

## Wind Farm Noise: Measurement, Assessment and Control: Errata and clarifications, February 11, 2018

Page 17. The constant on the RHS of Equation (1.1) should be 74.9.

Page 17. The constant on the RHS of Equation (1.2) should be 59.6.

Page 114. Three lines above Equation (2.127), replace  $\hat{R}_{xx}(t_k)$  with  $\hat{R}_{xx}(k)$

Page 115. Top line, replace  $\hat{R}_{xy}(t_k)$  with  $\hat{R}_{xy}(k)$

Page 191. In Equation (5.17), replace  $(h_0/z_0)$  with  $(h_0/z_0 + 1)$  (2 places) Page 196. The term,  $\left(\frac{h}{z_0}\right)$  in Equation (5.26) should be replaced with  $\left(\frac{h}{z_0} + 1\right)$

Page 218. Equation 5.76, change "1.08" to "1.00" and following the equation, add:

If  $\gamma < 0$ , then set  $\gamma = 0$ .

Page 273. Third full paragraph, change "Cotton Farm" to "Cotton"

Page 275. 3 lines above Equation (5.216), sentence beginning "When multiple turbines...". Delete this sentence and the remainder of this section 5.12. Replace the deleted part with the following.

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When multiple turbines are involved, the overall turbine sound power standard uncertainty can be calculated using Equation (5.212).

The overall expanded uncertainty, corresponding to 95% confidence limits of the prediction, at any specified receiver location, is greater than the standard uncertainty by a factor of 2 (assuming that the uncertainty is normally distributed). If the uncertainty is described by a rectangular distribution, the factor of 2 is replaced with 1.65. Thus, for most A-weighted environmental noise predictions, it would be wise to suggest that the variation between prediction and measurement for any particular location in a downward refracting atmosphere is of the order of  $\pm 4$  dBA, depending on the number of turbines involved.

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Page 280. Second to top line, change "Figure 5.26" to "Figure 5.29"

Page 371. First paragraph under the heading "Correlation of Hub-height Wind Speed and Noise Levels", there should be the following reference after the last word, "case" (Cooper 2013).

Page 371. Fourth paragraph under the heading "Correlation of Hub-height Wind Speed and Noise Levels", the reference, "Cooper and Evans 2013" should be replaced by "Cooper 2013".

Page 393.  $U_{e,i}$  in Equation (6.43) should be  $u_{e,i}$

Page 521. In equations (C.23), (C.24), (C.26) and (C.28), replace  $\rho/\rho_m^2$  with  $1/\rho_m^2$ .

Page 522. In Equation (C.27), replace  $2k$  with  $k$  and change  $(1-j)$  to  $(1+j)$ .

Page 522. In Equation (C.29),  $-j$  to  $+j$ .

Page 522. Two lines after Equation (C.30), insert the following:

The calculation of  $g(w)$  is a complicated process and the equations to follow can only be used in isolation if the real part of  $w$  is less than 0 and the imaginary part is greater than 0 (that is,  $w$  is in the second quadrant of the complex plane). So any calculation begins with adjusting the value of  $w$  to  $w_a$  so that the real part is less than 0 and the imaginary part is greater than 0. As  $w_a$  is complex, we can write,  $w_a = w_r + jw_i = \text{Re}\{w_a\} + j \text{Im}\{w_a\}$ . The calculation of  $g(w_a)$  is then undertaken using Equations (C.31) to (C.39). If the original value of  $w$  did not need to be adjusted to put  $w$  in the second quadrant of the complex plane, then  $g(w) = g(w_a)$ . If the original value of  $w$  before adjustment, was such that  $w$  was not in the second quadrant of the complex plane, then  $g(w_a)$  must be adjusted to obtain  $g(w)$ , according to the following rules, with rule 1 applied first and rule 3 applied to the result after the application of rules 1 and 2.

1. If the imaginary part of  $w$  is less than 0, then  $g(w_a)$  is replaced with  $g(w) = 2 \exp(-w_a^2) - g(w_a)$ , where  $g(w_a)$  is calculated using Equations (C.31) to (C.39);
2. If the imaginary part of  $w$  is greater than or equal to 0, then  $g(w) = g(w_a)$ ;
3. If the product of the imaginary and real parts of  $w$  is greater than 0, then the sign of the imaginary part of  $g(w)$  is changed (i.e., the complex conjugate of  $g(w)$  obtained using the preceding two rules is then the final  $g(w)$ ).

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Page 522. In Equation (C.31), remove the minus sign preceding  $K_1$  and replace “ $g(w) =$ ” with “ $g(w_a) = g(w_r, jw_i) =$ ”.

Page 523. In Equations (C.38) and (C.39), replace  $w$  with  $w_a$ .

Page 523. In Equation (C.43), replace  $2k$  with  $k$  and change  $(1-j)$  to  $(1+j)$ .

Page 530. In equations (D.23) and (D.24), change  $h_{\max}$  to  $h'_{\max}$ .

Page 531. In the first line, change  $h_{\max}$  to  $h'_{\max}$ .

Page 531. Just before the first full stop on the page, add “( $h'_{\max}$  is the maximum height of the ray path above the lower of the source and receiver, whereas  $h_{\max}$  shown on Figure D.1 is the height of the ray path above the higher of the source and receiver).”