT Noise sensitive point: Norwegian - Yellow zone (423)	302,930	6,576,276	11.0	4.0	45.0	34.5	Yes
DT Day						28.1	
DT Evening						28.1	
DT Night						28.1	
DU Noise sensitive point: Norwegian - Yellow zone (424)	306,362	6,581,320	29.1	4.0	45.0	35.5	Yes
DU Day						29.1	
DU Evening						29.1	
DU Night						29.1	
DV Noise sensitive point: Norwegian - Yellow zone (425)	306,368	6,581,852	35.3	4.0	45.0	32.0	Yes
DV Day						25.6	
DV Evening						25.6	
DV Night						25.6	
DW Noise sensitive point: Norwegian - Yellow zone (426)	302,036	6,577,342	27.4	4.0	45.0	33.6	Yes
DW Day						27.2	
DW Evening						27.2	
DW Night						27.2	
DX Noise sensitive point: Norwegian - Yellow zone (427)	303,297	6,575,691	8.3	4.0	45.0	32.4	Yes
DX Day						26.0	
DX Evening						26.0	
DX Night						26.0	
DY Noise sensitive point: Norwegian - Yellow zone (428)	306,749	6,581,266	16.6	4.0	45.0	34.1	Yes
DY Day						27.7	
DY Evening						27.7	
DY Night						27.7	
DZ Noise sensitive point: Norwegian - Yellow zone (429)	302,257	6,577,102	23.7	4.0	45.0	34.4	Yes
DZ Day						28.0	
DZ Evening						28.0	
DZ Night						28.0	
E Noise sensitive point: Norwegian - Yellow zone (303)	303,863	6,579,003	102.3	4.0	45.0	43.1	Yes
E Day						36.7	
E Evening						36.7	
E Night						36.7	
EA Noise sensitive point: Norwegian - Yellow zone (430)	301,964	6,577,761	29.3	4.0	45.0	33.7	Yes
EA Day						27.4	
EA Evening						27.4	
EA Night						27.4	
EB Noise sensitive point: Norwegian - Yellow zone (431)	303,297	6,575,922	5.1	4.0	45.0	33.6	Yes
EB Day						27.2	
EB Evening						27.2	
EB Night						27.2	
EC Noise sensitive point: Norwegian - Yellow zone (432)	306,536	6,581,176	20.2	4.0	45.0	35.4	Yes
EC Day						29.0	
EC Evening						29.0	
EC Night						29.0	
ED Noise sensitive point: Norwegian - Yellow zone (433)	303,234	6,582,324	26.9	4.0	45.0	32.5	Yes
ED Day						26.1	
ED Evening						26.1	
ED Night						26.1	
EE Noise sensitive point: Norwegian - Yellow zone (434)	303,344	6,575,942	7.7	4.0	45.0	33.9	Yes
EE Day						27.5	
EE Evening						27.5	
EE Night						27.5	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
EF Noise sensitive point: Norwegian - Yellow zone (435)	303,329	6,575,800	0.9	4.0	45.0	33.0	Yes
EF Day						26.6	
EF Evening						26.6	
EF Night						26.6	
EG Noise sensitive point: Norwegian - Yellow zone (436)	301,978	6,577,979	31.3	4.0	45.0	34.0	Yes
EG Day						27.6	
EG Evening						27.6	
EG Night						27.6	
EH Noise sensitive point: Norwegian - Yellow zone (437)	303,273	6,582,158	33.0	4.0	45.0	33.1	Yes
EH Day						26.7	
EH Evening						26.7	
EH Night						26.7	
EI Noise sensitive point: Norwegian - Yellow zone (438)	303,254	6,582,262	27.8	4.0	45.0	32.8	Yes
EI Day						26.4	
EI Evening						26.4	
EI Night						26.4	
EJ Noise sensitive point: Norwegian - Yellow zone (439)	302,754	6,582,121	31.9	4.0	45.0	32.7	Yes
EJ Day						26.3	
EJ Evening						26.3	
EJ Night						26.3	
EK Noise sensitive point: Norwegian - Yellow zone (440)	303,611	6,582,301	31.6	4.0	45.0	32.8	Yes
EK Day						26.4	
EK Evening						26.4	
EK Night						26.4	
EL Noise sensitive point: Norwegian - Yellow zone (441)	303,544	6,582,274	23.4	4.0	45.0	32.8	Yes
EL Day						26.4	
EL Evening						26.4	
EL Night						26.4	
F Noise sensitive point: Norwegian - Yellow zone (304)	304,401	6,579,299	134.2	4.0	45.0	44.8	Yes
F Day						38.4	
F Evening						38.4	
F Night						38.4	
G Noise sensitive point: Norwegian - Yellow zone (305)	304,526	6,579,331	154.1	4.0	45.0	45.3	**No**
G Day						38.9	
G Evening						38.9	
G Night						38.9	
G2 Noise sensitive point: Norwegian - Yellow zone (306)	304,550	6,579,331	153.5	4.0	45.0	45.4	**No**
G2 Day						39.0	
G2 Evening						39.0	
G2 Night						39.0	
H Noise sensitive point: Norwegian - Yellow zone (307)	303,756	6,579,088	85.4	4.0	45.0	42.7	Yes
H Day						36.3	
H Evening						36.3	
H Night						36.3	
I Noise sensitive point: Norwegian - Yellow zone (308)	303,893	6,581,500	70.2	4.0	45.0	38.4	Yes
I Day						32.0	
I Evening						32.0	
I Night						32.0	
J Noise sensitive point: Norwegian - Yellow zone (309)	305,704	6,580,824	39.0	4.0	45.0	41.2	Yes
J Day						34.8	
J Evening						34.8	
J Night						34.8	
K Noise sensitive point: Norwegian - Yellow zone (310)	303,718	6,579,007	80.5	4.0	45.0	42.4	Yes
K Day						36.0	
K Evening						36.0	
K Night						36.0	
L Noise sensitive point: Norwegian - Yellow zone (311)	305,566	6,581,159	39.2	4.0	45.0	39.3	Yes
L Day						32.9	
L Evening						32.9	
L Night						32.9	
M Noise sensitive point: Norwegian - Yellow zone (312)	305,599	6,581,129	38.2	4.0	45.0	39.4	Yes
M Day						33.0	
M Evening						33.0	
M Night						33.0	
N Noise sensitive point: Norwegian - Yellow zone (313)	305,667	6,581,195	38.4	4.0	45.0	38.8	Yes

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

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Noise sensitive area						Demands	Sound level	Demands fulfilled ?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
N	Day						32.4	
N	Evening						32.4	
N	Night						32.4	
O	Noise sensitive point: Norwegian - Yellow zone (314)	305,696	6,581,124	29.6	4.0	45.0	39.0	Yes
O	Day						32.6	
O	Evening						32.6	
O	Night						32.6	
P	Noise sensitive point: Norwegian - Yellow zone (315)	305,743	6,581,169	43.6	4.0	45.0	38.9	Yes
P	Day						32.5	
P	Evening						32.5	
P	Night						32.5	
Q	Noise sensitive point: Norwegian - Yellow zone (316)	302,678	6,577,252	23.2	4.0	45.0	37.2	Yes
Q	Day						30.8	
Q	Evening						30.8	
Q	Night						30.8	
R	Noise sensitive point: Norwegian - Yellow zone (317)	305,801	6,581,141	37.1	4.0	45.0	38.8	Yes
R	Day						32.4	
R	Evening						32.4	
R	Night						32.4	
S	Noise sensitive point: Norwegian - Yellow zone (318)	305,887	6,580,880	21.1	4.0	45.0	39.8	Yes
S	Day						33.4	
S	Evening						33.4	
S	Night						33.4	
T	Noise sensitive point: Norwegian - Yellow zone (319)	306,074	6,580,629	19.5	4.0	45.0	39.8	Yes
T	Day						33.4	
T	Evening						33.4	
T	Night						33.4	
U	Noise sensitive point: Norwegian - Yellow zone (320)	305,850	6,581,111	32.3	4.0	45.0	38.8	Yes
U	Day						32.4	
U	Evening						32.4	
U	Night						32.4	
V	Noise sensitive point: Norwegian - Yellow zone (321)	306,046	6,580,749	20.7	4.0	45.0	39.6	Yes
V	Day						33.2	
V	Evening						33.2	
V	Night						33.2	
W	Noise sensitive point: Norwegian - Yellow zone (322)	305,541	6,581,331	48.8	4.0	45.0	38.3	Yes
W	Day						31.9	
W	Evening						31.9	
W	Night						31.9	
X	Noise sensitive point: Norwegian - Yellow zone (323)	305,560	6,581,297	48.3	4.0	45.0	38.5	Yes
X	Day						32.1	
X	Evening						32.1	
X	Night						32.1	
Y	Noise sensitive point: Norwegian - Yellow zone (324)	305,613	6,581,278	55.9	4.0	45.0	38.7	Yes
Y	Day						32.3	
Y	Evening						32.3	
Y	Night						32.3	
Z	Noise sensitive point: Norwegian - Yellow zone (325)	305,581	6,581,265	45.6	4.0	45.0	38.6	Yes
Z	Day						32.2	
Z	Evening						32.2	
Z	Night						32.2	

Distances (m)

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
A	3161	2870	2585	2359	1488	1251	911	881	633	677	906
AA	3941	3725	3394	3088	1507	1208	1026	1368	2010	2288	2552
AB	3758	3543	3212	2906	1322	1026	870	1206	1879	2182	2459
AC	3759	3568	3236	2923	1320	1090	1068	1368	2106	2450	2743
AD	3923	3712	3380	3073	1483	1194	1040	1378	2041	2332	2602
AE	3809	3615	3283	2971	1367	1126	1080	1389	2116	2449	2739
AF	3773	3585	3254	2940	1339	1117	1109	1404	2147	2494	2788
AG	3928	3720	3389	3080	1484	1205	1075	1408	2086	2385	2658
AH	1132	1139	1440	1748	3305	3537	3718	3371	2984	3074	3137

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	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
AI	3796	3607	3276	2963	1360	1134	1115	1415	2154	2496	2789
AJ	3853	3656	3324	3012	1409	1159	1095	1410	2127	2453	2739
AK	1339	1331	1621	1924	3459	3680	3845	3498	3072	3133	3174
AL	4128	3906	3576	3273	1703	1395	1176	1523	2121	2367	2613
AM	4131	3817	3612	3479	2993	2772	2421	2393	1830	1414	1166
AN	815	793	1092	1401	2968	3207	3402	3056	2711	2837	2930
AO	1651	1589	1318	1059	1180	1522	1917	1701	2085	2523	2831
AP	3690	3504	3172	2858	1258	1045	1060	1345	2098	2454	2753
AQ	4324	4060	3746	3473	2095	1753	1371	1663	1942	2014	2168
AR	3703	3502	3170	2860	1258	998	931	1245	1966	2299	2589
AS	3620	3436	3104	2790	1191	985	1019	1295	2055	2419	2722
AT	4149	3939	3607	3299	1706	1422	1261	1602	2248	2520	2778
AU	4028	3840	3509	3195	1593	1365	1321	1632	2355	2680	2964
AV	4063	3874	3543	3230	1627	1394	1340	1655	2371	2691	2972
AW	4085	3895	3563	3250	1647	1411	1351	1668	2381	2698	2977
AX	4051	3866	3534	3221	1620	1397	1362	1671	2396	2723	3008
AY	4077	3890	3558	3245	1643	1414	1366	1679	2398	2720	3001
AZ	4337	4023	3834	3718	3300	3084	2736	2702	2113	1681	1405
B	2057	1812	1487	1200	616	756	952	620	848	1302	1625
BA	4161	3941	3611	3306	1730	1427	1220	1566	2173	2422	2670
BB	4211	3992	3661	3357	1780	1477	1269	1615	2215	2460	2704
BC	4198	3980	3649	3344	1764	1464	1265	1611	2221	2471	2719
BD	4196	3983	3652	3345	1756	1465	1288	1632	2261	2523	2776
BE	4242	4027	3695	3390	1805	1509	1318	1663	2277	2528	2775
BF	1639	1551	1263	986	1068	1410	1798	1572	1943	2381	2689
BG	4251	4037	3705	3399	1812	1519	1334	1679	2299	2553	2801
BH	4221	4011	3679	3371	1779	1493	1328	1670	2308	2573	2827
BI	1512	1481	1757	2053	3559	3768	3914	3568	3107	3139	3160
BJ	4099	3916	3584	3271	1671	1451	1416	1726	2451	2777	3060
BK	4118	3933	3602	3288	1687	1461	1416	1729	2449	2770	3051
BL	3565	3388	3058	2744	1156	984	1068	1321	2094	2473	2781
BM	3579	3399	3068	2754	1160	972	1036	1298	2067	2439	2746
BN	3699	3494	3162	2853	1254	983	893	1213	1925	2252	2539
BO	3676	3476	3144	2833	1231	976	923	1231	1960	2298	2591
BP	3603	3420	3089	2775	1179	982	1032	1301	2065	2433	2738
BQ	4387	4124	3810	3536	2151	1809	1430	1724	2006	2074	2225
BR	3703	3507	3175	2863	1259	1012	968	1274	2006	2345	2638
BS	4329	4113	3782	3476	1890	1596	1404	1750	2359	2604	2847
BT	4333	4121	3789	3482	1891	1603	1427	1771	2394	2647	2894
BU	1953	1864	1571	1285	936	1270	1680	1506	1996	2451	2773
BV	4223	4030	3699	3386	1783	1537	1451	1777	2471	2772	3043
BW	4187	4000	3669	3356	1754	1522	1464	1782	2493	2806	3083
BX	4333	4134	3802	3491	1888	1627	1505	1840	2507	2787	3047
BY	4387	4184	3853	3543	1942	1672	1532	1870	2521	2789	3043
BZ	1281	1219	960	728	1372	1707	2072	1809	2052	2460	2746
C	3059	2771	2481	2249	1365	1135	813	759	553	683	947
CA	1384	1309	1036	783	1267	1604	1974	1719	1996	2413	2706
CB	1363	1627	1938	2222	3791	4090	4369	4040	3860	4058	4189
CC	582	892	1095	1306	2780	3096	3410	3098	3057	3339	3534
CD	533	782	889	1043	2456	2775	3100	2796	2805	3115	3330
CE	1494	1712	2039	2342	3939	4222	4475	4138	3889	4048	4150
CF	1281	1529	1847	2139	3722	4014	4284	3952	3750	3938	4062
CG	1464	1676	2005	2309	3908	4189	4439	4102	3847	4003	4104
CH	1281	1544	1855	2139	3709	4008	4286	3957	3778	3979	4111
CI	1129	1242	1570	1885	3482	3738	3952	3608	3284	3409	3493
CJ	3515	3339	3009	2694	1107	940	1038	1283	2059	2442	2753
CK	684	982	1148	1328	2746	3068	3395	3091	3089	3388	3594
CL	775	1087	1335	1571	3072	3385	3693	3378	3304	3567	3746
CM	779	1090	1295	1499	2945	3265	3587	3280	3254	3539	3735
CN	2404	2278	1964	1657	626	903	1317	1232	1878	2341	2675
CO	1415	1646	1970	2269	3860	4148	4409	4074	3845	4017	4128
CP	1476	1676	2007	2313	3915	4193	4437	4098	3830	3978	4073
CQ	1470	1715	2034	2328	3911	4203	4472	4139	3929	4110	4227
CR	3564	3390	3060	2745	1163	1000	1095	1343	2118	2500	2810
CS	1491	1484	1772	2074	3601	3818	3975	3628	3184	3228	3256
CT	4428	4222	3890	3581	1983	1706	1551	1892	2529	2787	3035

To be continued on next page...

Project:
Tysvaer

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

...continued from previous page

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
CU	4581	4268	4088	3980	3581	3363	3011	2982	2393	1957	1673
CV	1976	1918	2170	2451	3892	4075	4184	3841	3306	3275	3247
CW	1546	1632	1953	2267	3849	4092	4283	3936	3554	3633	3682
CX	4868	4555	4376	4269	3846	3619	3259	3244	2673	2242	1961
CY	1955	1774	1919	2133	3363	3497	3548	3216	2603	2515	2459
CZ	1921	2101	2433	2744	4348	4617	4847	4505	4192	4307	4376
D	1665	1360	1114	976	1467	1584	1664	1322	903	1131	1342
D2	1815	1507	1273	1143	1517	1599	1637	1303	792	977	1178
D3	1613	1309	1061	924	1469	1596	1689	1345	950	1184	1395
DA	1822	1686	1881	2129	3471	3631	3714	3375	2808	2759	2727
DB	2158	2011	2188	2420	3691	3828	3880	3548	2930	2829	2757
DC	2105	1975	2169	2413	3725	3873	3938	3603	3003	2918	2856
DD	2130	1984	2163	2397	3674	3814	3868	3536	2922	2825	2757
DE	1684	1863	2195	2506	4110	4380	4612	4271	3968	4093	4171
DF	1583	1764	2096	2407	4010	4281	4515	4174	3878	4009	4091
DG	2096	1976	2179	2429	3761	3914	3985	3649	3057	2978	2921
DH	1869	2057	2388	2698	4302	4574	4809	4468	4167	4290	4365
DI	1604	1820	2148	2451	4048	4331	4584	4246	3992	4147	4245
DJ	4924	4709	4378	4072	2483	2192	1989	2336	2907	3111	3327
DK	4882	4662	4332	4028	2447	2148	1927	2274	2825	3018	3228
DL	1723	1902	2234	2545	4149	4419	4651	4309	4005	4128	4204
DM	1744	1969	2295	2596	4189	4476	4733	4396	4150	4307	4405
DN	1669	1944	2248	2523	4073	4379	4669	4343	4184	4388	4521
DO	4718	4405	4188	4037	3391	3131	2745	2784	2330	1955	1747
DP	1596	1854	2168	2455	4026	4324	4602	4271	4080	4269	4392
DQ	1556	1740	2072	2382	3985	4257	4493	4152	3860	3993	4078
DR	2029	1909	2113	2364	3704	3860	3935	3598	3014	2944	2893
DS	2105	1889	1985	2161	3263	3369	3387	3064	2407	2278	2195
DT	1619	1802	2133	2444	4047	4319	4553	4212	3917	4047	4129
DU	4510	4298	3967	3660	2068	1781	1598	1943	2552	2791	3029
DV	4977	4752	4422	4121	2550	2244	2003	2350	2870	3043	3241
DW	2012	1970	2232	2518	3976	4163	4278	3934	3408	3380	3355
DX	1910	2166	2482	2769	4340	4639	4916	4586	4386	4566	4680
DY	4676	4483	4151	3839	2235	1984	1868	2203	2864	3132	3384
DZ	1822	1826	2115	2416	3934	4144	4289	3943	3469	3484	3489
E	1564	1255	1031	931	1591	1721	1809	1466	1035	1230	1416
EA	2105	1999	2214	2472	3828	3987	4064	3727	3144	3072	3018
EB	1700	1947	2267	2559	4139	4433	4704	4371	4160	4336	4449
EC	4481	4282	3950	3639	2037	1773	1642	1979	2634	2902	3155
ED	4941	4629	4405	4248	3540	3268	2872	2935	2523	2166	1971
EE	1662	1913	2231	2521	4098	4394	4667	4335	4131	4311	4428
EF	1798	2052	2368	2657	4229	4527	4803	4472	4273	4454	4570
EG	2134	1998	2186	2426	3721	3865	3925	3591	2984	2891	2825
EH	4771	4459	4235	4077	3385	3117	2725	2779	2355	1995	1802
EI	4877	4564	4341	4182	3479	3208	2813	2873	2458	2101	1907
EJ	4846	4532	4339	4215	3703	3462	3090	3097	2569	2156	1899
EK	4870	4561	4319	4138	3306	3017	2611	2708	2384	2077	1936
EL	4850	4540	4301	4125	3320	3035	2631	2720	2375	2058	1906
F	1883	1607	1304	1063	994	1107	1222	875	721	1113	1407
G	1942	1676	1363	1103	865	983	1118	772	739	1161	1469
G2	1948	1684	1369	1106	842	963	1104	758	750	1176	1486
H	1664	1352	1146	1062	1670	1777	1836	1498	996	1143	1308
I	4053	3748	3493	3301	2486	2214	1822	1881	1541	1273	1202
J	3759	3530	3201	2902	1361	1036	784	1131	1733	2001	2264
K	1592	1278	1086	1023	1728	1847	1916	1576	1086	1226	1381
L	4008	3764	3440	3150	1667	1329	1003	1337	1811	2002	2225
M	3993	3751	3426	3135	1641	1305	988	1325	1817	2017	2245
N	4081	3840	3515	3222	1717	1383	1077	1416	1911	2108	2332
O	4028	3790	3464	3169	1652	1321	1027	1369	1890	2103	2335
P	4088	3852	3525	3229	1706	1377	1089	1433	1955	2164	2394
Q	1382	1379	1671	1975	3511	3733	3897	3550	3122	3180	3219
R	4087	3854	3526	3229	1692	1367	1096	1441	1985	2205	2440
S	3893	3671	3341	3038	1469	1159	951	1296	1921	2193	2454
T	3771	3567	3235	2925	1326	1058	965	1287	1994	2316	2601
U	4081	3852	3523	3224	1677	1356	1100	1446	2008	2238	2477
V	3858	3649	3317	3009	1415	1132	997	1331	2010	2312	2588

To be continued on next page...

