

THE EQUIVALENT SOUND LEVEL (L_{EQ}) AND THE NOISE FROM PASSING TRAINS

In recent years due to the growing awareness of the general public to the environment they live in, many aspects of environmental pollution have been tackled by planners and legislators. Noise pollution in particular has come under scrutiny for certain noise sources, specifically on the assessment of public response to aircraft noise and road transport noise, resulting in maximum levels within specific noise indices being defined.

The need for a single index that could be used to assess the noise from a variety of sources had been expressed in the past and the Research Sub Committee of the Noise Advisory Council appointed a working party in 1973 to investigate this. The working party concluded that no unified scale of environmental noise had been proposed which met all its requirements, but recommended that the Equivalent Continuous Sound Level L_{eq} be adopted as a unified scale for the present. It is prudent, therefore, to be able to predict L_{eq} for train noise. The means of doing this are dealt with in this report both for rail/wheel noise and locomotive noise. Further, comparisons are made between the derived L_{eq} for various passenger stock currently operating on the British Railways network and some assessment is made of the possible introduction of L_{eq} as a legislative noise index on railway operations.

In conclusion, a method for calculating L_{eq} for the noise from passing trains is presented. It is also shown that the application of speed restrictions, removal of coaches from train sets and reduction in traffic densities only give significant changes in L_{eq} for large changes in the above parameters. These changes would not be acceptable from an operating point of view. In addition a sample table is provided to show the consequence of given L_{eq} levels on number of trains per hour.