



MADRID  
**inter.noise 2019**  
June 16 - 19

NOISE CONTROL FOR A BETTER ENVIRONMENT

## **Human response to wind farm noise compared to road traffic noise based on focused listening tests**

Alamir, Mahmoud <sup>1, \*</sup>; Catcheside, Peter <sup>2</sup>; Hansen, Kristy <sup>1</sup>; Zajamsek, Branko <sup>2</sup>; Micic, Gorica <sup>2</sup>

(1) College of Science and Engineering, Flinders University, Clovelly Park, Adelaide, SA 5042, Australia

(2) Adelaide Institute for Sleep Health, College of Medicine and Public Health, Flinders University, Bedford Park, Adelaide, SA 5001, Australia

### **ABSTRACT**

Although various wind farm noise (WFN) complaints have been raised, the evidence regarding the effect of WFN on health is still not well established, compared to road traffic noise (RTN). In addition, WFN dose-response relationships for sleep have not been derived before, either on a subjective or objective basis. This paper presents dose-response relationships for WFN and RTN as well as their effect on annoyance and sleep disturbance using stimuli measured at different distances from the respective noise source. The stimuli were reproduced using loudspeakers and the tests involved twenty-two participants who rated their subjective response via questionnaires. The results show that WFN can be more annoying and more likely to disturb sleep than RTN at the same A-weighted sound pressure level, especially when it contains amplitude modulation. Despite this, WFN is interestingly perceived to be quieter than RTN at the same A-weighted level. These results can help develop current allowable limits for WFN, which still vary considerably between jurisdictions.

**Keywords:** Wind farm noise, Road traffic noise, Sleep disturbance, Annoyance.

**I-INCE Classification of Subject Number:** 61