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

...continued from previous page

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
W	4159	3910	3588	3301	1835	1496	1157	1483	1908	2066	2269
X	4134	3887	3564	3276	1803	1465	1130	1459	1898	2064	2272
Y	4136	3892	3568	3278	1791	1454	1131	1464	1924	2100	2313
Z	4112	3867	3543	3254	1774	1436	1107	1439	1892	2066	2278

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise calculation model:
ISO 9613-2 Norway (Outdated)
Wind speed (in 10 m height):
8.0 m/s
Ground attenuation:
Alternative
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tone penalty is subtracted from demand
WTG catalogue
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:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	290
2	Evening	19	23	4	5	290
3	Night	23	7	8	10	290

Octave data used if available
Frequency independent air absorption: 1.9 dB/km

Frequency dependent air absorption

63 [db/km]	125 [db/km]	250 [db/km]	500 [db/km]	1,000 [db/km]	2,000 [db/km]	4,000 [db/km]	8,000 [db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

					Octave data							
Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2

NSA: Noise sensitive point: Norwegian - Yellow zone (297)-A
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (298)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

Project:
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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (299)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (300)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (301)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (302)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (303)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (304)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (305)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (306)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (307)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (308)-I
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (309)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (310)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (311)-L
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (312)-M
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (313)-N
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (314)-O
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (315)-P
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (316)-Q
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (317)-R
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (318)-S
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (319)-T
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (320)-U
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (321)-V
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (322)-W
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (323)-X
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (324)-Y
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (325)-Z
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (326)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (327)-AB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (328)-AC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (329)-AD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (330)-AE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (331)-AF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (332)-AG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (333)-AH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (334)-AI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (335)-AJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (336)-AK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (337)-AL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (338)-AM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (339)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (340)-AO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (341)-AP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (342)-AQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (343)-AR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (344)-AS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (345)-AT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (346)-AU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (347)-AV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (348)-AW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (349)-AX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (350)-AY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (351)-AZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (352)-BA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (353)-BB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (354)-BC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (355)-BD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (356)-BE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (357)-BF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (358)-BG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (359)-BH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (360)-BI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (361)-BJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (362)-BK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (363)-BL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (364)-BM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (365)-BN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (366)-BO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (367)-BP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (368)-BQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (369)-BR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (370)-BS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (371)-BT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (372)-BU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (373)-BV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (374)-BW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (375)-BX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (376)-BY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (377)-BZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (378)-CA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (379)-CB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (380)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (381)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (382)-CE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (383)-CF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (384)-CG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (385)-CH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (386)-CI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (387)-CJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (388)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (389)-CL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (390)-CM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (391)-CN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (392)-CO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (393)-CP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (394)-CQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (395)-CR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (396)-CS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (397)-CT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (398)-CU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (399)-CV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (400)-CW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (401)-CX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (402)-CY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (403)-CZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (404)-DA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (405)-DB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (406)-DC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (407)-DD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (408)-DE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (409)-DF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (410)-DG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (411)-DH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (412)-DI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (413)-DJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (414)-DK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (415)-DL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (416)-DM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (417)-DN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (418)-DO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (419)-DP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (420)-DQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (421)-DR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (422)-DS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (423)-DT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (424)-DU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (425)-DV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (426)-DW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (427)-DX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (428)-DY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (429)-DZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (430)-EA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (431)-EB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (432)-EC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (433)-ED
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (434)-EE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

Project:
Tysvaer

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Calculated:
06.08.2019 15:14/3.2.743

DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH

NSA: Noise sensitive point: Norwegian - Yellow zone (435)-EF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (436)-EG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (437)-EH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (438)-EI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (439)-EJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (440)-EK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (441)-EL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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Calculated:
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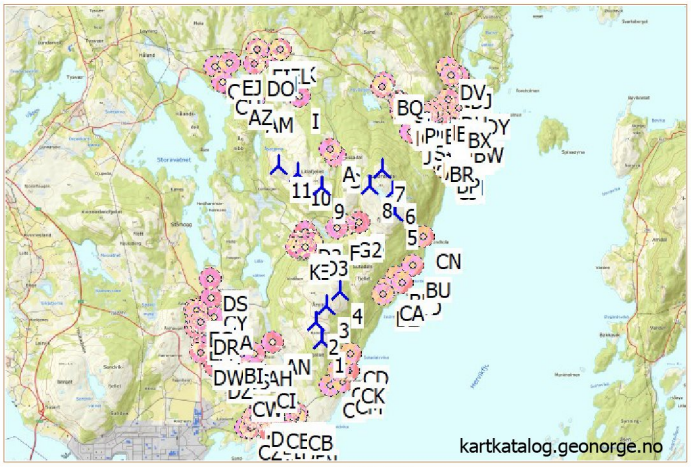
DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Norwegian rules for noise calculation.
The calculation is based on "Veileder til Miljøverndepartementets retningslinje for behandling av støy I arealplanlegning (støyretningslinjen)", SFT, 2005
The calculation is based on ISO 9613-2 and assumes uniform directional distribution

Noise values in calculation:
Total noise values are Lden values

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:125,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name	Wind speed [m/s]	Status	LwA,ref [dB(A)]	Pure tones
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019	8.0	From other hub height	100.0	No f
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019	8.0	From other hub height	100.0	No f
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019	8.0	From other hub height	100.0	No f
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019	8.0	From other hub height	105.0	No f
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 Wood 43...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019	8.0		106.0	No

f) From other hub height

Calculation Results

Sound level

Noise sensitive area No.	Name	Easting	Northing	Z [m]	Imission height [m]	Demands Noise [dB]	Sound level From WTGs [dB]	Demands fulfilled ? Noise
A	Noise sensitive point: Norwegian - Yellow zone (297)	304,363	6,580,595	148.8	4.0	45.0	43.8	Yes
A	Day						37.8	
A	Evening						37.8	
A	Night						37.3	
AA	Noise sensitive point: Norwegian - Yellow zone (326)	305,987	6,580,880	28.0	4.0	45.0	38.3	Yes
AA	Day						32.2	
AA	Evening						32.2	
AA	Night						31.8	
AB	Noise sensitive point: Norwegian - Yellow zone (327)	305,922	6,580,706	31.9	4.0	45.0	39.2	Yes
AB	Day						33.1	
AB	Evening						33.1	
AB	Night						32.7	

To be continued on next page...

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07.08.2019 08:06/3.2.743

DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
AC Noise sensitive point: Norwegian - Yellow zone (328)	306,226	6,580,512	17.9	4.0	45.0	38.2	Yes
AC Day						32.2	
AC Evening						32.2	
AC Night						31.7	
AD Noise sensitive point: Norwegian - Yellow zone (329)	306,048	6,580,824	22.2	4.0	45.0	38.2	Yes
AD Day						32.1	
AD Evening						32.1	
AD Night						31.7	
AE Noise sensitive point: Norwegian - Yellow zone (330)	306,217	6,580,580	10.5	4.0	45.0	38.0	Yes
AE Day						31.9	
AE Evening						31.9	
AE Night						31.5	
AF Noise sensitive point: Norwegian - Yellow zone (331)	306,272	6,580,496	14.3	4.0	45.0	37.9	Yes
AF Day						31.9	
AF Evening						31.9	
AF Night						31.4	
AG Noise sensitive point: Norwegian - Yellow zone (332)	306,111	6,580,791	17.9	4.0	45.0	38.0	Yes
AG Day						31.9	
AG Evening						31.9	
AG Night						31.5	
AH Noise sensitive point: Norwegian - Yellow zone (333)	302,926	6,577,281	37.5	4.0	45.0	37.1	Yes
AH Day						33.0	
AH Evening						33.0	
AH Night						29.6	
AI Noise sensitive point: Norwegian - Yellow zone (334)	306,271	6,580,526	8.4	4.0	45.0	37.8	Yes
AI Day						31.7	
AI Evening						31.7	
AI Night						31.3	
AJ Noise sensitive point: Norwegian - Yellow zone (335)	306,212	6,580,636	2.5	4.0	45.0	37.7	Yes
AJ Day						31.7	
AJ Evening						31.7	
AJ Night						31.2	
AK Noise sensitive point: Norwegian - Yellow zone (336)	302,716	6,577,288	27.4	4.0	45.0	34.6	Yes
AK Day						30.3	
AK Evening						30.3	
AK Night						27.3	
AL Noise sensitive point: Norwegian - Yellow zone (337)	305,999	6,581,087	31.2	4.0	45.0	37.2	Yes
AL Day						31.2	
AL Evening						31.2	
AL Night						30.7	
AM Noise sensitive point: Norwegian - Yellow zone (338)	303,122	6,581,476	27.5	4.0	45.0	36.9	Yes
AM Day						30.7	
AM Evening						30.7	
AM Night						30.5	
AN Noise sensitive point: Norwegian - Yellow zone (339)	303,231	6,577,449	32.2	4.0	45.0	40.2	Yes
AN Day						36.4	
AN Evening						36.4	
AN Night						32.6	
AO Noise sensitive point: Norwegian - Yellow zone (340)	305,446	6,578,325	9.8	4.0	45.0	38.9	Yes
AO Day						33.1	
AO Evening						33.1	
AO Night						32.3	
AP Noise sensitive point: Norwegian - Yellow zone (341)	306,239	6,580,417	25.6	4.0	45.0	38.5	Yes
AP Day						32.4	
AP Evening						32.4	
AP Night						32.0	
AQ Noise sensitive point: Norwegian - Yellow zone (342)	305,273	6,581,596	54.7	4.0	45.0	35.7	Yes
AQ Day						29.7	
AQ Evening						29.7	
AQ Night						29.1	
AR Noise sensitive point: Norwegian - Yellow zone (343)	306,069	6,580,552	25.3	4.0	45.0	38.8	Yes
AR Day						32.8	
AR Evening						32.8	
AR Night						32.3	
AS Noise sensitive point: Norwegian - Yellow zone (344)	306,208	6,580,354	23.5	4.0	45.0	38.2	Yes

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07.08.2019 08:06/3.2.743

DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
AS Day						32.1	
AS Evening						32.1	
AS Night						31.6	
AT Noise sensitive point: Norwegian - Yellow zone (345)	306,192	6,581,001	11.9	4.0	45.0	36.5	Yes
AT Day						30.5	
AT Evening						30.5	
AT Night						30.0	
AU Noise sensitive point: Norwegian - Yellow zone (346)	306,432	6,580,695	5.7	4.0	45.0	36.4	Yes
AU Day						30.4	
AU Evening						30.4	
AU Night						29.9	
AV Noise sensitive point: Norwegian - Yellow zone (347)	306,436	6,580,736	6.9	4.0	45.0	36.3	Yes
AV Day						30.3	
AV Evening						30.3	
AV Night						29.8	
AW Noise sensitive point: Norwegian - Yellow zone (348)	306,438	6,580,761	5.7	4.0	45.0	36.2	Yes
AW Day						30.2	
AW Evening						30.2	
AW Night						29.7	
AX Noise sensitive point: Norwegian - Yellow zone (349)	306,477	6,580,690	2.4	4.0	45.0	36.2	Yes
AX Day						30.1	
AX Evening						30.1	
AX Night						29.7	
AY Noise sensitive point: Norwegian - Yellow zone (350)	306,466	6,580,731	5.9	4.0	45.0	36.1	Yes
AY Day						30.1	
AY Evening						30.1	
AY Night						29.6	
AZ Noise sensitive point: Norwegian - Yellow zone (351)	302,838	6,581,615	28.7	4.0	45.0	33.9	Yes
AZ Day						27.7	
AZ Evening						27.7	
AZ Night						27.4	
B Noise sensitive point: Norwegian - Yellow zone (298)	304,772	6,579,374	174.3	4.0	45.0	44.8	Yes
B Day						39.1	
B Evening						39.1	
B Night						38.2	
BA Noise sensitive point: Norwegian - Yellow zone (352)	306,056	6,581,093	28.8	4.0	45.0	36.9	Yes
BA Day						30.8	
BA Evening						30.8	
BA Night						30.3	
BB Noise sensitive point: Norwegian - Yellow zone (353)	306,079	6,581,138	34.2	4.0	45.0	36.6	Yes
BB Day						30.6	
BB Evening						30.6	
BB Night						30.1	
BC Noise sensitive point: Norwegian - Yellow zone (354)	306,102	6,581,110	28.6	4.0	45.0	36.6	Yes
BC Day						30.5	
BC Evening						30.5	
BC Night						30.1	
BD Noise sensitive point: Norwegian - Yellow zone (355)	306,173	6,581,067	20.4	4.0	45.0	36.4	Yes
BD Day						30.4	
BD Evening						30.4	
BD Night						29.9	
BE Noise sensitive point: Norwegian - Yellow zone (356)	306,155	6,581,131	29.3	4.0	45.0	36.2	Yes
BE Day						30.2	
BE Evening						30.2	
BE Night						29.7	
BF Noise sensitive point: Norwegian - Yellow zone (357)	305,356	6,578,435	23.1	4.0	45.0	39.4	Yes
BF Day						33.6	
BF Evening						33.6	
BF Night						32.8	
BG Noise sensitive point: Norwegian - Yellow zone (358)	306,184	6,581,124	29.3	4.0	45.0	36.1	Yes
BG Day						30.1	
BG Evening						30.1	
BG Night						29.6	
BH Noise sensitive point: Norwegian - Yellow zone (359)	306,227	6,581,064	18.5	4.0	45.0	36.1	Yes
BH Day						30.1	

To be continued on next page...

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
BH Evening						30.1	
BH Night						29.6	
BI Noise sensitive point: Norwegian - Yellow zone (360)	302,537	6,577,353	21.2	4.0	45.0	33.2	Yes
BI Day						28.5	
BI Evening						28.5	
BI Night						26.1	
BJ Noise sensitive point: Norwegian - Yellow zone (361)	306,527	6,580,713	1.7	4.0	45.0	35.8	Yes
BJ Day						29.8	
BJ Evening						29.8	
BJ Night						29.3	
BK Noise sensitive point: Norwegian - Yellow zone (362)	306,514	6,580,747	3.2	4.0	45.0	35.8	Yes
BK Day						29.8	
BK Evening						29.8	
BK Night						29.3	
BL Noise sensitive point: Norwegian - Yellow zone (363)	306,265	6,580,240	15.4	4.0	45.0	38.1	Yes
BL Day						32.0	
BL Evening						32.0	
BL Night						31.5	
BM Noise sensitive point: Norwegian - Yellow zone (364)	306,231	6,580,285	22.0	4.0	45.0	38.2	Yes
BM Day						32.2	
BM Evening						32.2	
BM Night						31.7	
BN Noise sensitive point: Norwegian - Yellow zone (365)	306,017	6,580,580	28.5	4.0	45.0	38.6	Yes
BN Day						32.6	
BN Evening						32.6	
BN Night						32.1	
BO Noise sensitive point: Norwegian - Yellow zone (366)	306,073	6,580,516	29.4	4.0	45.0	38.5	Yes
BO Day						32.5	
BO Evening						32.5	
BO Night						32.0	
BP Noise sensitive point: Norwegian - Yellow zone (367)	306,224	6,580,320	23.0	4.0	45.0	38.2	Yes
BP Day						32.1	
BP Evening						32.1	
BP Night						31.6	
BQ Noise sensitive point: Norwegian - Yellow zone (368)	305,303	6,581,653	49.9	4.0	45.0	35.3	Yes
BQ Day						29.3	
BQ Evening						29.3	
BQ Night						28.7	
BR Noise sensitive point: Norwegian - Yellow zone (369)	306,120	6,580,518	21.4	4.0	45.0	38.6	Yes
BR Day						32.5	
BR Evening						32.5	
BR Night						32.1	
BS Noise sensitive point: Norwegian - Yellow zone (370)	306,210	6,581,199	28.2	4.0	45.0	35.6	Yes
BS Day						29.6	
BS Evening						29.6	
BS Night						29.1	
BT Noise sensitive point: Norwegian - Yellow zone (371)	306,267	6,581,170	23.1	4.0	45.0	35.5	Yes
BT Day						29.5	
BT Evening						29.5	
BT Night						29.0	
BU Noise sensitive point: Norwegian - Yellow zone (372)	305,623	6,578,601	19.6	4.0	45.0	39.2	Yes
BU Day						33.2	
BU Evening						33.2	
BU Night						32.6	
BV Noise sensitive point: Norwegian - Yellow zone (373)	306,483	6,580,899	4.7	4.0	45.0	35.5	Yes
BV Day						29.5	
BV Evening						29.5	
BV Night						29.0	
BW Noise sensitive point: Norwegian - Yellow zone (374)	306,537	6,580,816	2.6	4.0	45.0	35.5	Yes
BW Day						29.4	
BW Evening						29.4	
BW Night						28.9	
BX Noise sensitive point: Norwegian - Yellow zone (375)	306,456	6,581,051	6.6	4.0	45.0	35.1	Yes
BX Day						29.0	
BX Evening						29.0	

To be continued on next page...

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
BX Night						28.5	
BY Noise sensitive point: Norwegian - Yellow zone (376)	306,432	6,581,132	14.3	4.0	45.0	34.9	Yes
BY Day						28.9	
BY Evening						28.9	
BY Night						28.4	
BZ Noise sensitive point: Norwegian - Yellow zone (377)	305,114	6,578,156	28.5	4.0	45.0	40.6	Yes
BZ Day						34.8	
BZ Evening						34.8	
BZ Night						34.0	
C Noise sensitive point: Norwegian - Yellow zone (299)	304,426	6,580,485	161.8	4.0	45.0	44.5	Yes
C Day						38.6	
C Evening						38.6	
C Night						38.0	
CA Noise sensitive point: Norwegian - Yellow zone (378)	305,173	6,578,252	36.8	4.0	45.0	40.4	Yes
CA Day						34.6	
CA Evening						34.6	
CA Night						33.7	
CB Noise sensitive point: Norwegian - Yellow zone (379)	303,549	6,576,179	13.6	4.0	45.0	33.4	Yes
CB Day						29.3	
CB Evening						29.3	
CB Night						26.0	
CC Noise sensitive point: Norwegian - Yellow zone (380)	304,314	6,576,932	37.5	4.0	45.0	40.3	Yes
CC Day						36.7	
CC Evening						36.7	
CC Night						32.5	
CD Noise sensitive point: Norwegian - Yellow zone (381)	304,518	6,577,201	32.2	4.0	45.0	41.6	Yes
CD Day						37.7	
CD Evening						37.7	
CD Night						34.0	
CE Noise sensitive point: Norwegian - Yellow zone (382)	303,184	6,576,228	5.0	4.0	45.0	32.9	Yes
CE Day						28.8	
CE Evening						28.8	
CE Night						25.5	
CF Noise sensitive point: Norwegian - Yellow zone (383)	303,469	6,576,305	10.1	4.0	45.0	34.1	Yes
CF Day						30.1	
CF Evening						30.1	
CF Night						26.6	
CG Noise sensitive point: Norwegian - Yellow zone (384)	303,169	6,576,276	8.0	4.0	45.0	33.2	Yes
CG Day						29.0	
CG Evening						29.0	
CG Night						25.8	
CH Noise sensitive point: Norwegian - Yellow zone (385)	303,577	6,576,257	16.2	4.0	45.0	34.0	Yes
CH Day						30.0	
CH Evening						30.0	
CH Night						26.5	
CI Noise sensitive point: Norwegian - Yellow zone (386)	303,059	6,576,901	15.1	4.0	45.0	36.2	Yes
CI Day						32.3	
CI Evening						32.3	
CI Night						28.7	
CJ Noise sensitive point: Norwegian - Yellow zone (387)	306,234	6,580,201	20.1	4.0	45.0	38.5	Yes
CJ Day						32.4	
CJ Evening						32.4	
CJ Night						31.9	
CK Noise sensitive point: Norwegian - Yellow zone (388)	304,468	6,576,910	16.1	4.0	45.0	39.6	Yes
CK Day						35.6	
CK Evening						35.6	
CK Night						32.1	
CL Noise sensitive point: Norwegian - Yellow zone (389)	304,155	6,576,682	37.4	4.0	45.0	37.8	Yes
CL Day						34.0	
CL Evening						34.0	
CL Night						30.2	
CM Noise sensitive point: Norwegian - Yellow zone (390)	304,362	6,576,737	16.1	4.0	45.0	38.3	Yes
CM Day						34.3	
CM Evening						34.3	
CM Night						30.8	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
CN Noise sensitive point: Norwegian - Yellow zone (391)	305,824	6,579,068	21.2	4.0	45.0	41.1	Yes
CN Day						35.0	
CN Evening						35.0	
CN Night						34.6	
CO Noise sensitive point: Norwegian - Yellow zone (392)	303,305	6,576,243	11.7	4.0	45.0	33.4	Yes
CO Day						29.3	
CO Evening						29.3	
CO Night						26.0	
CP Noise sensitive point: Norwegian - Yellow zone (393)	303,105	6,576,312	4.2	4.0	45.0	33.1	Yes
CP Day						29.0	
CP Evening						29.0	
CP Night						25.7	
CQ Noise sensitive point: Norwegian - Yellow zone (394)	303,373	6,576,142	6.4	4.0	45.0	32.9	Yes
CQ Day						28.7	
CQ Evening						28.7	
CQ Night						25.5	
CR Noise sensitive point: Norwegian - Yellow zone (395)	306,292	6,580,217	10.5	4.0	45.0	37.9	Yes
CR Day						31.8	
CR Evening						31.8	
CR Night						31.4	
CS Noise sensitive point: Norwegian - Yellow zone (396)	302,569	6,577,243	21.0	4.0	45.0	34.3	Yes
CS Day						29.9	
CS Evening						29.9	
CS Night						27.0	
CT Noise sensitive point: Norwegian - Yellow zone (397)	306,407	6,581,196	22.3	4.0	45.0	34.8	Yes
CT Day						28.8	
CT Evening						28.8	
CT Night						28.3	
CU Noise sensitive point: Norwegian - Yellow zone (398)	302,633	6,581,808	23.8	4.0	45.0	33.2	Yes
CU Day						27.1	
CU Evening						27.1	
CU Night						26.8	
CV Noise sensitive point: Norwegian - Yellow zone (399)	302,070	6,577,445	26.2	4.0	45.0	32.3	Yes
CV Day						27.4	
CV Evening						27.4	
CV Night						25.3	
CW Noise sensitive point: Norwegian - Yellow zone (400)	302,651	6,576,781	19.2	4.0	45.0	33.5	Yes
CW Day						29.2	
CW Evening						29.2	
CW Night						26.2	
CX Noise sensitive point: Norwegian - Yellow zone (401)	302,508	6,582,069	27.9	4.0	45.0	31.7	Yes
CX Day						25.6	
CX Evening						25.6	
CX Night						25.2	
CY Noise sensitive point: Norwegian - Yellow zone (402)	302,257	6,578,238	31.6	4.0	45.0	34.2	Yes
CY Day						29.0	
CY Evening						29.0	
CY Night						27.4	
CZ Noise sensitive point: Norwegian - Yellow zone (403)	302,719	6,576,059	6.6	4.0	45.0	30.8	Yes
CZ Day						26.3	
CZ Evening						26.3	
CZ Night						23.6	
D Noise sensitive point: Norwegian - Yellow zone (300)	303,960	6,579,112	97.0	4.0	45.0	42.7	Yes
D Day						36.6	
D Evening						36.6	
D Night						36.1	
D2 Noise sensitive point: Norwegian - Yellow zone (301)	303,877	6,579,257	84.9	4.0	45.0	42.9	Yes
D2 Day						36.8	
D2 Evening						36.8	
D2 Night						36.4	
D3 Noise sensitive point: Norwegian - Yellow zone (302)	303,973	6,579,061	102.8	4.0	45.0	42.7	Yes
D3 Day						36.7	
D3 Evening						36.7	
D3 Night						36.2	
DA Noise sensitive point: Norwegian - Yellow zone (404)	302,285	6,577,919	26.2	4.0	45.0	33.9	Yes

