

THE USE OF PROXY MEASUREMENTS TO DETERMINE WIND FARM NOISE COMPLIANCE, WHAT ARE THE OPTIONS, IS THERE A NEED FOR FURTHER GUIDANCE?

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1 INTRODUCTION

1.1 Background

As more wind farms are built in the UK the requirement for noise compliance monitoring is increasing. Compliance monitoring is usually undertaken for one of three reasons:

- 1) the wind farm operator undertakes the assessment voluntarily as part post commissioning works;
- 2) monitoring is required to satisfy a planning condition; or,
- 3) monitoring is required following receipt of a complaint relating to noise.

The method adopted for compliance monitoring can vary slightly depending on the site and the purpose of the monitoring, useful general guidance is provided in the Institute of Acoustics document '*A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise*' (GPG) and particularly in the associated Supplementary Guidance Note 5 '*Post Completion Measurements*'² (SGN5).

Typically, compliance monitoring is undertaken at noise sensitive receptors, either at those located closest to the site for voluntary or conditioned monitoring or at the complainant's properties in the event of a complaint. For modern wind farms set back distances between the monitoring locations and the turbines are typically 400-1000m and the signal to noise ratio at these distances can be low making it difficult to accurately identify the specific noise contribution from the wind turbines.

Increasingly wind farms are being planned and built in clusters, meaning that compliance monitoring sometimes needs to consider cumulative noise impacts too. The GPG provides a number of solutions which can be adopted to ensure appropriate noise limits are set for individual developments (as discussed in Section 5 of that document). Many of the solutions suggested in the GPG result in developments being set very low noise limits which are sometimes below the background noise level.

Setting of limits which are below the background noise level is not a new practice in acoustics or indeed for wind farm noise. ETSU-R-97, which was published in 1996, detailed that a fixed 35dB L_{A90} limit might be appropriate from wind speeds up to 10m/s for "*single turbines or wind farms with very large separation distances between the turbines and the nearest properties*". Adoption of this simplified limit often means that the limit is below the background noise level, particularly at higher wind speeds.

The challenges associated with undertaking compliance measurements against the simplified 35dB limit were recognised by Garnet and Sutherland when they presented a paper³ at Acoustics 2015 on that very topic, additionally it is also referenced in SNG5, which notes in paragraph 2.4.8: