

Appendix 5

Shortcomings of the LAeq, 16h parameter to assess noise impact.

1 This appendix briefly sets out the issues raised at the T5 Inquiry demonstrating the shortcomings of relying solely on the $L_{Aeq,16h}$ parameter to assess the noise impact. Seven points were identified. These were:

1. The validity of the dose-response relationship;
2. The interpretation of the dose-response relationship;
3. The concealing of what occurs at particular locations;
4. The impact that occurs beyond the 57 dB(A) contour;
5. The concealing of significant changes within the 16 hour period;
6. The exclusion of changes that occur outside the 16 hour period;
7. The failure to address effects other than annoyance.

Taking each in turn:

The validity of the dose-response relationship

2 The last survey to be carried out and the one that established $L_{Aeq,16h}$ as the main parameter for aircraft noise assessment occurred 20 years ago. Even then, the correlation was not that strong, and since then there have been many changes in the nature of the noise impact, including less noisy aircraft, but more of them. Recognising this shortcoming a Government survey is now underway examining Attitudes to Noise from Aviation Sources, examining, *inter alia*, this issue.

The interpretation of the dose-response relationship

3 As indicated above, there is not a very strong correlation between annoyance and the $L_{Aeq,16h}$ parameter. Consequently, it is not possible to put a particularly precise interpretation on what exposure to a particular level of noise means in terms of the numbers of people affected.

The concealing of what occurs at particular locations

4 The averaging process employed means that the values generated can conceal significantly greater impacts on individual days. This is particularly true in the Ealing area where the average mode value can be around 6 dB(A) lower than that which occurs on easterly operations.

The concealing of significant changes within the 16 hour period

5 The averaging over the 16 hour period means that significant impacts within that period can be masked. For example, a 5 dB(A) increase in the noise occurring in one hour could manifest itself as no more than a 0.5 dB(A) increase in the $L_{Aeq,16h}$ value.

The exclusion of changes that occur outside the 16 hour period

6 By definition, any change occurring outside the 16 hour period would not be reflected by a change in the $L_{Aeq,16h}$.

The failure to address effects other than annoyance

- 7 The average mode contours relate to annoyance. It is still unclear whether annoyance does act as a surrogate for the other effects of aircraft noise such as speech interference and sleep disturbance. If it does not, then relying only on $L_{Aeq,16h}$ is insufficient.
- 8 It can be seen, therefore, that misleading conclusions might be reached if the assessment of the noise impact of a new runway was carried out only in terms of the $L_{Aeq,16h}$ parameter. Much more detail is required to enable a full understanding of the potential impact to be achieved and to enable a proper evaluation to occur.
- 9 (More details on the issues raised above can be found in the T5 document: LAH/5010 Volume 2).