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
DA Day						29.0	
DA Evening						29.0	
DA Night						27.0	
DB Noise sensitive point: Norwegian - Yellow zone (405)	301,976	6,578,061	29.3	4.0	45.0	32.7	Yes
DB Day						27.5	
DB Evening						27.5	
DB Night						25.8	
DC Noise sensitive point: Norwegian - Yellow zone (406)	301,996	6,577,931	27.7	4.0	45.0	32.6	Yes
DC Day						27.5	
DC Evening						27.5	
DC Night						25.7	
DD Noise sensitive point: Norwegian - Yellow zone (407)	302,001	6,578,045	27.2	4.0	45.0	32.8	Yes
DD Day						27.6	
DD Evening						27.6	
DD Night						25.9	
DE Noise sensitive point: Norwegian - Yellow zone (408)	302,871	6,576,242	12.2	4.0	45.0	32.0	Yes
DE Day						27.7	
DE Evening						27.7	
DE Night						24.7	
DF Noise sensitive point: Norwegian - Yellow zone (409)	302,944	6,576,312	17.3	4.0	45.0	32.7	Yes
DF Day						28.4	
DF Evening						28.4	
DF Night						25.3	
DG Noise sensitive point: Norwegian - Yellow zone (410)	301,990	6,577,859	31.3	4.0	45.0	32.5	Yes
DG Day						27.5	
DG Evening						27.5	
DG Night						25.6	
DH Noise sensitive point: Norwegian - Yellow zone (411)	302,798	6,576,057	7.3	4.0	45.0	30.9	Yes
DH Day						26.5	
DH Evening						26.5	
DH Night						23.7	
DI Noise sensitive point: Norwegian - Yellow zone (412)	303,122	6,576,138	0.4	4.0	45.0	32.2	Yes
DI Day						28.0	
DI Evening						28.0	
DI Night						24.9	
DJ Noise sensitive point: Norwegian - Yellow zone (413)	306,537	6,581,697	28.3	4.0	45.0	31.0	Yes
DJ Day						25.1	
DJ Evening						25.1	
DJ Night						24.5	
DK Noise sensitive point: Norwegian - Yellow zone (414)	306,420	6,581,716	37.6	4.0	45.0	31.5	Yes
DK Day						25.5	
DK Evening						25.5	
DK Night						24.9	
DL Noise sensitive point: Norwegian - Yellow zone (415)	302,846	6,576,212	8.5	4.0	45.0	31.7	Yes
DL Day						27.4	
DL Evening						27.4	
DL Night						24.4	
DM Noise sensitive point: Norwegian - Yellow zone (416)	303,109	6,575,978	4.5	4.0	45.0	31.4	Yes
DM Day						27.1	
DM Evening						27.1	
DM Night						24.1	
DN Noise sensitive point: Norwegian - Yellow zone (417)	303,576	6,575,847	12.4	4.0	45.0	31.5	Yes
DN Day						27.2	
DN Evening						27.2	
DN Night						24.2	
DO Noise sensitive point: Norwegian - Yellow zone (418)	303,178	6,582,088	22.8	4.0	45.0	33.0	Yes
DO Day						26.8	
DO Evening						26.8	
DO Night						26.5	
DP Noise sensitive point: Norwegian - Yellow zone (419)	303,431	6,575,976	9.5	4.0	45.0	32.0	Yes
DP Day						27.8	
DP Evening						27.8	
DP Night						24.7	
DQ Noise sensitive point: Norwegian - Yellow zone (420)	302,972	6,576,322	12.4	4.0	45.0	32.8	Yes
DQ Day						28.6	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
DQ Evening						28.6	
DQ Night						25.4	
DR Noise sensitive point: Norwegian - Yellow zone (421)	302,057	6,577,852	25.0	4.0	45.0	32.8	Yes
DR Day						27.7	
DR Evening						27.7	
DR Night						25.9	
DS Noise sensitive point: Norwegian - Yellow zone (422)	302,252	6,578,552	25.8	4.0	45.0	34.4	Yes
DS Day						29.0	
DS Evening						29.0	
DS Night						27.6	
DT Noise sensitive point: Norwegian - Yellow zone (423)	302,930	6,576,276	11.0	4.0	45.0	32.3	Yes
DT Day						28.1	
DT Evening						28.1	
DT Night						25.0	
DU Noise sensitive point: Norwegian - Yellow zone (424)	306,362	6,581,320	29.1	4.0	45.0	34.4	Yes
DU Day						28.4	
DU Evening						28.4	
DU Night						27.9	
DV Noise sensitive point: Norwegian - Yellow zone (425)	306,368	6,581,852	35.3	4.0	45.0	30.9	Yes
DV Day						25.0	
DV Evening						25.0	
DV Night						24.4	
DW Noise sensitive point: Norwegian - Yellow zone (426)	302,036	6,577,342	27.4	4.0	45.0	32.0	Yes
DW Day						27.1	
DW Evening						27.1	
DW Night						24.9	
DX Noise sensitive point: Norwegian - Yellow zone (427)	303,297	6,575,691	8.3	4.0	45.0	30.3	Yes
DX Day						25.9	
DX Evening						25.9	
DX Night						23.1	
DY Noise sensitive point: Norwegian - Yellow zone (428)	306,749	6,581,266	16.6	4.0	45.0	33.0	Yes
DY Day						27.0	
DY Evening						27.0	
DY Night						26.5	
DZ Noise sensitive point: Norwegian - Yellow zone (429)	302,257	6,577,102	23.7	4.0	45.0	32.5	Yes
DZ Day						27.9	
DZ Evening						27.9	
DZ Night						25.4	
E Noise sensitive point: Norwegian - Yellow zone (303)	303,863	6,579,003	102.3	4.0	45.0	42.4	Yes
E Day						36.4	
E Evening						36.4	
E Night						35.8	
EA Noise sensitive point: Norwegian - Yellow zone (430)	301,964	6,577,761	29.3	4.0	45.0	32.3	Yes
EA Day						27.2	
EA Evening						27.2	
EA Night						25.4	
EB Noise sensitive point: Norwegian - Yellow zone (431)	303,297	6,575,922	5.1	4.0	45.0	31.5	Yes
EB Day						27.2	
EB Evening						27.2	
EB Night						24.2	
EC Noise sensitive point: Norwegian - Yellow zone (432)	306,536	6,581,176	20.2	4.0	45.0	34.3	Yes
EC Day						28.3	
EC Evening						28.3	
EC Night						27.8	
ED Noise sensitive point: Norwegian - Yellow zone (433)	303,234	6,582,324	26.9	4.0	45.0	31.9	Yes
ED Day						25.8	
ED Evening						25.8	
ED Night						25.5	
EE Noise sensitive point: Norwegian - Yellow zone (434)	303,344	6,575,942	7.7	4.0	45.0	31.7	Yes
EE Day						27.4	
EE Evening						27.4	
EE Night						24.4	
EF Noise sensitive point: Norwegian - Yellow zone (435)	303,329	6,575,800	0.9	4.0	45.0	30.9	Yes
EF Day						26.5	
EF Evening						26.5	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled ?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
EF Night						23.6	
EG Noise sensitive point: Norwegian - Yellow zone (436)	301,978	6,577,979	31.3	4.0	45.0	32.6	Yes
EG Day						27.5	
EG Evening						27.5	
EG Night						25.7	
EH Noise sensitive point: Norwegian - Yellow zone (437)	303,273	6,582,158	33.0	4.0	45.0	32.6	Yes
EH Day						26.4	
EH Evening						26.4	
EH Night						26.1	
EI Noise sensitive point: Norwegian - Yellow zone (438)	303,254	6,582,262	27.8	4.0	45.0	32.3	Yes
EI Day						26.1	
EI Evening						26.1	
EI Night						25.8	
EJ Noise sensitive point: Norwegian - Yellow zone (439)	302,754	6,582,121	31.9	4.0	45.0	32.2	Yes
EJ Day						26.1	
EJ Evening						26.1	
EJ Night						25.8	
EK Noise sensitive point: Norwegian - Yellow zone (440)	303,611	6,582,301	31.6	4.0	45.0	32.1	Yes
EK Day						26.1	
EK Evening						26.1	
EK Night						25.6	
EL Noise sensitive point: Norwegian - Yellow zone (441)	303,544	6,582,274	23.4	4.0	45.0	32.2	Yes
EL Day						26.1	
EL Evening						26.1	
EL Night						25.8	
F Noise sensitive point: Norwegian - Yellow zone (304)	304,401	6,579,299	134.2	4.0	45.0	43.7	Yes
F Day						37.7	
F Evening						37.7	
F Night						37.2	
G Noise sensitive point: Norwegian - Yellow zone (305)	304,526	6,579,331	154.1	4.0	45.0	44.0	Yes
G Day						38.2	
G Evening						38.2	
G Night						37.4	
G2 Noise sensitive point: Norwegian - Yellow zone (306)	304,550	6,579,331	153.5	4.0	45.0	44.0	Yes
G2 Day						38.2	
G2 Evening						38.2	
G2 Night						37.4	
H Noise sensitive point: Norwegian - Yellow zone (307)	303,756	6,579,088	85.4	4.0	45.0	42.0	Yes
H Day						36.0	
H Evening						36.0	
H Night						35.5	
I Noise sensitive point: Norwegian - Yellow zone (308)	303,893	6,581,500	70.2	4.0	45.0	37.8	Yes
I Day						31.6	
I Evening						31.6	
I Night						31.3	
J Noise sensitive point: Norwegian - Yellow zone (309)	305,704	6,580,824	39.0	4.0	45.0	40.0	Yes
J Day						33.9	
J Evening						33.9	
J Night						33.5	
K Noise sensitive point: Norwegian - Yellow zone (310)	303,718	6,579,007	80.5	4.0	45.0	41.6	Yes
K Day						35.7	
K Evening						35.7	
K Night						35.1	
L Noise sensitive point: Norwegian - Yellow zone (311)	305,566	6,581,159	39.2	4.0	45.0	38.1	Yes
L Day						32.1	
L Evening						32.1	
L Night						31.6	
M Noise sensitive point: Norwegian - Yellow zone (312)	305,599	6,581,129	38.2	4.0	45.0	38.2	Yes
M Day						32.1	
M Evening						32.1	
M Night						31.7	
N Noise sensitive point: Norwegian - Yellow zone (313)	305,667	6,581,195	38.4	4.0	45.0	37.6	Yes
N Day						31.6	
N Evening						31.6	
N Night						31.1	

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled ?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB]	From WTGs [dB]	Noise
O	Noise sensitive point: Norwegian - Yellow zone (314)	305,696	6,581,124	29.6	4.0	45.0	37.9	Yes
O	Day						31.8	
O	Evening						31.8	
O	Night						31.4	
P	Noise sensitive point: Norwegian - Yellow zone (315)	305,743	6,581,169	43.6	4.0	45.0	37.7	Yes
P	Day						31.7	
P	Evening						31.7	
P	Night						31.2	
Q	Noise sensitive point: Norwegian - Yellow zone (316)	302,678	6,577,252	23.2	4.0	45.0	35.0	Yes
Q	Day						30.7	
Q	Evening						30.7	
Q	Night						27.7	
R	Noise sensitive point: Norwegian - Yellow zone (317)	305,801	6,581,141	37.1	4.0	45.0	37.6	Yes
R	Day						31.6	
R	Evening						31.6	
R	Night						31.1	
S	Noise sensitive point: Norwegian - Yellow zone (318)	305,887	6,580,880	21.1	4.0	45.0	38.7	Yes
S	Day						32.6	
S	Evening						32.6	
S	Night						32.2	
T	Noise sensitive point: Norwegian - Yellow zone (319)	306,074	6,580,629	19.5	4.0	45.0	38.8	Yes
T	Day						32.7	
T	Evening						32.7	
T	Night						32.3	
U	Noise sensitive point: Norwegian - Yellow zone (320)	305,850	6,581,111	32.3	4.0	45.0	37.6	Yes
U	Day						31.6	
U	Evening						31.6	
U	Night						31.1	
V	Noise sensitive point: Norwegian - Yellow zone (321)	306,046	6,580,749	20.7	4.0	45.0	38.5	Yes
V	Day						32.5	
V	Evening						32.5	
V	Night						32.1	
W	Noise sensitive point: Norwegian - Yellow zone (322)	305,541	6,581,331	48.8	4.0	45.0	37.1	Yes
W	Day						31.1	
W	Evening						31.1	
W	Night						30.6	
X	Noise sensitive point: Norwegian - Yellow zone (323)	305,560	6,581,297	48.3	4.0	45.0	37.3	Yes
X	Day						31.3	
X	Evening						31.3	
X	Night						30.8	
Y	Noise sensitive point: Norwegian - Yellow zone (324)	305,613	6,581,278	55.9	4.0	45.0	37.5	Yes
Y	Day						31.5	
Y	Evening						31.5	
Y	Night						31.0	
Z	Noise sensitive point: Norwegian - Yellow zone (325)	305,581	6,581,265	45.6	4.0	45.0	37.4	Yes
Z	Day						31.4	
Z	Evening						31.4	
Z	Night						30.9	

Distances (m)

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
A	3161	2870	2585	2359	1488	1251	911	881	633	677	906
AA	3941	3725	3394	3088	1507	1208	1026	1368	2010	2288	2552
AB	3758	3543	3212	2906	1322	1026	870	1206	1879	2182	2459
AC	3759	3568	3236	2923	1320	1090	1068	1368	2106	2450	2743
AD	3923	3712	3380	3073	1483	1194	1040	1378	2041	2332	2602
AE	3809	3615	3283	2971	1367	1126	1080	1389	2116	2449	2739
AF	3773	3585	3254	2940	1339	1117	1109	1404	2147	2494	2788
AG	3928	3720	3389	3080	1484	1205	1075	1408	2086	2385	2658
AH	1132	1139	1440	1748	3305	3537	3718	3371	2984	3074	3137
AI	3796	3607	3276	2963	1360	1134	1115	1415	2154	2496	2789
AJ	3853	3656	3324	3012	1409	1159	1095	1410	2127	2453	2739
AK	1339	1331	1621	1924	3459	3680	3845	3498	3072	3133	3174

To be continued on next page...

Project:
Tysvaer

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Calculated:
07.08.2019 08:06/3.2.743

DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
AL	4128	3906	3576	3273	1703	1395	1176	1523	2121	2367	2613
AM	4131	3817	3612	3479	2993	2772	2421	2393	1830	1414	1166
AN	815	793	1092	1401	2968	3207	3402	3056	2711	2837	2930
AO	1651	1589	1318	1059	1180	1522	1917	1701	2085	2523	2831
AP	3690	3504	3172	2858	1258	1045	1060	1345	2098	2454	2753
AQ	4324	4060	3746	3473	2095	1753	1371	1663	1942	2014	2168
AR	3703	3502	3170	2860	1258	998	931	1245	1966	2299	2589
AS	3620	3436	3104	2790	1191	985	1019	1295	2055	2419	2722
AT	4149	3939	3607	3299	1706	1422	1261	1602	2248	2520	2778
AU	4028	3840	3509	3195	1593	1365	1321	1632	2355	2680	2964
AV	4063	3874	3543	3230	1627	1394	1340	1655	2371	2691	2972
AW	4085	3895	3563	3250	1647	1411	1351	1668	2381	2698	2977
AX	4051	3866	3534	3221	1620	1397	1362	1671	2396	2723	3008
AY	4077	3890	3558	3245	1643	1414	1366	1679	2398	2720	3001
AZ	4337	4023	3834	3718	3300	3084	2736	2702	2113	1681	1405
B	2057	1812	1487	1200	616	756	952	620	848	1302	1625
BA	4161	3941	3611	3306	1730	1427	1220	1566	2173	2422	2670
BB	4211	3992	3661	3357	1780	1477	1269	1615	2215	2460	2704
BC	4198	3980	3649	3344	1764	1464	1265	1611	2221	2471	2719
BD	4196	3983	3652	3345	1756	1465	1288	1632	2261	2523	2776
BE	4242	4027	3695	3390	1805	1509	1318	1663	2277	2528	2775
BF	1639	1551	1263	986	1068	1410	1798	1572	1943	2381	2689
BG	4251	4037	3705	3399	1812	1519	1334	1679	2299	2553	2801
BH	4221	4011	3679	3371	1779	1493	1328	1670	2308	2573	2827
BI	1512	1481	1757	2053	3559	3768	3914	3568	3107	3139	3160
BJ	4099	3916	3584	3271	1671	1451	1416	1726	2451	2777	3060
BK	4118	3933	3602	3288	1687	1461	1416	1729	2449	2770	3051
BL	3565	3388	3058	2744	1156	984	1068	1321	2094	2473	2781
BM	3579	3399	3068	2754	1160	972	1036	1298	2067	2439	2746
BN	3699	3494	3162	2853	1254	983	893	1213	1925	2252	2539
BO	3676	3476	3144	2833	1231	976	923	1231	1960	2298	2591
BP	3603	3420	3089	2775	1179	982	1032	1301	2065	2433	2738
BQ	4387	4124	3810	3536	2151	1809	1430	1724	2006	2074	2225
BR	3703	3507	3175	2863	1259	1012	968	1274	2006	2345	2638
BS	4329	4113	3782	3476	1890	1596	1404	1750	2359	2604	2847
BT	4333	4121	3789	3482	1891	1603	1427	1771	2394	2647	2894
BU	1953	1864	1571	1285	936	1270	1680	1506	1996	2451	2773
BV	4223	4030	3699	3386	1783	1537	1451	1777	2471	2772	3043
BW	4187	4000	3669	3356	1754	1522	1464	1782	2493	2806	3083
BX	4333	4134	3802	3491	1888	1627	1505	1840	2507	2787	3047
BY	4387	4184	3853	3543	1942	1672	1532	1870	2521	2789	3043
BZ	1281	1219	960	728	1372	1707	2072	1809	2052	2460	2746
C	3059	2771	2481	2249	1365	1135	813	759	553	683	947
CA	1384	1309	1036	783	1267	1604	1974	1719	1996	2413	2706
CB	1363	1627	1938	2222	3791	4090	4369	4040	3860	4058	4189
CC	582	892	1095	1306	2780	3096	3410	3098	3057	3339	3534
CD	533	782	889	1043	2456	2775	3100	2796	2805	3115	3330
CE	1494	1712	2039	2342	3939	4222	4475	4138	3889	4048	4150
CF	1281	1529	1847	2139	3722	4014	4284	3952	3750	3938	4062
CG	1464	1676	2005	2309	3908	4189	4439	4102	3847	4003	4104
CH	1281	1544	1855	2139	3709	4008	4286	3957	3778	3979	4111
CI	1129	1242	1570	1885	3482	3738	3952	3608	3284	3409	3493
CJ	3515	3339	3009	2694	1107	940	1038	1283	2059	2442	2753
CK	684	982	1148	1328	2746	3068	3395	3091	3089	3388	3594
CL	775	1087	1335	1571	3072	3385	3693	3378	3304	3567	3746
CM	779	1090	1295	1499	2945	3265	3587	3280	3254	3539	3735
CN	2404	2278	1964	1657	626	903	1317	1232	1878	2341	2675
CO	1415	1646	1970	2269	3860	4148	4409	4074	3845	4017	4128
CP	1476	1676	2007	2313	3915	4193	4437	4098	3830	3978	4073
CQ	1470	1715	2034	2328	3911	4203	4472	4139	3929	4110	4227
CR	3564	3390	3060	2745	1163	1000	1095	1343	2118	2500	2810
CS	1491	1484	1772	2074	3601	3818	3975	3628	3184	3228	3256
CT	4428	4222	3890	3581	1983	1706	1551	1892	2529	2787	3035
CU	4581	4268	4088	3980	3581	3363	3011	2982	2393	1957	1673
CV	1976	1918	2170	2451	3892	4075	4184	3841	3306	3275	3247
CW	1546	1632	1953	2267	3849	4092	4283	3936	3554	3633	3682

To be continued on next page...

Project:
Tysvaer

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DECIBEL - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

...continued from previous page

	WTG										
NSA	1	2	3	4	5	6	7	8	9	10	11
CX	4868	4555	4376	4269	3846	3619	3259	3244	2673	2242	1961
CY	1955	1774	1919	2133	3363	3497	3548	3216	2603	2515	2459
CZ	1921	2101	2433	2744	4348	4617	4847	4505	4192	4307	4376
D	1665	1360	1114	976	1467	1584	1664	1322	903	1131	1342
D2	1815	1507	1273	1143	1517	1599	1637	1303	792	977	1178
D3	1613	1309	1061	924	1469	1596	1689	1345	950	1184	1395
DA	1822	1686	1881	2129	3471	3631	3714	3375	2808	2759	2727
DB	2158	2011	2188	2420	3691	3828	3880	3548	2930	2829	2757
DC	2105	1975	2169	2413	3725	3873	3938	3603	3003	2918	2856
DD	2130	1984	2163	2397	3674	3814	3868	3536	2922	2825	2757
DE	1684	1863	2195	2506	4110	4380	4612	4271	3968	4093	4171
DF	1583	1764	2096	2407	4010	4281	4515	4174	3878	4009	4091
DG	2096	1976	2179	2429	3761	3914	3985	3649	3057	2978	2921
DH	1869	2057	2388	2698	4302	4574	4809	4468	4167	4290	4365
DI	1604	1820	2148	2451	4048	4331	4584	4246	3992	4147	4245
DJ	4924	4709	4378	4072	2483	2192	1989	2336	2907	3111	3327
DK	4882	4662	4332	4028	2447	2148	1927	2274	2825	3018	3228
DL	1723	1902	2234	2545	4149	4419	4651	4309	4005	4128	4204
DM	1744	1969	2295	2596	4189	4476	4733	4396	4150	4307	4405
DN	1669	1944	2248	2523	4073	4379	4669	4343	4184	4388	4521
DO	4718	4405	4188	4037	3391	3131	2745	2784	2330	1955	1747
DP	1596	1854	2168	2455	4026	4324	4602	4271	4080	4269	4392
DQ	1556	1740	2072	2382	3985	4257	4493	4152	3860	3993	4078
DR	2029	1909	2113	2364	3704	3860	3935	3598	3014	2944	2893
DS	2105	1889	1985	2161	3263	3369	3387	3064	2407	2278	2195
DT	1619	1802	2133	2444	4047	4319	4553	4212	3917	4047	4129
DU	4510	4298	3967	3660	2068	1781	1598	1943	2552	2791	3029
DV	4977	4752	4422	4121	2550	2244	2003	2350	2870	3043	3241
DW	2012	1970	2232	2518	3976	4163	4278	3934	3408	3380	3355
DX	1910	2166	2482	2769	4340	4639	4916	4586	4386	4566	4680
DY	4676	4483	4151	3839	2235	1984	1868	2203	2864	3132	3384
DZ	1822	1826	2115	2416	3934	4144	4289	3943	3469	3484	3489
E	1564	1255	1031	931	1591	1721	1809	1466	1035	1230	1416
EA	2105	1999	2214	2472	3828	3987	4064	3727	3144	3072	3018
EB	1700	1947	2267	2559	4139	4433	4704	4371	4160	4336	4449
EC	4481	4282	3950	3639	2037	1773	1642	1979	2634	2902	3155
ED	4941	4629	4405	4248	3540	3268	2872	2935	2523	2166	1971
EE	1662	1913	2231	2521	4098	4394	4667	4335	4131	4311	4428
EF	1798	2052	2368	2657	4229	4527	4803	4472	4273	4454	4570
EG	2134	1998	2186	2426	3721	3865	3925	3591	2984	2891	2825
EH	4771	4459	4235	4077	3385	3117	2725	2779	2355	1995	1802
EI	4877	4564	4341	4182	3479	3208	2813	2873	2458	2101	1907
EJ	4846	4532	4339	4215	3703	3462	3090	3097	2569	2156	1899
EK	4870	4561	4319	4138	3306	3017	2611	2708	2384	2077	1936
EL	4850	4540	4301	4125	3320	3035	2631	2720	2375	2058	1906
F	1883	1607	1304	1063	994	1107	1222	875	721	1113	1407
G	1942	1676	1363	1103	865	983	1118	772	739	1161	1469
G2	1948	1684	1369	1106	842	963	1104	758	750	1176	1486
H	1664	1352	1146	1062	1670	1777	1836	1498	996	1143	1308
I	4053	3748	3493	3301	2486	2214	1822	1881	1541	1273	1202
J	3759	3530	3201	2902	1361	1036	784	1131	1733	2001	2264
K	1592	1278	1086	1023	1728	1847	1916	1576	1086	1226	1381
L	4008	3764	3440	3150	1667	1329	1003	1337	1811	2002	2225
M	3993	3751	3426	3135	1641	1305	988	1325	1817	2017	2245
N	4081	3840	3515	3222	1717	1383	1077	1416	1911	2108	2332
O	4028	3790	3464	3169	1652	1321	1027	1369	1890	2103	2335
P	4088	3852	3525	3229	1706	1377	1089	1433	1955	2164	2394
Q	1382	1379	1671	1975	3511	3733	3897	3550	3122	3180	3219
R	4087	3854	3526	3229	1692	1367	1096	1441	1985	2205	2440
S	3893	3671	3341	3038	1469	1159	951	1296	1921	2193	2454
T	3771	3567	3235	2925	1326	1058	965	1287	1994	2316	2601
U	4081	3852	3523	3224	1677	1356	1100	1446	2008	2238	2477
V	3858	3649	3317	3009	1415	1132	997	1331	2010	2312	2588
W	4159	3910	3588	3301	1835	1496	1157	1483	1908	2066	2269
X	4134	3887	3564	3276	1803	1465	1130	1459	1898	2064	2272
Y	4136	3892	3568	3278	1791	1454	1131	1464	1924	2100	2313
Z	4112	3867	3543	3254	1774	1436	1107	1439	1892	2066	2278

Project:
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Calculated:
07.08.2019 08:06/3.2.743

DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise calculation model:
ISO 9613-2 Norway (Outdated)
Wind speed (in 10 m height):
8.0 m/s
Ground attenuation:
Alternative
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tone penalty is subtracted from demand
WTG catalogue
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:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	290
2	Evening	19	23	4	5	290
3	Night	23	7	8	10	290

Octave data used if available
Frequency independent air absorption: 1.9 dB/km

Frequency dependent air absorption

63 [db/km]	125 [db/km]	250 [db/km]	500 [db/km]	1,000 [db/km]	2,000 [db/km]	4,000 [db/km]	8,000 [db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

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	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 6 - Calculated - 100.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

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 other hub height	85.0	8.0	100.0	No	83.3	85.5	88.2	91.9	94.3	95.0	90.7	79.5

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Status	Hub height	Wind speed	LwA,ref	Pure tones	Octave data 63	125	250	500	1000	2000	4000	8000
	[m]	[m/s]	[dB(A)]		[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2
From Windcat	85.0	8.0	106.0	No	89.4	92.7	94.7	97.4	100.2	100.7	97.5	88.2

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 2 - Calculated - 105.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Status	Hub height	Wind speed	LwA,ref	Pure tones	Octave data 63	125	250	500	1000	2000	4000	8000
	[m]	[m/s]	[dB(A)]		[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
From other hub height	85.0	8.0	105.0	No	88.4	92.9	93.8	95.8	98.2	99.9	97.6	88.3

NSA: Noise sensitive point: Norwegian - Yellow zone (297)-A
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (298)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (299)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (300)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (301)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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07.08.2019 08:06/3.2.743

DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (302)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (303)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (304)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (305)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (306)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (307)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (308)-I
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (309)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (310)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (311)-L
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (312)-M
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (313)-N
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (314)-O
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (315)-P
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (316)-Q
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (317)-R
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (318)-S
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (319)-T
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (320)-U
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (321)-V
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (322)-W
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (323)-X
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (324)-Y
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (325)-Z
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (326)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (327)-AB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (328)-AC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (329)-AD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (330)-AE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (331)-AF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (332)-AG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (333)-AH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (334)-AI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (335)-AJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (336)-AK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (337)-AL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (338)-AM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (339)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (340)-AO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (341)-AP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (342)-AQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (343)-AR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (344)-AS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (345)-AT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (346)-AU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (347)-AV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (348)-AW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (349)-AX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (350)-AY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (351)-AZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (352)-BA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (353)-BB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (354)-BC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (355)-BD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (356)-BE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (357)-BF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (358)-BG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (359)-BH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (360)-BI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (361)-BJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (362)-BK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (363)-BL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (364)-BM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (365)-BN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (366)-BO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (367)-BP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (368)-BQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (369)-BR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (370)-BS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (371)-BT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (372)-BU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (373)-BV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (374)-BW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (375)-BX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (376)-BY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (377)-BZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (378)-CA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (379)-CB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (380)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (381)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (382)-CE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (383)-CF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (384)-CG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (385)-CH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (386)-CI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (387)-CJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (388)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (389)-CL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (390)-CM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (391)-CN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (392)-CO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (393)-CP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (394)-CQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

Project:
Tysvaer

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NO-4632 Kristiansand
+47 3860 7115
Data / data@meventus.com
Calculated:
07.08.2019 08:06/3.2.743

DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (395)-CR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (396)-CS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (397)-CT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (398)-CU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (399)-CV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (400)-CW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (401)-CX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (402)-CY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (403)-CZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Project:
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Calculated:
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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (404)-DA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (405)-DB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (406)-DC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (407)-DD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (408)-DE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (409)-DF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (410)-DG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (411)-DH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

Project:
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Calculated:
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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (412)-DI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (413)-DJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (414)-DK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (415)-DL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (416)-DM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (417)-DN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (418)-DO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (419)-DP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (420)-DQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (421)-DR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (422)-DS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (423)-DT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (424)-DU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (425)-DV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (426)-DW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (427)-DX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (428)-DY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (429)-DZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (430)-EA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (431)-EB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (432)-EC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (433)-ED
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (434)-EE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (435)-EF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (436)-EG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (437)-EH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_withCurt

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (438)-EI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (439)-EJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (440)-EK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: Norwegian - Yellow zone (441)-EL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model
Uncertainty margin: Use default value from calculation model

Noise demand: 45.0 dB(A)
No distance demand

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

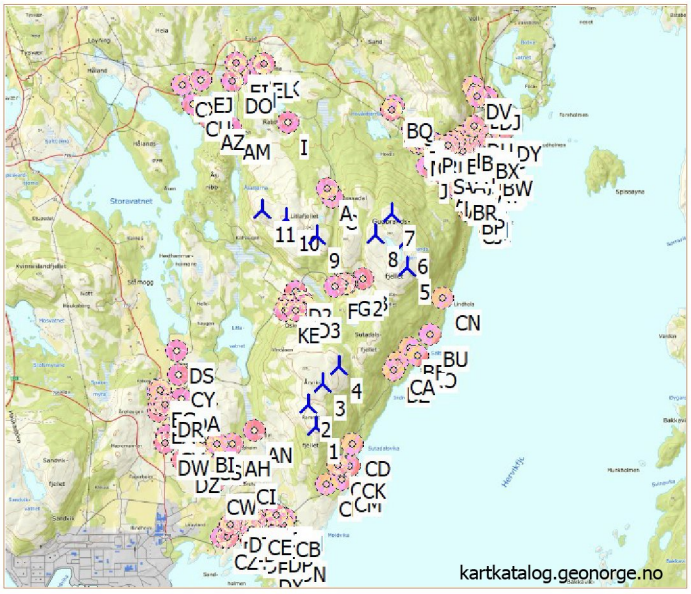
NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed	Max noise wind speed
Max noise wind speed	All receptors downwind
Wind direction	4.0 m
Height above ground level for receiver	
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	5.022
Version	

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:100,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Calculation Results

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

Sound level

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
A	Noise sensitive point: Norwegian - Yellow zone (297)	304,363	6,580,595	148.8	4.0	45.0	44.8	Yes
A	Day						38.4	
A	Evening						38.4	
A	Night						38.4	
B	Noise sensitive point: Norwegian - Yellow zone (298)	304,772	6,579,374	174.3	4.0	45.0	49.8	No
B	Day						43.4	
B	Evening						43.4	
B	Night						43.4	
C	Noise sensitive point: Norwegian - Yellow zone (299)	304,426	6,580,485	161.8	4.0	45.0	47.5	No
C	Day						41.1	
C	Evening						41.1	
C	Night						41.1	
D	Noise sensitive point: Norwegian - Yellow zone (300)	303,960	6,579,112	97.0	4.0	45.0	47.1	No
D	Day						40.7	
D	Evening						40.7	
D	Night						40.7	
D2	Noise sensitive point: Norwegian - Yellow zone (301)	303,877	6,579,257	84.9	4.0	45.0	48.7	No
D2	Day						42.4	
D2	Evening						42.4	
D2	Night						42.4	
D3	Noise sensitive point: Norwegian - Yellow zone (302)	303,973	6,579,061	102.8	4.0	45.0	47.2	No
D3	Day						40.9	
D3	Evening						40.9	
D3	Night						40.9	
E	Noise sensitive point: Norwegian - Yellow zone (303)	303,863	6,579,003	102.3	4.0	45.0	46.9	No
E	Day						40.5	
E	Evening						40.5	
E	Night						40.5	
F	Noise sensitive point: Norwegian - Yellow zone (304)	304,401	6,579,299	134.2	4.0	45.0	48.6	No
F	Day						42.3	
F	Evening						42.3	
F	Night						42.3	
G	Noise sensitive point: Norwegian - Yellow zone (305)	304,526	6,579,331	154.1	4.0	45.0	49.4	No
G	Day						43.0	
G	Evening						43.0	
G	Night						43.0	
G2	Noise sensitive point: Norwegian - Yellow zone (306)	304,550	6,579,331	153.5	4.0	45.0	49.6	No
G2	Day						43.2	
G2	Evening						43.2	
G2	Night						43.2	
H	Noise sensitive point: Norwegian - Yellow zone (307)	303,756	6,579,088	85.4	4.0	45.0	46.4	No
H	Day						40.0	
H	Evening						40.0	
H	Night						40.0	
I	Noise sensitive point: Norwegian - Yellow zone (308)	303,893	6,581,500	70.2	4.0	45.0	43.2	Yes
I	Day						36.9	
I	Evening						36.9	
I	Night						36.9	
J	Noise sensitive point: Norwegian - Yellow zone (309)	305,704	6,580,824	39.0	4.0	45.0	45.1	No
J	Day						38.7	
J	Evening						38.7	
J	Night						38.7	
K	Noise sensitive point: Norwegian - Yellow zone (310)	303,718	6,579,007	80.5	4.0	45.0	46.3	No
K	Day						39.9	
K	Evening						39.9	
K	Night						39.9	
L	Noise sensitive point: Norwegian - Yellow zone (311)	305,566	6,581,159	39.2	4.0	45.0	44.0	Yes
L	Day						37.6	
L	Evening						37.6	
L	Night						37.6	
M	Noise sensitive point: Norwegian - Yellow zone (312)	305,599	6,581,129	38.2	4.0	45.0	43.7	Yes
M	Day						37.3	
M	Evening						37.3	
M	Night						37.3	
N	Noise sensitive point: Norwegian - Yellow zone (313)	305,667	6,581,195	38.4	4.0	45.0	44.4	Yes

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Project:
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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
N	Day						38.0	
N	Evening						38.0	
N	Night						38.0	
O	Noise sensitive point: Norwegian - Yellow zone (314)	305,696	6,581,124	29.6	4.0	45.0	41.8	Yes
O	Day						35.4	
O	Evening						35.4	
O	Night						35.4	
P	Noise sensitive point: Norwegian - Yellow zone (315)	305,743	6,581,169	43.6	4.0	45.0	44.0	Yes
P	Day						37.6	
P	Evening						37.6	
P	Night						37.6	
Q	Noise sensitive point: Norwegian - Yellow zone (316)	302,678	6,577,252	23.2	4.0	45.0	40.6	Yes
Q	Day						34.2	
Q	Evening						34.2	
Q	Night						34.2	
R	Noise sensitive point: Norwegian - Yellow zone (317)	305,801	6,581,141	37.1	4.0	45.0	44.0	Yes
R	Day						37.6	
R	Evening						37.6	
R	Night						37.6	
S	Noise sensitive point: Norwegian - Yellow zone (318)	305,887	6,580,880	21.1	4.0	45.0	44.6	Yes
S	Day						38.2	
S	Evening						38.2	
S	Night						38.2	
T	Noise sensitive point: Norwegian - Yellow zone (319)	306,074	6,580,629	19.5	4.0	45.0	43.9	Yes
T	Day						37.5	
T	Evening						37.5	
T	Night						37.5	
U	Noise sensitive point: Norwegian - Yellow zone (320)	305,850	6,581,111	32.3	4.0	45.0	43.8	Yes
U	Day						37.4	
U	Evening						37.4	
U	Night						37.4	
V	Noise sensitive point: Norwegian - Yellow zone (321)	306,046	6,580,749	20.7	4.0	45.0	44.4	Yes
V	Day						38.0	
V	Evening						38.0	
V	Night						38.0	
W	Noise sensitive point: Norwegian - Yellow zone (322)	305,541	6,581,331	48.8	4.0	45.0	43.1	Yes
W	Day						36.7	
W	Evening						36.7	
W	Night						36.7	
X	Noise sensitive point: Norwegian - Yellow zone (323)	305,560	6,581,297	48.3	4.0	45.0	43.5	Yes
X	Day						37.1	
X	Evening						37.1	
X	Night						37.1	
Y	Noise sensitive point: Norwegian - Yellow zone (324)	305,613	6,581,278	55.9	4.0	45.0	43.8	Yes
Y	Day						37.4	
Y	Evening						37.4	
Y	Night						37.4	
Z	Noise sensitive point: Norwegian - Yellow zone (325)	305,581	6,581,265	45.6	4.0	45.0	43.9	Yes
Z	Day						37.5	
Z	Evening						37.5	
Z	Night						37.5	
AA	Noise sensitive point: Norwegian - Yellow zone (326)	305,987	6,580,880	28.0	4.0	45.0	45.2	No
AA	Day						38.8	
AA	Evening						38.8	
AA	Night						38.8	
AB	Noise sensitive point: Norwegian - Yellow zone (327)	305,922	6,580,706	31.9	4.0	45.0	43.7	Yes
AB	Day						37.3	
AB	Evening						37.3	
AB	Night						37.3	
AC	Noise sensitive point: Norwegian - Yellow zone (328)	306,226	6,580,512	17.9	4.0	45.0	42.2	Yes
AC	Day						35.8	
AC	Evening						35.8	
AC	Night						35.8	
AD	Noise sensitive point: Norwegian - Yellow zone (329)	306,048	6,580,824	22.2	4.0	45.0	44.3	Yes
AD	Day						38.0	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
AD	Evening						38.0	
AD	Night						38.0	
AE	Noise sensitive point: Norwegian - Yellow zone (330)	306,217	6,580,580	10.5	4.0	45.0	42.2	Yes
AE	Day						35.8	
AE	Evening						35.8	
AE	Night						35.8	
AF	Noise sensitive point: Norwegian - Yellow zone (331)	306,272	6,580,496	14.3	4.0	45.0	41.3	Yes
AF	Day						34.9	
AF	Evening						34.9	
AF	Night						34.9	
AG	Noise sensitive point: Norwegian - Yellow zone (332)	306,111	6,580,791	17.9	4.0	45.0	44.1	Yes
AG	Day						37.7	
AG	Evening						37.7	
AG	Night						37.7	
AH	Noise sensitive point: Norwegian - Yellow zone (333)	302,926	6,577,281	37.5	4.0	45.0	43.3	Yes
AH	Day						36.9	
AH	Evening						36.9	
AH	Night						36.9	
AI	Noise sensitive point: Norwegian - Yellow zone (334)	306,271	6,580,526	8.4	4.0	45.0	41.2	Yes
AI	Day						34.8	
AI	Evening						34.8	
AI	Night						34.8	
AJ	Noise sensitive point: Norwegian - Yellow zone (335)	306,212	6,580,636	2.5	4.0	45.0	42.8	Yes
AJ	Day						36.4	
AJ	Evening						36.4	
AJ	Night						36.4	
AK	Noise sensitive point: Norwegian - Yellow zone (336)	302,716	6,577,288	27.4	4.0	45.0	38.5	Yes
AK	Day						32.1	
AK	Evening						32.1	
AK	Night						32.1	
AL	Noise sensitive point: Norwegian - Yellow zone (337)	305,999	6,581,087	31.2	4.0	45.0	43.7	Yes
AL	Day						37.3	
AL	Evening						37.3	
AL	Night						37.3	
AM	Noise sensitive point: Norwegian - Yellow zone (338)	303,122	6,581,476	27.5	4.0	45.0	42.0	Yes
AM	Day						35.6	
AM	Evening						35.6	
AM	Night						35.6	
AN	Noise sensitive point: Norwegian - Yellow zone (339)	303,231	6,577,449	32.2	4.0	45.0	47.3	No
AN	Day						40.9	
AN	Evening						40.9	
AN	Night						40.9	
AO	Noise sensitive point: Norwegian - Yellow zone (340)	305,446	6,578,325	9.8	4.0	45.0	43.2	Yes
AO	Day						36.8	
AO	Evening						36.8	
AO	Night						36.8	
AP	Noise sensitive point: Norwegian - Yellow zone (341)	306,239	6,580,417	25.6	4.0	45.0	42.3	Yes
AP	Day						36.0	
AP	Evening						36.0	
AP	Night						36.0	
AQ	Noise sensitive point: Norwegian - Yellow zone (342)	305,273	6,581,596	54.7	4.0	45.0	41.0	Yes
AQ	Day						34.6	
AQ	Evening						34.6	
AQ	Night						34.6	
AR	Noise sensitive point: Norwegian - Yellow zone (343)	306,069	6,580,552	25.3	4.0	45.0	43.0	Yes
AR	Day						36.6	
AR	Evening						36.6	
AR	Night						36.6	
AS	Noise sensitive point: Norwegian - Yellow zone (344)	306,208	6,580,354	23.5	4.0	45.0	38.2	Yes
AS	Day						31.8	
AS	Evening						31.8	
AS	Night						31.8	
AT	Noise sensitive point: Norwegian - Yellow zone (345)	306,192	6,581,001	11.9	4.0	45.0	43.0	Yes
AT	Day						36.6	
AT	Evening						36.6	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area					Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
AT	Night						36.6	
AU	Noise sensitive point: Norwegian - Yellow zone (346)	306,432	6,580,695	5.7	4.0	45.0	44.1	Yes
AU	Day						37.7	
AU	Evening						37.7	
AU	Night						37.7	
AV	Noise sensitive point: Norwegian - Yellow zone (347)	306,436	6,580,736	6.9	4.0	45.0	43.8	Yes
AV	Day						37.4	
AV	Evening						37.4	
AV	Night						37.4	
AW	Noise sensitive point: Norwegian - Yellow zone (348)	306,438	6,580,761	5.7	4.0	45.0	43.5	Yes
AW	Day						37.1	
AW	Evening						37.1	
AW	Night						37.1	
AX	Noise sensitive point: Norwegian - Yellow zone (349)	306,477	6,580,690	2.4	4.0	45.0	42.4	Yes
AX	Day						36.0	
AX	Evening						36.0	
AX	Night						36.0	
AY	Noise sensitive point: Norwegian - Yellow zone (350)	306,466	6,580,731	5.9	4.0	45.0	42.9	Yes
AY	Day						36.5	
AY	Evening						36.5	
AY	Night						36.5	
AZ	Noise sensitive point: Norwegian - Yellow zone (351)	302,838	6,581,615	28.7	4.0	45.0	40.9	Yes
AZ	Day						34.5	
AZ	Evening						34.5	
AZ	Night						34.5	
BA	Noise sensitive point: Norwegian - Yellow zone (352)	306,056	6,581,093	28.8	4.0	45.0	43.3	Yes
BA	Day						36.9	
BA	Evening						36.9	
BA	Night						36.9	
BB	Noise sensitive point: Norwegian - Yellow zone (353)	306,079	6,581,138	34.2	4.0	45.0	42.9	Yes
BB	Day						36.5	
BB	Evening						36.5	
BB	Night						36.5	
BC	Noise sensitive point: Norwegian - Yellow zone (354)	306,102	6,581,110	28.6	4.0	45.0	43.0	Yes
BC	Day						36.6	
BC	Evening						36.6	
BC	Night						36.6	
BD	Noise sensitive point: Norwegian - Yellow zone (355)	306,173	6,581,067	20.4	4.0	45.0	43.4	Yes
BD	Day						37.0	
BD	Evening						37.0	
BD	Night						37.0	
BE	Noise sensitive point: Norwegian - Yellow zone (356)	306,155	6,581,131	29.3	4.0	45.0	42.4	Yes
BE	Day						36.0	
BE	Evening						36.0	
BE	Night						36.0	
BF	Noise sensitive point: Norwegian - Yellow zone (357)	305,356	6,578,435	23.1	4.0	45.0	43.1	Yes
BF	Day						36.7	
BF	Evening						36.7	
BF	Night						36.7	
BG	Noise sensitive point: Norwegian - Yellow zone (358)	306,184	6,581,124	29.3	4.0	45.0	42.7	Yes
BG	Day						36.3	
BG	Evening						36.3	
BG	Night						36.3	
BH	Noise sensitive point: Norwegian - Yellow zone (359)	306,227	6,581,064	18.5	4.0	45.0	42.9	Yes
BH	Day						36.5	
BH	Evening						36.5	
BH	Night						36.5	
BI	Noise sensitive point: Norwegian - Yellow zone (360)	302,537	6,577,353	21.2	4.0	45.0	39.3	Yes
BI	Day						32.9	
BI	Evening						32.9	
BI	Night						32.9	
BJ	Noise sensitive point: Norwegian - Yellow zone (361)	306,527	6,580,713	1.7	4.0	45.0	40.5	Yes
BJ	Day						34.1	
BJ	Evening						34.1	
BJ	Night						34.1	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
BK	Noise sensitive point: Norwegian - Yellow zone (362)	306,514	6,580,747	3.2	4.0	45.0	40.5	Yes
BK	Day						34.1	
BK	Evening						34.1	
BK	Night						34.1	
BL	Noise sensitive point: Norwegian - Yellow zone (363)	306,265	6,580,240	15.4	4.0	45.0	33.8	Yes
BL	Day						27.4	
BL	Evening						27.4	
BL	Night						27.4	
BM	Noise sensitive point: Norwegian - Yellow zone (364)	306,231	6,580,285	22.0	4.0	45.0	35.0	Yes
BM	Day						28.6	
BM	Evening						28.6	
BM	Night						28.6	
BN	Noise sensitive point: Norwegian - Yellow zone (365)	306,017	6,580,580	28.5	4.0	45.0	40.1	Yes
BN	Day						33.7	
BN	Evening						33.7	
BN	Night						33.7	
BO	Noise sensitive point: Norwegian - Yellow zone (366)	306,073	6,580,516	29.4	4.0	45.0	38.5	Yes
BO	Day						32.1	
BO	Evening						32.1	
BO	Night						32.1	
BP	Noise sensitive point: Norwegian - Yellow zone (367)	306,224	6,580,320	23.0	4.0	45.0	36.3	Yes
BP	Day						29.9	
BP	Evening						29.9	
BP	Night						29.9	
BQ	Noise sensitive point: Norwegian - Yellow zone (368)	305,303	6,581,653	49.9	4.0	45.0	41.5	Yes
BQ	Day						35.1	
BQ	Evening						35.1	
BQ	Night						35.1	
BR	Noise sensitive point: Norwegian - Yellow zone (369)	306,120	6,580,518	21.4	4.0	45.0	41.3	Yes
BR	Day						34.9	
BR	Evening						34.9	
BR	Night						34.9	
BS	Noise sensitive point: Norwegian - Yellow zone (370)	306,210	6,581,199	28.2	4.0	45.0	41.0	Yes
BS	Day						34.6	
BS	Evening						34.6	
BS	Night						34.6	
BT	Noise sensitive point: Norwegian - Yellow zone (371)	306,267	6,581,170	23.1	4.0	45.0	40.5	Yes
BT	Day						34.1	
BT	Evening						34.1	
BT	Night						34.1	
BU	Noise sensitive point: Norwegian - Yellow zone (372)	305,623	6,578,601	19.6	4.0	45.0	42.8	Yes
BU	Day						36.4	
BU	Evening						36.4	
BU	Night						36.4	
BV	Noise sensitive point: Norwegian - Yellow zone (373)	306,483	6,580,899	4.7	4.0	45.0	41.8	Yes
BV	Day						35.4	
BV	Evening						35.4	
BV	Night						35.4	
BW	Noise sensitive point: Norwegian - Yellow zone (374)	306,537	6,580,816	2.6	4.0	45.0	40.2	Yes
BW	Day						33.8	
BW	Evening						33.8	
BW	Night						33.8	
BX	Noise sensitive point: Norwegian - Yellow zone (375)	306,456	6,581,051	6.6	4.0	45.0	40.7	Yes
BX	Day						34.3	
BX	Evening						34.3	
BX	Night						34.3	
BY	Noise sensitive point: Norwegian - Yellow zone (376)	306,432	6,581,132	14.3	4.0	45.0	40.6	Yes
BY	Day						34.2	
BY	Evening						34.2	
BY	Night						34.2	
BZ	Noise sensitive point: Norwegian - Yellow zone (377)	305,114	6,578,156	28.5	4.0	45.0	42.9	Yes
BZ	Day						36.5	
BZ	Evening						36.5	
BZ	Night						36.5	
CA	Noise sensitive point: Norwegian - Yellow zone (378)	305,173	6,578,252	36.8	4.0	45.0	41.9	Yes

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
CA	Day						35.6	
CA	Evening						35.6	
CA	Night						35.6	
CB	Noise sensitive point: Norwegian - Yellow zone (379)	303,549	6,576,179	13.6	4.0	45.0	41.0	Yes
CB	Day						34.6	
CB	Evening						34.6	
CB	Night						34.6	
CC	Noise sensitive point: Norwegian - Yellow zone (380)	304,314	6,576,932	37.5	4.0	45.0	46.7	No
CC	Day						40.3	
CC	Evening						40.3	
CC	Night						40.3	
CD	Noise sensitive point: Norwegian - Yellow zone (381)	304,518	6,577,201	32.2	4.0	45.0	46.0	No
CD	Day						39.6	
CD	Evening						39.6	
CD	Night						39.6	
CE	Noise sensitive point: Norwegian - Yellow zone (382)	303,184	6,576,228	5.0	4.0	45.0	38.5	Yes
CE	Day						32.1	
CE	Evening						32.1	
CE	Night						32.1	
CF	Noise sensitive point: Norwegian - Yellow zone (383)	303,469	6,576,305	10.1	4.0	45.0	41.4	Yes
CF	Day						35.0	
CF	Evening						35.0	
CF	Night						35.0	
CG	Noise sensitive point: Norwegian - Yellow zone (384)	303,169	6,576,276	8.0	4.0	45.0	39.8	Yes
CG	Day						33.4	
CG	Evening						33.4	
CG	Night						33.4	
CH	Noise sensitive point: Norwegian - Yellow zone (385)	303,577	6,576,257	16.2	4.0	45.0	41.2	Yes
CH	Day						34.8	
CH	Evening						34.8	
CH	Night						34.8	
CI	Noise sensitive point: Norwegian - Yellow zone (386)	303,059	6,576,901	15.1	4.0	45.0	43.5	Yes
CI	Day						37.1	
CI	Evening						37.1	
CI	Night						37.1	
CJ	Noise sensitive point: Norwegian - Yellow zone (387)	306,234	6,580,201	20.1	4.0	45.0	25.7	Yes
CJ	Day						19.3	
CJ	Evening						19.3	
CJ	Night						19.3	
CK	Noise sensitive point: Norwegian - Yellow zone (388)	304,468	6,576,910	16.1	4.0	45.0	46.2	No
CK	Day						39.8	
CK	Evening						39.8	
CK	Night						39.8	
CL	Noise sensitive point: Norwegian - Yellow zone (389)	304,155	6,576,682	37.4	4.0	45.0	43.2	Yes
CL	Day						36.8	
CL	Evening						36.8	
CL	Night						36.8	
CM	Noise sensitive point: Norwegian - Yellow zone (390)	304,362	6,576,737	16.1	4.0	45.0	43.2	Yes
CM	Day						36.8	
CM	Evening						36.8	
CM	Night						36.8	
CN	Noise sensitive point: Norwegian - Yellow zone (391)	305,824	6,579,068	21.2	4.0	45.0	42.9	Yes
CN	Day						36.5	
CN	Evening						36.5	
CN	Night						36.5	
CO	Noise sensitive point: Norwegian - Yellow zone (392)	303,305	6,576,243	11.7	4.0	45.0	39.6	Yes
CO	Day						33.2	
CO	Evening						33.2	
CO	Night						33.2	
CP	Noise sensitive point: Norwegian - Yellow zone (393)	303,105	6,576,312	4.2	4.0	45.0	40.1	Yes
CP	Day						33.7	
CP	Evening						33.7	
CP	Night						33.7	
CQ	Noise sensitive point: Norwegian - Yellow zone (394)	303,373	6,576,142	6.4	4.0	45.0	38.8	Yes
CQ	Day						32.4	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
CQ	Evening						32.4	
CQ	Night						32.4	
CR	Noise sensitive point: Norwegian - Yellow zone (395)	306,292	6,580,217	10.5	4.0	45.0	33.5	Yes
CR	Day						27.1	
CR	Evening						27.1	
CR	Night						27.1	
CS	Noise sensitive point: Norwegian - Yellow zone (396)	302,569	6,577,243	21.0	4.0	45.0	40.1	Yes
CS	Day						33.7	
CS	Evening						33.7	
CS	Night						33.7	
CT	Noise sensitive point: Norwegian - Yellow zone (397)	306,407	6,581,196	22.3	4.0	45.0	40.3	Yes
CT	Day						33.9	
CT	Evening						33.9	
CT	Night						33.9	
CU	Noise sensitive point: Norwegian - Yellow zone (398)	302,633	6,581,808	23.8	4.0	45.0	38.5	Yes
CU	Day						32.1	
CU	Evening						32.1	
CU	Night						32.1	
CV	Noise sensitive point: Norwegian - Yellow zone (399)	302,070	6,577,445	26.2	4.0	45.0	39.8	Yes
CV	Day						33.4	
CV	Evening						33.4	
CV	Night						33.4	
CW	Noise sensitive point: Norwegian - Yellow zone (400)	302,651	6,576,781	19.2	4.0	45.0	40.5	Yes
CW	Day						34.1	
CW	Evening						34.1	
CW	Night						34.1	
CX	Noise sensitive point: Norwegian - Yellow zone (401)	302,508	6,582,069	27.9	4.0	45.0	37.8	Yes
CX	Day						31.4	
CX	Evening						31.4	
CX	Night						31.4	
CY	Noise sensitive point: Norwegian - Yellow zone (402)	302,257	6,578,238	31.6	4.0	45.0	39.8	Yes
CY	Day						33.4	
CY	Evening						33.4	
CY	Night						33.4	
CZ	Noise sensitive point: Norwegian - Yellow zone (403)	302,719	6,576,059	6.6	4.0	45.0	37.1	Yes
CZ	Day						30.7	
CZ	Evening						30.7	
CZ	Night						30.7	
DA	Noise sensitive point: Norwegian - Yellow zone (404)	302,285	6,577,919	26.2	4.0	45.0	40.1	Yes
DA	Day						33.7	
DA	Evening						33.7	
DA	Night						33.7	
DB	Noise sensitive point: Norwegian - Yellow zone (405)	301,976	6,578,061	29.3	4.0	45.0	37.8	Yes
DB	Day						31.4	
DB	Evening						31.4	
DB	Night						31.4	
DC	Noise sensitive point: Norwegian - Yellow zone (406)	301,996	6,577,931	27.7	4.0	45.0	39.4	Yes
DC	Day						33.0	
DC	Evening						33.0	
DC	Night						33.0	
DD	Noise sensitive point: Norwegian - Yellow zone (407)	302,001	6,578,045	27.2	4.0	45.0	37.6	Yes
DD	Day						31.2	
DD	Evening						31.2	
DD	Night						31.2	
DE	Noise sensitive point: Norwegian - Yellow zone (408)	302,871	6,576,242	12.2	4.0	45.0	37.5	Yes
DE	Day						31.1	
DE	Evening						31.1	
DE	Night						31.1	
DF	Noise sensitive point: Norwegian - Yellow zone (409)	302,944	6,576,312	17.3	4.0	45.0	38.2	Yes
DF	Day						31.8	
DF	Evening						31.8	
DF	Night						31.8	
DG	Noise sensitive point: Norwegian - Yellow zone (410)	301,990	6,577,859	31.3	4.0	45.0	39.9	Yes
DG	Day						33.5	
DG	Evening						33.5	

To be continued on next page...

Project:
Tysvaer

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06.08.2019 14:53/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
DG	Night						33.5	
DH	Noise sensitive point: Norwegian - Yellow zone (411)	302,798	6,576,057	7.3	4.0	45.0	38.0	Yes
DH	Day						31.7	
DH	Evening						31.7	
DH	Night						31.7	
DI	Noise sensitive point: Norwegian - Yellow zone (412)	303,122	6,576,138	0.4	4.0	45.0	38.6	Yes
DI	Day						32.2	
DI	Evening						32.2	
DI	Night						32.2	
DJ	Noise sensitive point: Norwegian - Yellow zone (413)	306,537	6,581,697	28.3	4.0	45.0	36.1	Yes
DJ	Day						29.7	
DJ	Evening						29.7	
DJ	Night						29.7	
DK	Noise sensitive point: Norwegian - Yellow zone (414)	306,420	6,581,716	37.6	4.0	45.0	33.3	Yes
DK	Day						26.9	
DK	Evening						26.9	
DK	Night						26.9	
DL	Noise sensitive point: Norwegian - Yellow zone (415)	302,846	6,576,212	8.5	4.0	45.0	38.0	Yes
DL	Day						31.6	
DL	Evening						31.6	
DL	Night						31.6	
DM	Noise sensitive point: Norwegian - Yellow zone (416)	303,109	6,575,978	4.5	4.0	45.0	37.5	Yes
DM	Day						31.1	
DM	Evening						31.1	
DM	Night						31.1	
DN	Noise sensitive point: Norwegian - Yellow zone (417)	303,576	6,575,847	12.4	4.0	45.0	39.7	Yes
DN	Day						33.3	
DN	Evening						33.3	
DN	Night						33.3	
DO	Noise sensitive point: Norwegian - Yellow zone (418)	303,178	6,582,088	22.8	4.0	45.0	37.9	Yes
DO	Day						31.5	
DO	Evening						31.5	
DO	Night						31.5	
DP	Noise sensitive point: Norwegian - Yellow zone (419)	303,431	6,575,976	9.5	4.0	45.0	38.4	Yes
DP	Day						32.0	
DP	Evening						32.0	
DP	Night						32.0	
DQ	Noise sensitive point: Norwegian - Yellow zone (420)	302,972	6,576,322	12.4	4.0	45.0	38.3	Yes
DQ	Day						31.9	
DQ	Evening						31.9	
DQ	Night						31.9	
DR	Noise sensitive point: Norwegian - Yellow zone (421)	302,057	6,577,852	25.0	4.0	45.0	39.2	Yes
DR	Day						32.9	
DR	Evening						32.9	
DR	Night						32.9	
DS	Noise sensitive point: Norwegian - Yellow zone (422)	302,252	6,578,552	25.8	4.0	45.0	39.3	Yes
DS	Day						32.9	
DS	Evening						32.9	
DS	Night						32.9	
DT	Noise sensitive point: Norwegian - Yellow zone (423)	302,930	6,576,276	11.0	4.0	45.0	38.4	Yes
DT	Day						32.0	
DT	Evening						32.0	
DT	Night						32.0	
DU	Noise sensitive point: Norwegian - Yellow zone (424)	306,362	6,581,320	29.1	4.0	45.0	41.5	Yes
DU	Day						35.1	
DU	Evening						35.1	
DU	Night						35.1	
DV	Noise sensitive point: Norwegian - Yellow zone (425)	306,368	6,581,852	35.3	4.0	45.0	24.1	Yes
DV	Day						17.7	
DV	Evening						17.7	
DV	Night						17.7	
DW	Noise sensitive point: Norwegian - Yellow zone (426)	302,036	6,577,342	27.4	4.0	45.0	38.3	Yes
DW	Day						31.9	
DW	Evening						31.9	
DW	Night						31.9	

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Project:
Tysvaer

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
DX	Noise sensitive point: Norwegian - Yellow zone (427)	303,297	6,575,691	8.3	4.0	45.0	36.9	Yes
DX	Day						30.5	
DX	Evening						30.5	
DX	Night						30.5	
DY	Noise sensitive point: Norwegian - Yellow zone (428)	306,749	6,581,266	16.6	4.0	45.0	39.3	Yes
DY	Day						32.9	
DY	Evening						32.9	
DY	Night						32.9	
DZ	Noise sensitive point: Norwegian - Yellow zone (429)	302,257	6,577,102	23.7	4.0	45.0	40.4	Yes
DZ	Day						34.0	
DZ	Evening						34.0	
DZ	Night						34.0	
EA	Noise sensitive point: Norwegian - Yellow zone (430)	301,964	6,577,761	29.3	4.0	45.0	40.1	Yes
EA	Day						33.7	
EA	Evening						33.7	
EA	Night						33.7	
EB	Noise sensitive point: Norwegian - Yellow zone (431)	303,297	6,575,922	5.1	4.0	45.0	37.6	Yes
EB	Day						31.2	
EB	Evening						31.2	
EB	Night						31.2	
EC	Noise sensitive point: Norwegian - Yellow zone (432)	306,536	6,581,176	20.2	4.0	45.0	41.2	Yes
EC	Day						34.8	
EC	Evening						34.8	
EC	Night						34.8	
ED	Noise sensitive point: Norwegian - Yellow zone (433)	303,234	6,582,324	26.9	4.0	45.0	38.2	Yes
ED	Day						31.8	
ED	Evening						31.8	
ED	Night						31.8	
EE	Noise sensitive point: Norwegian - Yellow zone (434)	303,344	6,575,942	7.7	4.0	45.0	38.3	Yes
EE	Day						31.9	
EE	Evening						31.9	
EE	Night						31.9	
EF	Noise sensitive point: Norwegian - Yellow zone (435)	303,329	6,575,800	0.9	4.0	45.0	39.4	Yes
EF	Day						33.0	
EF	Evening						33.0	
EF	Night						33.0	
EG	Noise sensitive point: Norwegian - Yellow zone (436)	301,978	6,577,979	31.3	4.0	45.0	37.8	Yes
EG	Day						31.4	
EG	Evening						31.4	
EG	Night						31.4	
EH	Noise sensitive point: Norwegian - Yellow zone (437)	303,273	6,582,158	33.0	4.0	45.0	37.3	Yes
EH	Day						30.9	
EH	Evening						30.9	
EH	Night						30.9	
EI	Noise sensitive point: Norwegian - Yellow zone (438)	303,254	6,582,262	27.8	4.0	45.0	38.7	Yes
EI	Day						32.3	
EI	Evening						32.3	
EI	Night						32.3	
EJ	Noise sensitive point: Norwegian - Yellow zone (439)	302,754	6,582,121	31.9	4.0	45.0	38.2	Yes
EJ	Day						31.8	
EJ	Evening						31.8	
EJ	Night						31.8	
EK	Noise sensitive point: Norwegian - Yellow zone (440)	303,611	6,582,301	31.6	4.0	45.0	39.5	Yes
EK	Day						33.1	
EK	Evening						33.1	
EK	Night						33.1	
EL	Noise sensitive point: Norwegian - Yellow zone (441)	303,544	6,582,274	23.4	4.0	45.0	38.2	Yes
EL	Day						31.8	
EL	Evening						31.8	
EL	Night						31.8	

Project:
Tysvaer

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

Project:
Tysvaer

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

Assumptions

Weather stability
Relative humidity 70.0 %
Air temperature 6.5 °C
Height for air temperature 2.0 m
Stability parameters Night;Clear sky
Inverse Monin Obukhov lenght 0.0100
Temperature scale T* 0.0500

Terrain
Elevation based on object
Height_DTM
Roughness based on area object
Roughness_N50
Terrain type based on area object
Terrain Hardness (N50)
Month for calculation January

Wind speed criteria
Uniform wind speed at 10 m agl.
Wind speed Max noise wind speed
Max noise wind speed All receptors downwind
Wind direction 4.0 m
Height above ground level for receiver
Wind speed has been extrapolated to calculation height using
IEC profile shear (z0 = 0.05m)
No stability correction 5.022
Version

All coordinates are in
UTM (north)-WGS84 Zone: 32

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	365
2	Evening	19	23	4	5	365
3	Night	23	7	8	10	365

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

NSA: Noise sensitive point: Norwegian - Yellow zone (297)-A
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (298)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (299)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (300)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (301)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (302)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (303)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (304)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (305)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (306)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (307)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (308)-I
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (309)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (310)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (311)-L
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (312)-M
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (313)-N
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (314)-O
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (315)-P
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (316)-Q
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (317)-R
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (318)-S
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (319)-T
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (320)-U
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (321)-V
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (322)-W
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (323)-X
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (324)-Y
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (325)-Z
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (326)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (327)-AB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (328)-AC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (329)-AD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (330)-AE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (331)-AF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (332)-AG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (333)-AH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (334)-AI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (335)-AJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (336)-AK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (337)-AL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (338)-AM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (339)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (340)-AO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (341)-AP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (342)-AQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (343)-AR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (344)-AS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (345)-AT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (346)-AU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (347)-AV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

Licensed user:
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+47 3860 7115
Data / data@meventus.com
Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (348)-AW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (349)-AX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (350)-AY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (351)-AZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (352)-BA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (353)-BB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (354)-BC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (355)-BD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (356)-BE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (357)-BF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (358)-BG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (359)-BH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (360)-BI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (361)-BJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (362)-BK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (363)-BL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (364)-BM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (365)-BN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (366)-BO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (367)-BP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (368)-BQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (369)-BR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (370)-BS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (371)-BT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (372)-BU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (373)-BV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (374)-BW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (375)-BX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (376)-BY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (377)-BZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (378)-CA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (379)-CB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (380)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (381)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (382)-CE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (383)-CF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (384)-CG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (385)-CH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (386)-CI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (387)-CJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (388)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (389)-CL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (390)-CM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (391)-CN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (392)-CO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (393)-CP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (394)-CQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (395)-CR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (396)-CS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (397)-CT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (398)-CU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (399)-CV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (400)-CW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (401)-CX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (402)-CY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (403)-CZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (404)-DA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (405)-DB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (406)-DC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (407)-DD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (408)-DE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (409)-DF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (410)-DG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (411)-DH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (412)-DI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (413)-DJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (414)-DK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (415)-DL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (416)-DM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (417)-DN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (418)-DO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (419)-DP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (420)-DQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (421)-DR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (422)-DS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (423)-DT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (424)-DU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (425)-DV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (426)-DW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (427)-DX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (428)-DY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (429)-DZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (430)-EA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (431)-EB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (432)-EC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (433)-ED
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (434)-EE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (435)-EF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 14:53/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc

NSA: Noise sensitive point: Norwegian - Yellow zone (436)-EG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (437)-EH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (438)-EI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (439)-EJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (440)-EK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (441)-EL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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06.08.2019 15:06/3.2.743

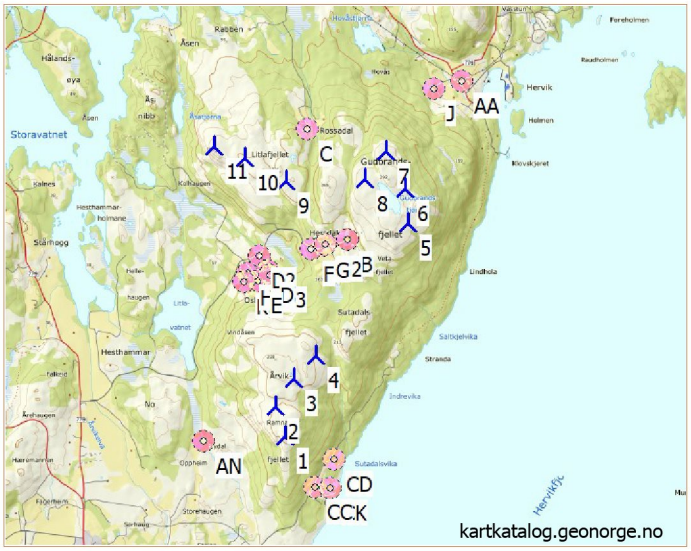
NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed distribution	Mast M342 - 81 m.81.00m - A
Probability of exceedance	
Wind direction	0.0 ° - 330.0 ° - 30.0 °
Height above ground level for receiver	4.0 m
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	
Version	5.022

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:75,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Calculation Results

Project:
Tysvaer

Licensed user:
Meventus AS
Konsgård Allé 59
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+47 3860 7115
Data / data@meventus.com
Calculated:
06.08.2019 15:06/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

Sound level

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	L50 [dB(A)]	Noise [dB(A)]
B	Noise sensitive point: Norwegian - Yellow zone (280)	304,772	6,579,374	174.3	4.0	45.0	43.3	Yes
B	Day						36.9	
B	Evening						36.9	
B	Night						36.9	
C	Noise sensitive point: Norwegian - Yellow zone (281)	304,426	6,580,485	161.8	4.0	45.0	41.4	Yes
C	Day						35.0	
C	Evening						35.0	
C	Night						35.0	
D	Noise sensitive point: Norwegian - Yellow zone (282)	303,960	6,579,112	97.0	4.0	45.0	42.3	Yes
D	Day						35.9	
D	Evening						35.9	
D	Night						35.9	
D2	Noise sensitive point: Norwegian - Yellow zone (283)	303,877	6,579,257	84.9	4.0	45.0	43.3	Yes
D2	Day						36.9	
D2	Evening						36.9	
D2	Night						36.9	
D3	Noise sensitive point: Norwegian - Yellow zone (284)	303,973	6,579,061	102.8	4.0	45.0	42.5	Yes
D3	Day						36.2	
D3	Evening						36.2	
D3	Night						36.2	
E	Noise sensitive point: Norwegian - Yellow zone (285)	303,863	6,579,003	102.3	4.0	45.0	42.2	Yes
E	Day						35.8	
E	Evening						35.8	
E	Night						35.8	
F	Noise sensitive point: Norwegian - Yellow zone (286)	304,401	6,579,299	134.2	4.0	45.0	43.2	Yes
F	Day						36.8	
F	Evening						36.8	
F	Night						36.8	
G	Noise sensitive point: Norwegian - Yellow zone (287)	304,526	6,579,331	154.1	4.0	45.0	44.2	Yes
G	Day						37.8	
G	Evening						37.8	
G	Night						37.8	
G2	Noise sensitive point: Norwegian - Yellow zone (288)	304,550	6,579,331	153.5	4.0	45.0	44.5	Yes
G2	Day						38.1	
G2	Evening						38.1	
G2	Night						38.1	
H	Noise sensitive point: Norwegian - Yellow zone (289)	303,756	6,579,088	85.4	4.0	45.0	41.8	Yes
H	Day						35.4	
H	Evening						35.4	
H	Night						35.4	
J	Noise sensitive point: Norwegian - Yellow zone (290)	305,704	6,580,824	39.0	4.0	45.0	38.9	Yes
J	Day						32.5	
J	Evening						32.5	
J	Night						32.5	
K	Noise sensitive point: Norwegian - Yellow zone (291)	303,718	6,579,007	80.5	4.0	45.0	40.8	Yes
K	Day						34.4	
K	Evening						34.4	
K	Night						34.4	
AA	Noise sensitive point: Norwegian - Yellow zone (292)	305,987	6,580,880	28.0	4.0	45.0	38.7	Yes
AA	Day						32.3	
AA	Evening						32.3	
AA	Night						32.3	
AN	Noise sensitive point: Norwegian - Yellow zone (293)	303,231	6,577,449	32.2	4.0	45.0	42.5	Yes
AN	Day						36.1	
AN	Evening						36.1	
AN	Night						36.1	
CC	Noise sensitive point: Norwegian - Yellow zone (294)	304,314	6,576,932	37.5	4.0	45.0	40.2	Yes
CC	Day						33.8	
CC	Evening						33.8	
CC	Night						33.8	
CD	Noise sensitive point: Norwegian - Yellow zone (295)	304,518	6,577,201	32.2	4.0	45.0	39.2	Yes
CD	Day						32.8	
CD	Evening						32.8	
CD	Night						32.8	
CK	Noise sensitive point: Norwegian - Yellow zone (296)	304,468	6,576,910	16.1	4.0	45.0	40.7	Yes

To be continued on next page...

Project:
Tysvaer

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Calculated:
06.08.2019 15:06/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	L50 [dB(A)]	Noise [dB(A)]
	CK Day						34.3	
	CK Evening						34.3	
	CK Night						34.3	

Project:
Tysvaer

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Calculated:
06.08.2019 15:06/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed distribution	Mast M342 - 81 m.81.00m - A
Probability of exceedance	
Wind direction	0.0 ° - 330.0 ° - 30.0 °
Height above ground level for receiver	4.0 m
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	
Version	5.022

All coordinates are in
UTM (north)-WGS84 Zone: 32

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	365
2	Evening	19	23	4	5	365
3	Night	23	7	8	10	365

Project:
Tysvaer

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Calculated:
06.08.2019 15:06/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

NSA: Noise sensitive point: Norwegian - Yellow zone (280)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (281)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (282)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (283)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (284)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (285)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (286)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 15:06/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc

NSA: Noise sensitive point: Norwegian - Yellow zone (287)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (288)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (289)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (290)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (291)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (292)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (293)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (294)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (295)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (296)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Data / data@meventus.com
Calculated:
06.08.2019 22:41/3.2.743

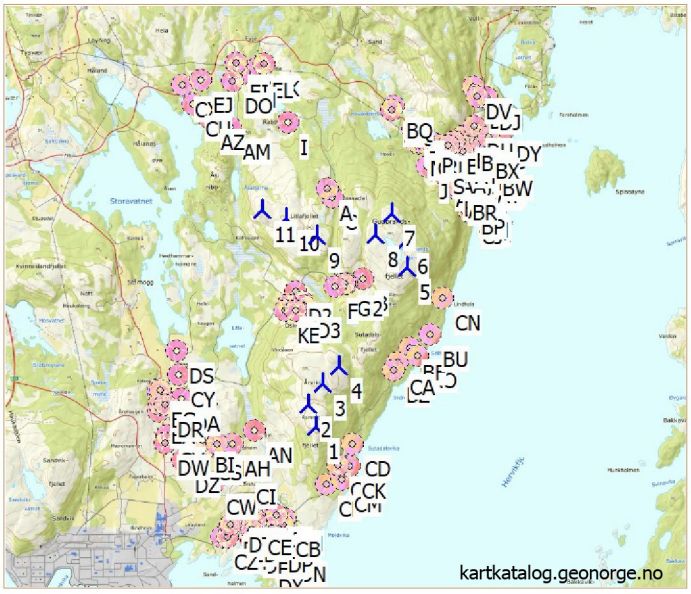
NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed	Max noise wind speed
Max noise wind speed	All receptors downwind
Wind direction	4.0 m
Height above ground level for receiver	
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	5.022
Version	

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:100,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Calculation Results

Project:
Tysvaer

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Data / data@meventus.com
Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

Sound level

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
A	Noise sensitive point: Norwegian - Yellow zone (297)	304,363	6,580,595	148.8	4.0	45.0	43.0	Yes
A	Day						37.3	
A	Evening						37.3	
A	Night						36.4	
B	Noise sensitive point: Norwegian - Yellow zone (298)	304,772	6,579,374	174.3	4.0	45.0	48.3	No
B	Day						42.6	
B	Evening						42.6	
B	Night						41.7	
C	Noise sensitive point: Norwegian - Yellow zone (299)	304,426	6,580,485	161.8	4.0	45.0	45.6	No
C	Day						40.0	
C	Evening						40.0	
C	Night						39.0	
D	Noise sensitive point: Norwegian - Yellow zone (300)	303,960	6,579,112	97.0	4.0	45.0	46.2	No
D	Day						40.1	
D	Evening						40.1	
D	Night						39.6	
D2	Noise sensitive point: Norwegian - Yellow zone (301)	303,877	6,579,257	84.9	4.0	45.0	47.7	No
D2	Day						41.7	
D2	Evening						41.7	
D2	Night						41.2	
D3	Noise sensitive point: Norwegian - Yellow zone (302)	303,973	6,579,061	102.8	4.0	45.0	46.3	No
D3	Day						40.3	
D3	Evening						40.3	
D3	Night						39.8	
E	Noise sensitive point: Norwegian - Yellow zone (303)	303,863	6,579,003	102.3	4.0	45.0	46.0	No
E	Day						40.1	
E	Evening						40.1	
E	Night						39.4	
F	Noise sensitive point: Norwegian - Yellow zone (304)	304,401	6,579,299	134.2	4.0	45.0	47.4	No
F	Day						41.6	
F	Evening						41.6	
F	Night						40.9	
G	Noise sensitive point: Norwegian - Yellow zone (305)	304,526	6,579,331	154.1	4.0	45.0	48.0	No
G	Day						42.2	
G	Evening						42.2	
G	Night						41.4	
G2	Noise sensitive point: Norwegian - Yellow zone (306)	304,550	6,579,331	153.5	4.0	45.0	48.0	No
G2	Day						42.3	
G2	Evening						42.3	
G2	Night						41.3	
H	Noise sensitive point: Norwegian - Yellow zone (307)	303,756	6,579,088	85.4	4.0	45.0	45.6	No
H	Day						39.6	
H	Evening						39.6	
H	Night						39.0	
I	Noise sensitive point: Norwegian - Yellow zone (308)	303,893	6,581,500	70.2	4.0	45.0	42.7	Yes
I	Day						36.5	
I	Evening						36.5	
I	Night						36.3	
J	Noise sensitive point: Norwegian - Yellow zone (309)	305,704	6,580,824	39.0	4.0	45.0	43.7	Yes
J	Day						37.7	
J	Evening						37.7	
J	Night						37.2	
K	Noise sensitive point: Norwegian - Yellow zone (310)	303,718	6,579,007	80.5	4.0	45.0	45.4	No
K	Day						39.5	
K	Evening						39.5	
K	Night						38.9	
L	Noise sensitive point: Norwegian - Yellow zone (311)	305,566	6,581,159	39.2	4.0	45.0	42.7	Yes
L	Day						36.7	
L	Evening						36.7	
L	Night						36.2	
M	Noise sensitive point: Norwegian - Yellow zone (312)	305,599	6,581,129	38.2	4.0	45.0	42.3	Yes
M	Day						36.3	
M	Evening						36.3	
M	Night						35.8	
N	Noise sensitive point: Norwegian - Yellow zone (313)	305,667	6,581,195	38.4	4.0	45.0	43.1	Yes

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Project:
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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
N	Day						37.1	
N	Evening						37.1	
N	Night						36.6	
O	Noise sensitive point: Norwegian - Yellow zone (314)	305,696	6,581,124	29.6	4.0	45.0	40.6	Yes
O	Day						34.5	
O	Evening						34.5	
O	Night						34.1	
P	Noise sensitive point: Norwegian - Yellow zone (315)	305,743	6,581,169	43.6	4.0	45.0	42.7	Yes
P	Day						36.7	
P	Evening						36.7	
P	Night						36.1	
Q	Noise sensitive point: Norwegian - Yellow zone (316)	302,678	6,577,252	23.2	4.0	45.0	38.0	Yes
Q	Day						34.1	
Q	Evening						34.1	
Q	Night						30.4	
R	Noise sensitive point: Norwegian - Yellow zone (317)	305,801	6,581,141	37.1	4.0	45.0	42.7	Yes
R	Day						36.7	
R	Evening						36.7	
R	Night						36.2	
S	Noise sensitive point: Norwegian - Yellow zone (318)	305,887	6,580,880	21.1	4.0	45.0	43.1	Yes
S	Day						37.3	
S	Evening						37.3	
S	Night						36.6	
T	Noise sensitive point: Norwegian - Yellow zone (319)	306,074	6,580,629	19.5	4.0	45.0	42.7	Yes
T	Day						36.7	
T	Evening						36.7	
T	Night						36.2	
U	Noise sensitive point: Norwegian - Yellow zone (320)	305,850	6,581,111	32.3	4.0	45.0	42.5	Yes
U	Day						36.5	
U	Evening						36.5	
U	Night						35.9	
V	Noise sensitive point: Norwegian - Yellow zone (321)	306,046	6,580,749	20.7	4.0	45.0	43.3	Yes
V	Day						37.1	
V	Evening						37.1	
V	Night						36.8	
W	Noise sensitive point: Norwegian - Yellow zone (322)	305,541	6,581,331	48.8	4.0	45.0	41.9	Yes
W	Day						35.9	
W	Evening						35.9	
W	Night						35.4	
X	Noise sensitive point: Norwegian - Yellow zone (323)	305,560	6,581,297	48.3	4.0	45.0	42.3	Yes
X	Day						36.2	
X	Evening						36.2	
X	Night						35.7	
Y	Noise sensitive point: Norwegian - Yellow zone (324)	305,613	6,581,278	55.9	4.0	45.0	42.5	Yes
Y	Day						36.5	
Y	Evening						36.5	
Y	Night						36.0	
Z	Noise sensitive point: Norwegian - Yellow zone (325)	305,581	6,581,265	45.6	4.0	45.0	42.7	Yes
Z	Day						36.7	
Z	Evening						36.7	
Z	Night						36.2	
AA	Noise sensitive point: Norwegian - Yellow zone (326)	305,987	6,580,880	28.0	4.0	45.0	44.0	Yes
AA	Day						38.0	
AA	Evening						38.0	
AA	Night						37.4	
AB	Noise sensitive point: Norwegian - Yellow zone (327)	305,922	6,580,706	31.9	4.0	45.0	42.4	Yes
AB	Day						36.4	
AB	Evening						36.4	
AB	Night						35.8	
AC	Noise sensitive point: Norwegian - Yellow zone (328)	306,226	6,580,512	17.9	4.0	45.0	40.9	Yes
AC	Day						34.9	
AC	Evening						34.9	
AC	Night						34.4	
AD	Noise sensitive point: Norwegian - Yellow zone (329)	306,048	6,580,824	22.2	4.0	45.0	43.1	Yes
AD	Day						37.1	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
AD	Evening						37.1	
AD	Night						36.6	
AE	Noise sensitive point: Norwegian - Yellow zone (330)	306,217	6,580,580	10.5	4.0	45.0	40.9	Yes
AE	Day						34.9	
AE	Evening						34.9	
AE	Night						34.4	
AF	Noise sensitive point: Norwegian - Yellow zone (331)	306,272	6,580,496	14.3	4.0	45.0	40.1	Yes
AF	Day						34.1	
AF	Evening						34.1	
AF	Night						33.6	
AG	Noise sensitive point: Norwegian - Yellow zone (332)	306,111	6,580,791	17.9	4.0	45.0	42.9	Yes
AG	Day						36.8	
AG	Evening						36.8	
AG	Night						36.4	
AH	Noise sensitive point: Norwegian - Yellow zone (333)	302,926	6,577,281	37.5	4.0	45.0	41.0	Yes
AH	Day						36.9	
AH	Evening						36.9	
AH	Night						33.5	
AI	Noise sensitive point: Norwegian - Yellow zone (334)	306,271	6,580,526	8.4	4.0	45.0	39.9	Yes
AI	Day						33.9	
AI	Evening						33.9	
AI	Night						33.4	
AJ	Noise sensitive point: Norwegian - Yellow zone (335)	306,212	6,580,636	2.5	4.0	45.0	41.6	Yes
AJ	Day						35.5	
AJ	Evening						35.5	
AJ	Night						35.1	
AK	Noise sensitive point: Norwegian - Yellow zone (336)	302,716	6,577,288	27.4	4.0	45.0	34.8	Yes
AK	Day						32.1	
AK	Evening						32.1	
AK	Night						26.2	
AL	Noise sensitive point: Norwegian - Yellow zone (337)	305,999	6,581,087	31.2	4.0	45.0	42.5	Yes
AL	Day						36.5	
AL	Evening						36.5	
AL	Night						36.0	
AM	Noise sensitive point: Norwegian - Yellow zone (338)	303,122	6,581,476	27.5	4.0	45.0	41.5	Yes
AM	Day						35.3	
AM	Evening						35.3	
AM	Night						35.0	
AN	Noise sensitive point: Norwegian - Yellow zone (339)	303,231	6,577,449	32.2	4.0	45.0	45.0	Yes
AN	Day						40.9	
AN	Evening						40.9	
AN	Night						37.5	
AO	Noise sensitive point: Norwegian - Yellow zone (340)	305,446	6,578,325	9.8	4.0	45.0	42.1	Yes
AO	Day						36.4	
AO	Evening						36.4	
AO	Night						35.4	
AP	Noise sensitive point: Norwegian - Yellow zone (341)	306,239	6,580,417	25.6	4.0	45.0	41.2	Yes
AP	Day						35.1	
AP	Evening						35.1	
AP	Night						34.7	
AQ	Noise sensitive point: Norwegian - Yellow zone (342)	305,273	6,581,596	54.7	4.0	45.0	39.7	Yes
AQ	Day						33.7	
AQ	Evening						33.7	
AQ	Night						33.1	
AR	Noise sensitive point: Norwegian - Yellow zone (343)	306,069	6,580,552	25.3	4.0	45.0	42.3	Yes
AR	Day						35.9	
AR	Evening						35.9	
AR	Night						35.9	
AS	Noise sensitive point: Norwegian - Yellow zone (344)	306,208	6,580,354	23.5	4.0	45.0	37.5	Yes
AS	Day						31.2	
AS	Evening						31.2	
AS	Night						31.1	
AT	Noise sensitive point: Norwegian - Yellow zone (345)	306,192	6,581,001	11.9	4.0	45.0	41.8	Yes
AT	Day						35.8	
AT	Evening						35.8	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

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Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
AT	Night						35.3	
AU	Noise sensitive point: Norwegian - Yellow zone (346)	306,432	6,580,695	5.7	4.0	45.0	42.9	Yes
AU	Day						37.0	
AU	Evening						37.0	
AU	Night						36.4	
AV	Noise sensitive point: Norwegian - Yellow zone (347)	306,436	6,580,736	6.9	4.0	45.0	42.6	Yes
AV	Day						36.7	
AV	Evening						36.7	
AV	Night						36.0	
AW	Noise sensitive point: Norwegian - Yellow zone (348)	306,438	6,580,761	5.7	4.0	45.0	42.2	Yes
AW	Day						36.3	
AW	Evening						36.3	
AW	Night						35.7	
AX	Noise sensitive point: Norwegian - Yellow zone (349)	306,477	6,580,690	2.4	4.0	45.0	41.2	Yes
AX	Day						35.2	
AX	Evening						35.2	
AX	Night						34.7	
AY	Noise sensitive point: Norwegian - Yellow zone (350)	306,466	6,580,731	5.9	4.0	45.0	41.6	Yes
AY	Day						35.7	
AY	Evening						35.7	
AY	Night						35.1	
AZ	Noise sensitive point: Norwegian - Yellow zone (351)	302,838	6,581,615	28.7	4.0	45.0	40.4	Yes
AZ	Day						34.2	
AZ	Evening						34.2	
AZ	Night						33.9	
BA	Noise sensitive point: Norwegian - Yellow zone (352)	306,056	6,581,093	28.8	4.0	45.0	41.9	Yes
BA	Day						36.0	
BA	Evening						36.0	
BA	Night						35.4	
BB	Noise sensitive point: Norwegian - Yellow zone (353)	306,079	6,581,138	34.2	4.0	45.0	41.6	Yes
BB	Day						35.6	
BB	Evening						35.6	
BB	Night						35.0	
BC	Noise sensitive point: Norwegian - Yellow zone (354)	306,102	6,581,110	28.6	4.0	45.0	41.7	Yes
BC	Day						35.8	
BC	Evening						35.8	
BC	Night						35.1	
BD	Noise sensitive point: Norwegian - Yellow zone (355)	306,173	6,581,067	20.4	4.0	45.0	42.1	Yes
BD	Day						36.1	
BD	Evening						36.1	
BD	Night						35.5	
BE	Noise sensitive point: Norwegian - Yellow zone (356)	306,155	6,581,131	29.3	4.0	45.0	41.0	Yes
BE	Day						35.1	
BE	Evening						35.1	
BE	Night						34.5	
BF	Noise sensitive point: Norwegian - Yellow zone (357)	305,356	6,578,435	23.1	4.0	45.0	42.1	Yes
BF	Day						36.3	
BF	Evening						36.3	
BF	Night						35.4	
BG	Noise sensitive point: Norwegian - Yellow zone (358)	306,184	6,581,124	29.3	4.0	45.0	41.4	Yes
BG	Day						35.4	
BG	Evening						35.4	
BG	Night						34.9	
BH	Noise sensitive point: Norwegian - Yellow zone (359)	306,227	6,581,064	18.5	4.0	45.0	41.7	Yes
BH	Day						35.7	
BH	Evening						35.7	
BH	Night						35.2	
BI	Noise sensitive point: Norwegian - Yellow zone (360)	302,537	6,577,353	21.2	4.0	45.0	37.4	Yes
BI	Day						32.7	
BI	Evening						32.7	
BI	Night						30.3	
BJ	Noise sensitive point: Norwegian - Yellow zone (361)	306,527	6,580,713	1.7	4.0	45.0	39.3	Yes
BJ	Day						33.3	
BJ	Evening						33.3	
BJ	Night						32.8	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
BK	Noise sensitive point: Norwegian - Yellow zone (362)	306,514	6,580,747	3.2	4.0	45.0	39.2	Yes
BK	Day						33.3	
BK	Evening						33.3	
BK	Night						32.7	
BL	Noise sensitive point: Norwegian - Yellow zone (363)	306,265	6,580,240	15.4	4.0	45.0	32.9	Yes
BL	Day						26.5	
BL	Evening						26.5	
BL	Night						26.5	
BM	Noise sensitive point: Norwegian - Yellow zone (364)	306,231	6,580,285	22.0	4.0	45.0	33.8	Yes
BM	Day						27.4	
BM	Evening						27.4	
BM	Night						27.4	
BN	Noise sensitive point: Norwegian - Yellow zone (365)	306,017	6,580,580	28.5	4.0	45.0	39.0	Yes
BN	Day						32.7	
BN	Evening						32.7	
BN	Night						32.6	
BO	Noise sensitive point: Norwegian - Yellow zone (366)	306,073	6,580,516	29.4	4.0	45.0	37.2	Yes
BO	Day						30.9	
BO	Evening						30.9	
BO	Night						30.8	
BP	Noise sensitive point: Norwegian - Yellow zone (367)	306,224	6,580,320	23.0	4.0	45.0	35.1	Yes
BP	Day						28.7	
BP	Evening						28.7	
BP	Night						28.7	
BQ	Noise sensitive point: Norwegian - Yellow zone (368)	305,303	6,581,653	49.9	4.0	45.0	40.2	Yes
BQ	Day						34.3	
BQ	Evening						34.3	
BQ	Night						33.6	
BR	Noise sensitive point: Norwegian - Yellow zone (369)	306,120	6,580,518	21.4	4.0	45.0	39.4	Yes
BR	Day						33.7	
BR	Evening						33.7	
BR	Night						32.8	
BS	Noise sensitive point: Norwegian - Yellow zone (370)	306,210	6,581,199	28.2	4.0	45.0	39.7	Yes
BS	Day						33.7	
BS	Evening						33.7	
BS	Night						33.2	
BT	Noise sensitive point: Norwegian - Yellow zone (371)	306,267	6,581,170	23.1	4.0	45.0	39.3	Yes
BT	Day						33.3	
BT	Evening						33.3	
BT	Night						32.8	
BU	Noise sensitive point: Norwegian - Yellow zone (372)	305,623	6,578,601	19.6	4.0	45.0	41.7	Yes
BU	Day						35.8	
BU	Evening						35.8	
BU	Night						35.1	
BV	Noise sensitive point: Norwegian - Yellow zone (373)	306,483	6,580,899	4.7	4.0	45.0	40.6	Yes
BV	Day						34.6	
BV	Evening						34.6	
BV	Night						34.0	
BW	Noise sensitive point: Norwegian - Yellow zone (374)	306,537	6,580,816	2.6	4.0	45.0	38.9	Yes
BW	Day						33.0	
BW	Evening						33.0	
BW	Night						32.4	
BX	Noise sensitive point: Norwegian - Yellow zone (375)	306,456	6,581,051	6.6	4.0	45.0	39.6	Yes
BX	Day						33.5	
BX	Evening						33.5	
BX	Night						33.0	
BY	Noise sensitive point: Norwegian - Yellow zone (376)	306,432	6,581,132	14.3	4.0	45.0	39.4	Yes
BY	Day						33.4	
BY	Evening						33.4	
BY	Night						32.9	
BZ	Noise sensitive point: Norwegian - Yellow zone (377)	305,114	6,578,156	28.5	4.0	45.0	40.9	Yes
BZ	Day						36.2	
BZ	Evening						36.2	
BZ	Night						33.9	
CA	Noise sensitive point: Norwegian - Yellow zone (378)	305,173	6,578,252	36.8	4.0	45.0	40.5	Yes

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
CA	Day						35.1	
CA	Evening						35.1	
CA	Night						33.8	
CB	Noise sensitive point: Norwegian - Yellow zone (379)	303,549	6,576,179	13.6	4.0	45.0	38.9	Yes
CB	Day						34.5	
CB	Evening						34.5	
CB	Night						31.7	
CC	Noise sensitive point: Norwegian - Yellow zone (380)	304,314	6,576,932	37.5	4.0	45.0	44.2	Yes
CC	Day						40.3	
CC	Evening						40.3	
CC	Night						36.6	
CD	Noise sensitive point: Norwegian - Yellow zone (381)	304,518	6,577,201	32.2	4.0	45.0	43.8	Yes
CD	Day						39.6	
CD	Evening						39.6	
CD	Night						36.4	
CE	Noise sensitive point: Norwegian - Yellow zone (382)	303,184	6,576,228	5.0	4.0	45.0	36.3	Yes
CE	Day						32.0	
CE	Evening						32.0	
CE	Night						28.9	
CF	Noise sensitive point: Norwegian - Yellow zone (383)	303,469	6,576,305	10.1	4.0	45.0	39.0	Yes
CF	Day						34.9	
CF	Evening						34.9	
CF	Night						31.6	
CG	Noise sensitive point: Norwegian - Yellow zone (384)	303,169	6,576,276	8.0	4.0	45.0	37.7	Yes
CG	Day						33.3	
CG	Evening						33.3	
CG	Night						30.4	
CH	Noise sensitive point: Norwegian - Yellow zone (385)	303,577	6,576,257	16.2	4.0	45.0	38.8	Yes
CH	Day						34.7	
CH	Evening						34.7	
CH	Night						31.3	
CI	Noise sensitive point: Norwegian - Yellow zone (386)	303,059	6,576,901	15.1	4.0	45.0	41.0	Yes
CI	Day						37.0	
CI	Evening						37.0	
CI	Night						33.5	
CJ	Noise sensitive point: Norwegian - Yellow zone (387)	306,234	6,580,201	20.1	4.0	45.0	24.7	Yes
CJ	Day						18.5	
CJ	Evening						18.5	
CJ	Night						18.3	
CK	Noise sensitive point: Norwegian - Yellow zone (388)	304,468	6,576,910	16.1	4.0	45.0	43.8	Yes
CK	Day						39.7	
CK	Evening						39.7	
CK	Night						36.3	
CL	Noise sensitive point: Norwegian - Yellow zone (389)	304,155	6,576,682	37.4	4.0	45.0	40.7	Yes
CL	Day						36.8	
CL	Evening						36.8	
CL	Night						33.1	
CM	Noise sensitive point: Norwegian - Yellow zone (390)	304,362	6,576,737	16.1	4.0	45.0	40.8	Yes
CM	Day						36.7	
CM	Evening						36.7	
CM	Night						33.4	
CN	Noise sensitive point: Norwegian - Yellow zone (391)	305,824	6,579,068	21.2	4.0	45.0	41.8	Yes
CN	Day						35.5	
CN	Evening						35.5	
CN	Night						35.4	
CO	Noise sensitive point: Norwegian - Yellow zone (392)	303,305	6,576,243	11.7	4.0	45.0	37.2	Yes
CO	Day						33.2	
CO	Evening						33.2	
CO	Night						29.7	
CP	Noise sensitive point: Norwegian - Yellow zone (393)	303,105	6,576,312	4.2	4.0	45.0	37.9	Yes
CP	Day						33.6	
CP	Evening						33.6	
CP	Night						30.6	
CQ	Noise sensitive point: Norwegian - Yellow zone (394)	303,373	6,576,142	6.4	4.0	45.0	36.7	Yes
CQ	Day						32.3	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

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Noise sensitive area					Demands	Sound level	Demands fulfilled?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
CQ Evening						32.3	
CQ Night						29.5	
CR Noise sensitive point: Norwegian - Yellow zone (395)	306,292	6,580,217	10.5	4.0	45.0	32.2	Yes
CR Day						26.1	
CR Evening						26.1	
CR Night						25.7	
CS Noise sensitive point: Norwegian - Yellow zone (396)	302,569	6,577,243	21.0	4.0	45.0	38.1	Yes
CS Day						33.6	
CS Evening						33.6	
CS Night						30.9	
CT Noise sensitive point: Norwegian - Yellow zone (397)	306,407	6,581,196	22.3	4.0	45.0	39.0	Yes
CT Day						33.0	
CT Evening						33.0	
CT Night						32.4	
CU Noise sensitive point: Norwegian - Yellow zone (398)	302,633	6,581,808	23.8	4.0	45.0	37.9	Yes
CU Day						31.8	
CU Evening						31.8	
CU Night						31.5	
CV Noise sensitive point: Norwegian - Yellow zone (399)	302,070	6,577,445	26.2	4.0	45.0	38.1	Yes
CV Day						33.2	
CV Evening						33.2	
CV Night						31.1	
CW Noise sensitive point: Norwegian - Yellow zone (400)	302,651	6,576,781	19.2	4.0	45.0	38.6	Yes
CW Day						34.0	
CW Evening						34.0	
CW Night						31.5	
CX Noise sensitive point: Norwegian - Yellow zone (401)	302,508	6,582,069	27.9	4.0	45.0	37.1	Yes
CX Day						31.0	
CX Evening						31.0	
CX Night						30.7	
CY Noise sensitive point: Norwegian - Yellow zone (402)	302,257	6,578,238	31.6	4.0	45.0	38.4	Yes
CY Day						33.2	
CY Evening						33.2	
CY Night						31.5	
CZ Noise sensitive point: Norwegian - Yellow zone (403)	302,719	6,576,059	6.6	4.0	45.0	35.1	Yes
CZ Day						30.5	
CZ Evening						30.5	
CZ Night						28.0	
DA Noise sensitive point: Norwegian - Yellow zone (404)	302,285	6,577,919	26.2	4.0	45.0	38.2	Yes
DA Day						33.5	
DA Evening						33.5	
DA Night						31.2	
DB Noise sensitive point: Norwegian - Yellow zone (405)	301,976	6,578,061	29.3	4.0	45.0	36.6	Yes
DB Day						31.2	
DB Evening						31.2	
DB Night						29.8	
DC Noise sensitive point: Norwegian - Yellow zone (406)	301,996	6,577,931	27.7	4.0	45.0	37.9	Yes
DC Day						32.8	
DC Evening						32.8	
DC Night						30.9	
DD Noise sensitive point: Norwegian - Yellow zone (407)	302,001	6,578,045	27.2	4.0	45.0	36.1	Yes
DD Day						31.0	
DD Evening						31.0	
DD Night						29.2	
DE Noise sensitive point: Norwegian - Yellow zone (408)	302,871	6,576,242	12.2	4.0	45.0	35.4	Yes
DE Day						30.9	
DE Evening						30.9	
DE Night						28.2	
DF Noise sensitive point: Norwegian - Yellow zone (409)	302,944	6,576,312	17.3	4.0	45.0	36.1	Yes
DF Day						31.7	
DF Evening						31.7	
DF Night						28.9	
DG Noise sensitive point: Norwegian - Yellow zone (410)	301,990	6,577,859	31.3	4.0	45.0	38.5	Yes
DG Day						33.3	
DG Evening						33.3	

To be continued on next page...

Project:
Tysvaer

Licensed user:
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Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

...continued from previous page

Noise sensitive area					Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
DG	Night						31.7	
DH	Noise sensitive point: Norwegian - Yellow zone (411)	302,798	6,576,057	7.3	4.0	45.0	36.0	Yes
DH	Day						31.5	
DH	Evening						31.5	
DH	Night						28.8	
DI	Noise sensitive point: Norwegian - Yellow zone (412)	303,122	6,576,138	0.4	4.0	45.0	36.5	Yes
DI	Day						32.1	
DI	Evening						32.1	
DI	Night						29.3	
DJ	Noise sensitive point: Norwegian - Yellow zone (413)	306,537	6,581,697	28.3	4.0	45.0	34.6	Yes
DJ	Day						28.8	
DJ	Evening						28.8	
DJ	Night						28.0	
DK	Noise sensitive point: Norwegian - Yellow zone (414)	306,420	6,581,716	37.6	4.0	45.0	32.4	Yes
DK	Day						26.1	
DK	Evening						26.1	
DK	Night						26.0	
DL	Noise sensitive point: Norwegian - Yellow zone (415)	302,846	6,576,212	8.5	4.0	45.0	35.6	Yes
DL	Day						31.4	
DL	Evening						31.4	
DL	Night						28.2	
DM	Noise sensitive point: Norwegian - Yellow zone (416)	303,109	6,575,978	4.5	4.0	45.0	35.2	Yes
DM	Day						31.0	
DM	Evening						31.0	
DM	Night						27.8	
DN	Noise sensitive point: Norwegian - Yellow zone (417)	303,576	6,575,847	12.4	4.0	45.0	37.5	Yes
DN	Day						33.2	
DN	Evening						33.2	
DN	Night						30.3	
DO	Noise sensitive point: Norwegian - Yellow zone (418)	303,178	6,582,088	22.8	4.0	45.0	37.2	Yes
DO	Day						31.0	
DO	Evening						31.0	
DO	Night						30.7	
DP	Noise sensitive point: Norwegian - Yellow zone (419)	303,431	6,575,976	9.5	4.0	45.0	36.2	Yes
DP	Day						31.9	
DP	Evening						31.9	
DP	Night						28.9	
DQ	Noise sensitive point: Norwegian - Yellow zone (420)	302,972	6,576,322	12.4	4.0	45.0	36.3	Yes
DQ	Day						31.8	
DQ	Evening						31.8	
DQ	Night						29.1	
DR	Noise sensitive point: Norwegian - Yellow zone (421)	302,057	6,577,852	25.0	4.0	45.0	38.0	Yes
DR	Day						32.7	
DR	Evening						32.7	
DR	Night						31.2	
DS	Noise sensitive point: Norwegian - Yellow zone (422)	302,252	6,578,552	25.8	4.0	45.0	38.1	Yes
DS	Day						32.6	
DS	Evening						32.6	
DS	Night						31.4	
DT	Noise sensitive point: Norwegian - Yellow zone (423)	302,930	6,576,276	11.0	4.0	45.0	36.2	Yes
DT	Day						31.9	
DT	Evening						31.9	
DT	Night						28.9	
DU	Noise sensitive point: Norwegian - Yellow zone (424)	306,362	6,581,320	29.1	4.0	45.0	40.4	Yes
DU	Day						34.4	
DU	Evening						34.4	
DU	Night						33.8	
DV	Noise sensitive point: Norwegian - Yellow zone (425)	306,368	6,581,852	35.3	4.0	45.0	22.8	Yes
DV	Day						16.7	
DV	Evening						16.7	
DV	Night						16.3	
DW	Noise sensitive point: Norwegian - Yellow zone (426)	302,036	6,577,342	27.4	4.0	45.0	36.7	Yes
DW	Day						31.7	
DW	Evening						31.7	
DW	Night						29.8	

To be continued on next page...

Project:
Tysvaer

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06.08.2019 22:41/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise [dB(A)]
DX	Noise sensitive point: Norwegian - Yellow zone (427)	303,297	6,575,691	8.3	4.0	45.0	34.8	Yes
DX	Day						30.4	
DX	Evening						30.4	
DX	Night						27.5	
DY	Noise sensitive point: Norwegian - Yellow zone (428)	306,749	6,581,266	16.6	4.0	45.0	38.2	Yes
DY	Day						32.2	
DY	Evening						32.2	
DY	Night						31.6	
DZ	Noise sensitive point: Norwegian - Yellow zone (429)	302,257	6,577,102	23.7	4.0	45.0	38.5	Yes
DZ	Day						33.8	
DZ	Evening						33.8	
DZ	Night						31.4	
EA	Noise sensitive point: Norwegian - Yellow zone (430)	301,964	6,577,761	29.3	4.0	45.0	38.5	Yes
EA	Day						33.5	
EA	Evening						33.5	
EA	Night						31.6	
EB	Noise sensitive point: Norwegian - Yellow zone (431)	303,297	6,575,922	5.1	4.0	45.0	35.2	Yes
EB	Day						31.1	
EB	Evening						31.1	
EB	Night						27.8	
EC	Noise sensitive point: Norwegian - Yellow zone (432)	306,536	6,581,176	20.2	4.0	45.0	39.9	Yes
EC	Day						34.0	
EC	Evening						34.0	
EC	Night						33.4	
ED	Noise sensitive point: Norwegian - Yellow zone (433)	303,234	6,582,324	26.9	4.0	45.0	37.4	Yes
ED	Day						31.3	
ED	Evening						31.3	
ED	Night						30.9	
EE	Noise sensitive point: Norwegian - Yellow zone (434)	303,344	6,575,942	7.7	4.0	45.0	36.1	Yes
EE	Day						31.8	
EE	Evening						31.8	
EE	Night						28.8	
EF	Noise sensitive point: Norwegian - Yellow zone (435)	303,329	6,575,800	0.9	4.0	45.0	37.3	Yes
EF	Day						32.9	
EF	Evening						32.9	
EF	Night						30.0	
EG	Noise sensitive point: Norwegian - Yellow zone (436)	301,978	6,577,979	31.3	4.0	45.0	36.4	Yes
EG	Day						31.2	
EG	Evening						31.2	
EG	Night						29.6	
EH	Noise sensitive point: Norwegian - Yellow zone (437)	303,273	6,582,158	33.0	4.0	45.0	36.5	Yes
EH	Day						30.4	
EH	Evening						30.4	
EH	Night						30.1	
EI	Noise sensitive point: Norwegian - Yellow zone (438)	303,254	6,582,262	27.8	4.0	45.0	38.0	Yes
EI	Day						31.8	
EI	Evening						31.8	
EI	Night						31.5	
EJ	Noise sensitive point: Norwegian - Yellow zone (439)	302,754	6,582,121	31.9	4.0	45.0	37.5	Yes
EJ	Day						31.4	
EJ	Evening						31.4	
EJ	Night						31.0	
EK	Noise sensitive point: Norwegian - Yellow zone (440)	303,611	6,582,301	31.6	4.0	45.0	38.9	Yes
EK	Day						32.8	
EK	Evening						32.8	
EK	Night						32.5	
EL	Noise sensitive point: Norwegian - Yellow zone (441)	303,544	6,582,274	23.4	4.0	45.0	37.7	Yes
EL	Day						31.5	
EL	Evening						31.5	
EL	Night						31.2	

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NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

Project:
Tysvaer

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Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

Assumptions

Weather stability
Relative humidity 70.0 %
Air temperature 6.5 °C
Height for air temperature 2.0 m
Stability parameters Night;Clear sky
Inverse Monin Obukhov lenght 0.0100
Temperature scale T* 0.0500

Terrain
Elevation based on object
Height_DTM
Roughness based on area object
Roughness_N50
Terrain type based on area object
Terrain Hardness (N50)
Month for calculation January

Wind speed criteria
Uniform wind speed at 10 m agl.
Wind speed Max noise wind speed
Max noise wind speed All receptors downwind
Wind direction 4.0 m
Height above ground level for receiver
Wind speed has been extrapolated to calculation height using
IEC profile shear (z0 = 0.05m)
No stability correction 5.022
Version

All coordinates are in
UTM (north)-WGS84 Zone: 32

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	365
2	Evening	19	23	4	5	365
3	Night	23	7	8	10	365

Project:
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06.08.2019 22:41/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 6 - Calculated - 100.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	77.3	81.7	84.4	85.6	88.6	90.7	87.6	76.4
6.0	98.0	80.1	84.5	87.1	88.4	91.3	93.5	90.4	79.2
7.0	99.6	81.7	86.0	88.7	89.9	92.9	95.0	92.0	80.7
8.0	100.0	82.3	86.4	89.1	90.5	93.4	95.5	92.1	80.8
9.0	100.0	82.5	86.3	88.9	90.9	93.6	95.5	91.7	80.4
10.0	100.0	83.0	85.8	88.3	91.6	93.9	95.3	91.3	80.0
11.0	100.0	83.2	85.6	88.2	91.8	94.1	95.1	90.9	79.7
12.0	100.0	83.1	85.6	88.1	92.0	94.4	94.9	90.6	79.4
13.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
14.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
15.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
16.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
17.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1

Project:
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Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 2 - Calculated - 105.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	74.0	82.2	83.2	85.9	88.5	90.6	88.2	76.4
6.0	98.5	77.2	85.4	86.3	89.1	91.7	93.8	91.4	79.6
7.0	102.2	80.9	89.2	90.1	92.8	95.5	97.5	95.1	83.4
8.0	104.1	85.0	91.0	92.0	94.7	97.5	99.3	97.0	85.9
9.0	105.0	88.0	91.8	92.9	95.6	98.4	100.1	97.9	87.6
10.0	105.0	87.8	91.6	93.0	95.5	98.2	100.1	98.0	88.6
11.0	105.0	88.1	92.3	93.5	95.7	98.2	100.0	97.8	88.5
12.0	105.0	88.4	93.0	93.9	95.8	98.3	99.9	97.5	88.2
13.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
14.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
15.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
16.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
17.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1

NSA: Noise sensitive point: Norwegian - Yellow zone (297)-A
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (298)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (299)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (300)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (301)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (302)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (303)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (304)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (305)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (306)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (307)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (308)-I
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (309)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (310)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (311)-L
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (312)-M
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (313)-N
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (314)-O
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (315)-P
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (316)-Q
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (317)-R
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (318)-S
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (319)-T
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (320)-U
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (321)-V
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (322)-W
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (323)-X
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (324)-Y
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (325)-Z
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (326)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (327)-AB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (328)-AC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (329)-AD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (330)-AE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (331)-AF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (332)-AG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (333)-AH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (334)-AI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (335)-AJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (336)-AK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (337)-AL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (338)-AM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (339)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (340)-AO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (341)-AP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (342)-AQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (343)-AR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (344)-AS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (345)-AT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (346)-AU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (347)-AV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (348)-AW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (349)-AX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (350)-AY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (351)-AZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (352)-BA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (353)-BB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (354)-BC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (355)-BD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (356)-BE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (357)-BF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (358)-BG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (359)-BH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (360)-BI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (361)-BJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (362)-BK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (363)-BL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (364)-BM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (365)-BN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (366)-BO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (367)-BP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (368)-BQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (369)-BR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (370)-BS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (371)-BT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (372)-BU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (373)-BV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (374)-BW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (375)-BX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (376)-BY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (377)-BZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (378)-CA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (379)-CB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (380)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (381)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (382)-CE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (383)-CF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (384)-CG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (385)-CH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (386)-CI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (387)-CJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (388)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (389)-CL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (390)-CM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (391)-CN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (392)-CO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (393)-CP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (394)-CQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (395)-CR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (396)-CS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (397)-CT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (398)-CU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (399)-CV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (400)-CW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (401)-CX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (402)-CY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (403)-CZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (404)-DA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (405)-DB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (406)-DC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (407)-DD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (408)-DE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (409)-DF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (410)-DG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (411)-DH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (412)-DI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (413)-DJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (414)-DK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (415)-DL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (416)-DM
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (417)-DN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (418)-DO
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (419)-DP
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (420)-DQ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

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NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (421)-DR
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (422)-DS
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (423)-DT
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (424)-DU
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (425)-DV
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (426)-DW
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (427)-DX
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (428)-DY
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (429)-DZ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (430)-EA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (431)-EB
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

Licensed user:
Meventus AS
Konsgård Allé 59
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Data / data@meventus.com
Calculated:
06.08.2019 22:41/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_wc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (432)-EC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (433)-ED
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (434)-EE
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (435)-EF
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (436)-EG
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (437)-EH
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (438)-EI
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (439)-EJ
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (440)-EK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (441)-EL
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

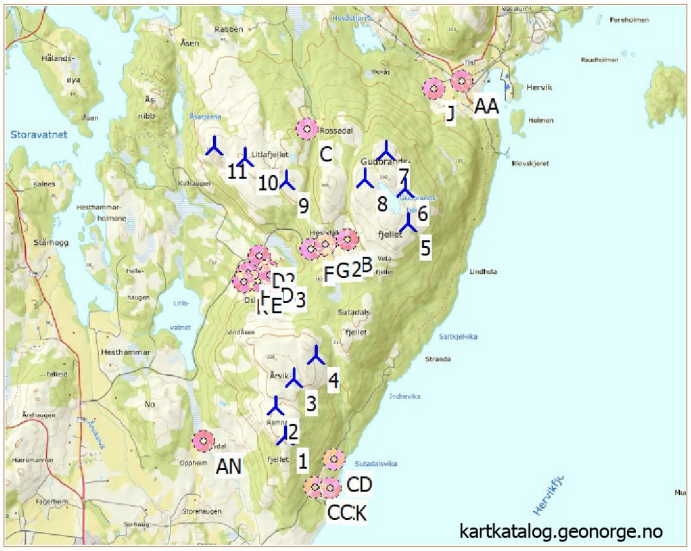
NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed distribution	Mast M342 - 81 m.81.00m - A
Probability of exceedance	
Wind direction	0.0 ° - 330.0 ° - 30.0 °
Height above ground level for receiver	4.0 m
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	
Version	5.022

All coordinates are in
UTM (north)-WGS84 Zone: 32



Scale 1:75,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Setting	Creator	Name
1	304,046	6,577,449	211.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
2	303,963	6,577,752	195.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
3	304,164	6,578,017	220.3	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
4	304,390	6,578,236	192.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
5	305,374	6,579,503	244.7	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
6	305,364	6,579,845	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
7	305,196	6,580,226	262.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
8	304,974	6,579,960	261.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 6 - Calculated - 100.0 dB - 04.2019
9	304,186	6,579,987	216.8	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Evening	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
											Night	USER	Mode 2 - Calculated - 105.0 dB - 04.2019
10	303,792	6,580,231	199.1	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
11	303,486	6,580,368	191.0	Siemens SWT-DD-130 W...	Yes	Siemens	SWT-DD-130 Wood-4,300	4,300	130.0	85.0	Day	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Evening	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019
											Night	USER	Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Calculation Results

Project:
Tysvaer

Licensed user:
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NO-4632 Kristiansand
+47 3860 7115
Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

Sound level

Noise sensitive area					Demands	Sound level	Demands fulfilled?
No. Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	L50 [dB(A)]	Noise [dB(A)]
B Noise sensitive point: Norwegian - Yellow zone (280)	304,772	6,579,374	174.3	4.0	45.0	42.4	Yes
B Day						36.7	
B Evening						36.7	
B Night						35.7	
C Noise sensitive point: Norwegian - Yellow zone (281)	304,426	6,580,485	161.8	4.0	45.0	39.9	Yes
C Day						34.4	
C Evening						34.4	
C Night						33.1	
D Noise sensitive point: Norwegian - Yellow zone (282)	303,960	6,579,112	97.0	4.0	45.0	42.0	Yes
D Day						35.8	
D Evening						35.8	
D Night						35.6	
D2 Noise sensitive point: Norwegian - Yellow zone (283)	303,877	6,579,257	84.9	4.0	45.0	42.9	Yes
D2 Day						36.7	
D2 Evening						36.7	
D2 Night						36.4	
D3 Noise sensitive point: Norwegian - Yellow zone (284)	303,973	6,579,061	102.8	4.0	45.0	42.2	Yes
D3 Day						36.0	
D3 Evening						36.0	
D3 Night						35.8	
E Noise sensitive point: Norwegian - Yellow zone (285)	303,863	6,579,003	102.3	4.0	45.0	41.9	Yes
E Day						35.7	
E Evening						35.7	
E Night						35.5	
F Noise sensitive point: Norwegian - Yellow zone (286)	304,401	6,579,299	134.2	4.0	45.0	42.8	Yes
F Day						36.5	
F Evening						36.5	
F Night						36.3	
G Noise sensitive point: Norwegian - Yellow zone (287)	304,526	6,579,331	154.1	4.0	45.0	43.3	Yes
G Day						37.6	
G Evening						37.6	
G Night						36.7	
G2 Noise sensitive point: Norwegian - Yellow zone (288)	304,550	6,579,331	153.5	4.0	45.0	43.5	Yes
G2 Day						37.7	
G2 Evening						37.7	
G2 Night						36.9	
H Noise sensitive point: Norwegian - Yellow zone (289)	303,756	6,579,088	85.4	4.0	45.0	41.6	Yes
H Day						35.3	
H Evening						35.3	
H Night						35.1	
J Noise sensitive point: Norwegian - Yellow zone (290)	305,704	6,580,824	39.0	4.0	45.0	38.5	Yes
J Day						32.2	
J Evening						32.2	
J Night						32.1	
K Noise sensitive point: Norwegian - Yellow zone (291)	303,718	6,579,007	80.5	4.0	45.0	40.4	Yes
K Day						34.2	
K Evening						34.2	
K Night						33.9	
AA Noise sensitive point: Norwegian - Yellow zone (292)	305,987	6,580,880	28.0	4.0	45.0	38.3	Yes
AA Day						31.9	
AA Evening						31.9	
AA Night						31.9	
AN Noise sensitive point: Norwegian - Yellow zone (293)	303,231	6,577,449	32.2	4.0	45.0	40.9	Yes
AN Day						36.1	
AN Evening						36.1	
AN Night						33.9	
CC Noise sensitive point: Norwegian - Yellow zone (294)	304,314	6,576,932	37.5	4.0	45.0	38.2	Yes
CC Day						33.8	
CC Evening						33.8	
CC Night						31.0	
CD Noise sensitive point: Norwegian - Yellow zone (295)	304,518	6,577,201	32.2	4.0	45.0	37.3	Yes
CD Day						32.8	
CD Evening						32.8	
CD Night						30.0	
CK Noise sensitive point: Norwegian - Yellow zone (296)	304,468	6,576,910	16.1	4.0	45.0	38.2	Yes

To be continued on next page...

Project:
Tysvaer

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Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Main Result

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

...continued from previous page

Noise sensitive area						Demands	Sound level	Demands fulfilled?
No.	Name	Easting	Northing	Z [m]	Imission height [m]	Noise [dB(A)]	L50 [dB(A)]	Noise [dB(A)]
	CK Day						34.3	
	CK Evening						34.3	
	CK Night						30.7	

Project:
Tysvaer

Licensed user:
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Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

Assumptions

Weather stability	
Relative humidity	70.0 %
Air temperature	6.5 °C
Height for air temperature	2.0 m
Stability parameters	Night;Clear sky
Inverse Monin Obukhov lenght	0.0100
Temperature scale T*	0.0500
Terrain	
Elevation based on object	
Height_DTM	
Roughness based on area object	
Roughness_N50	
Terrain type based on area object	
Terrain Hardness (N50)	
Month for calculation	January
Wind speed criteria	
Uniform wind speed at 10 m agl.	
Wind speed distribution	Mast M342 - 81 m.81.00m - A
Probability of exceedance	
Wind direction	0.0 ° - 330.0 ° - 30.0 °
Height above ground level for receiver	4.0 m
Wind speed has been extrapolated to calculation height using	
IEC profile shear (z0 = 0.05m)	
No stability correction	
Version	5.022

All coordinates are in
UTM (north)-WGS84 Zone: 32

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	365
2	Evening	19	23	4	5	365
3	Night	23	7	8	10	365

Project:
Tysvaer

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Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 6 - Calculated - 100.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	77.3	81.7	84.4	85.6	88.6	90.7	87.6	76.4
6.0	98.0	80.1	84.5	87.1	88.4	91.3	93.5	90.4	79.2
7.0	99.6	81.7	86.0	88.7	89.9	92.9	95.0	92.0	80.7
8.0	100.0	82.3	86.4	89.1	90.5	93.4	95.5	92.1	80.8
9.0	100.0	82.5	86.3	88.9	90.9	93.6	95.5	91.7	80.4
10.0	100.0	83.0	85.8	88.3	91.6	93.9	95.3	91.3	80.0
11.0	100.0	83.2	85.6	88.2	91.8	94.1	95.1	90.9	79.7
12.0	100.0	83.1	85.6	88.1	92.0	94.4	94.9	90.6	79.4
13.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
14.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
15.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
16.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1
17.0	100.0	82.7	85.8	88.0	92.3	94.6	94.8	90.2	79.1

Project:
Tysvaer

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Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 1 - Calculated - Std. 106.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	14.06.2019 10:46

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	73.8	81.7	84.3	86.6	88.9	90.0	88.0	78.7
6.0	98.4	77.0	84.8	87.5	89.7	92.0	93.1	91.2	81.8
7.0	102.2	80.7	88.6	91.2	93.5	95.8	96.9	94.9	85.6
8.0	104.6	84.9	90.9	93.4	95.9	98.3	99.4	97.2	88.0
9.0	106.0	88.0	91.9	94.6	97.3	99.9	100.8	98.3	89.2
10.0	106.0	87.7	91.2	94.7	97.5	100.2	100.8	98.0	88.9
11.0	106.0	89.1	92.4	94.7	97.4	100.2	100.7	97.6	88.4
12.0	106.0	90.3	93.7	94.7	97.3	100.2	100.6	97.3	87.6
13.0	106.0	90.7	94.4	94.7	97.4	100.2	100.7	97.0	86.2
14.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
15.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
16.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1
17.0	106.0	90.7	94.5	94.7	97.4	100.2	100.7	97.0	86.1

WTG: Siemens SWT-DD-130 Wood 4300 130.0 !O!
Noise: Mode 2 - Calculated - 105.0 dB - 04.2019

Source	Source/Date	Creator	Edited
Manufacturer	02.06.2019	USER	02.06.2019 21:33

Standard Acoustic Emission, SWT-DD-130, Rev. 2
Document ID:SGRE ON TE SYSE-DK LACS SA-40--036AA88-00
2019.04.11

Octave data

Wind speed [m/s]	LwA,ref [dB(A)]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1000 [dB(A)]	2000 [dB(A)]	4000 [dB(A)]	8000 [dB(A)]
5.0	95.3	74.0	82.2	83.2	85.9	88.5	90.6	88.2	76.4
6.0	98.5	77.2	85.4	86.3	89.1	91.7	93.8	91.4	79.6
7.0	102.2	80.9	89.2	90.1	92.8	95.5	97.5	95.1	83.4
8.0	104.1	85.0	91.0	92.0	94.7	97.5	99.3	97.0	85.9
9.0	105.0	88.0	91.8	92.9	95.6	98.4	100.1	97.9	87.6
10.0	105.0	87.8	91.6	93.0	95.5	98.2	100.1	98.0	88.6
11.0	105.0	88.1	92.3	93.5	95.7	98.2	100.0	97.8	88.5
12.0	105.0	88.4	93.0	93.9	95.8	98.3	99.9	97.5	88.2
13.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
14.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
15.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
16.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1
17.0	105.0	88.3	93.3	94.0	95.9	98.4	99.8	97.2	88.1

NSA: Noise sensitive point: Norwegian - Yellow zone (280)-B
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (281)-C
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (282)-D
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

Licensed user:
Meventus AS
Konsgård Allé 59
NO-4632 Kristiansand
+47 3860 7115
Data / data@meventus.com
Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (283)-D2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (284)-D3
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (285)-E
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (286)-F
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (287)-G
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (288)-G2
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (289)-H
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (290)-J
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (291)-K
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (292)-AA
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

NSA: Noise sensitive point: Norwegian - Yellow zone (293)-AN
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Project:
Tysvaer

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Calculated:
06.08.2019 10:23/3.2.743

NORD2000 - Assumptions for NORD2000 calculation

Calculation: 201908_Tysvaer_11xS130_4.3MW_85mHH_rc_withCurt

NSA: Noise sensitive point: Norwegian - Yellow zone (294)-CC
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

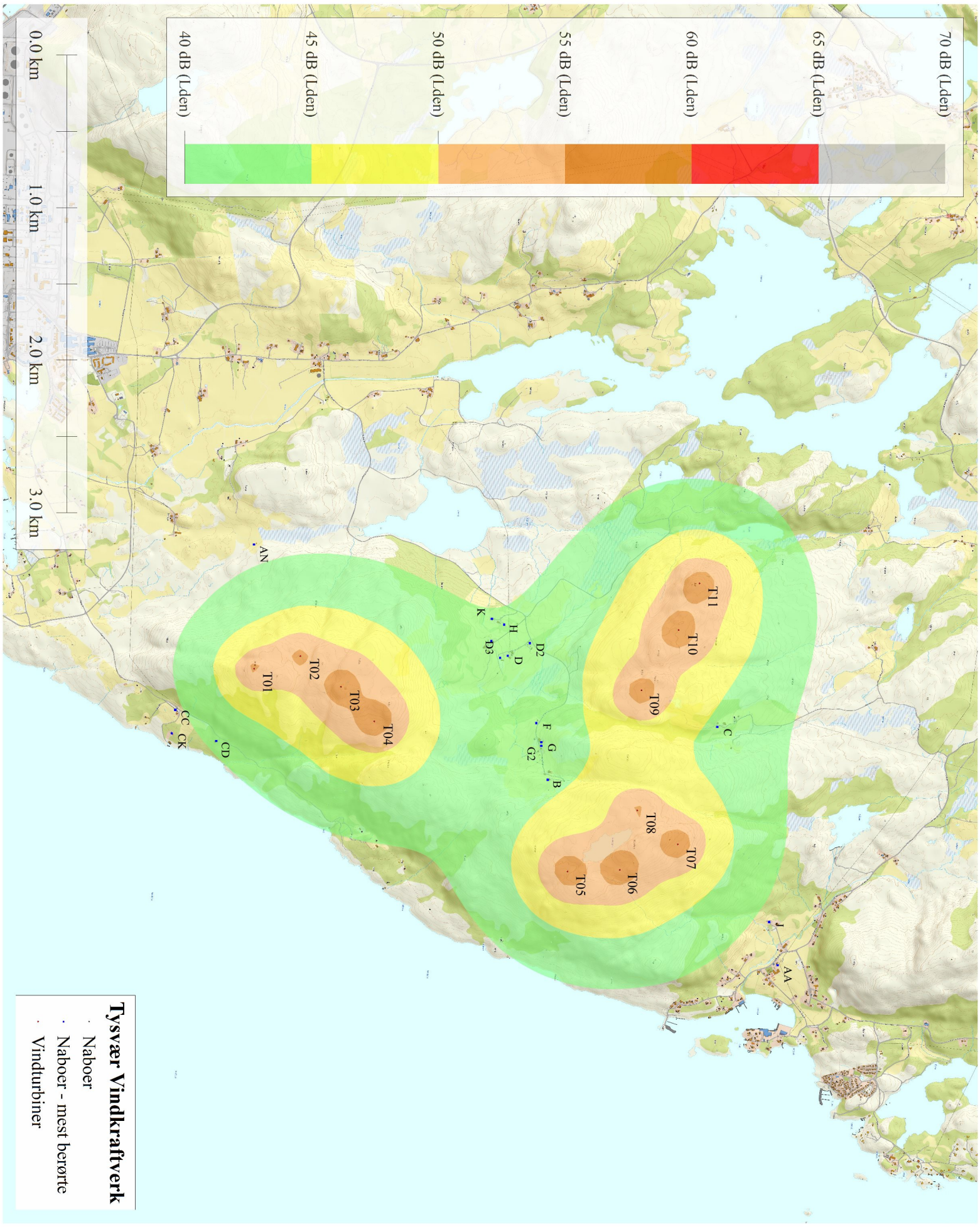
NSA: Noise sensitive point: Norwegian - Yellow zone (295)-CD
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

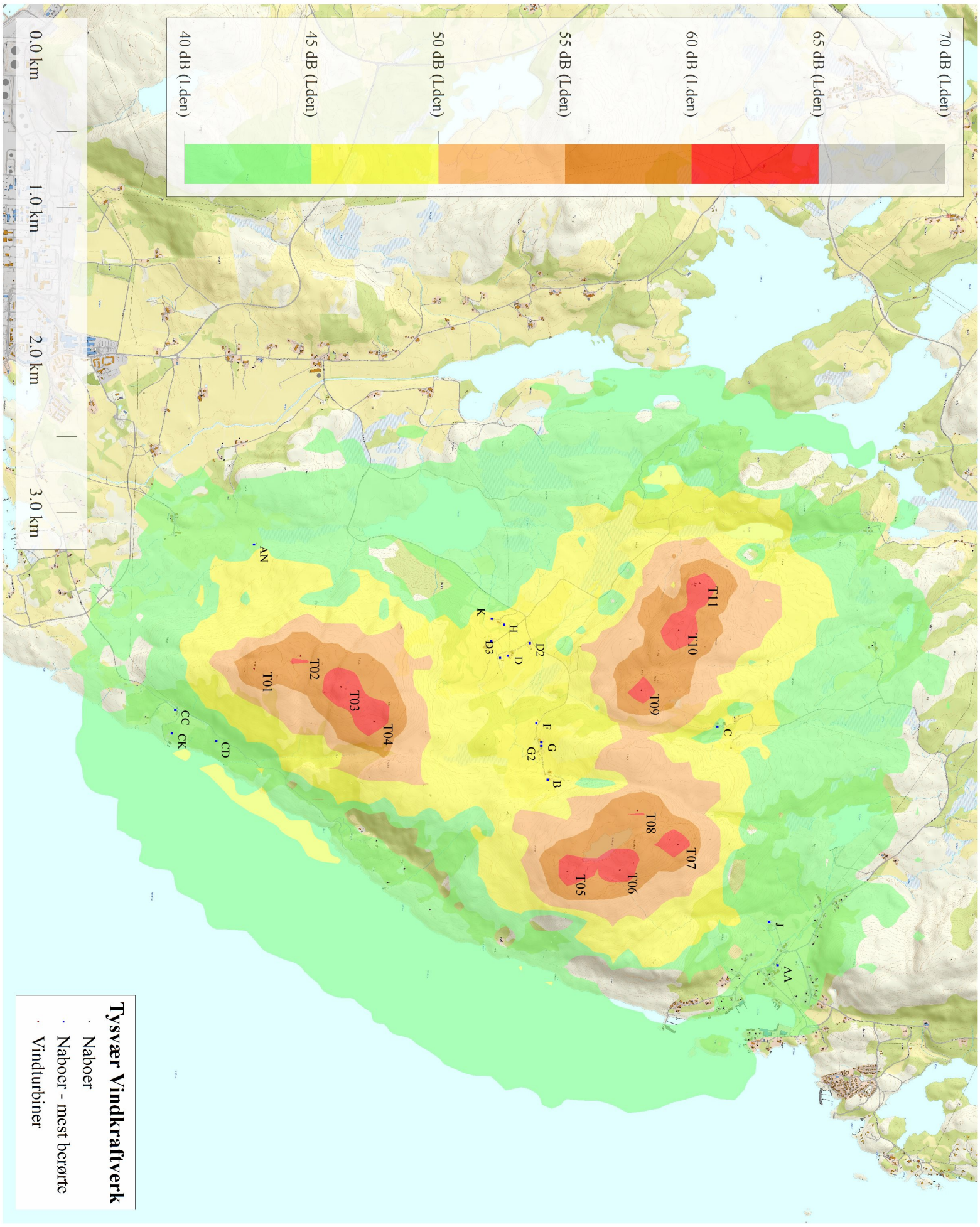
NSA: Noise sensitive point: Norwegian - Yellow zone (296)-CK
Predefined calculation standard: Yellow zone
Imission height(a.g.l.): Use standard value from calculation model

Distance demand: 0.0 m

Vedlegg 1.7: Støysonekart (T-1442/2005) - med støyreduksjon



Vedlegg 1.8: Støysonekart (T-1442/2016) - Worst Case med støyreduksjon



Vedlegg 1.9: Oversikt over terrengets akustiske hardhet