

ANALYSIS OF CURVE SQUEAL NOISE FROM A CLASS 150 SPRINTER UNIT ON THE LLANDUDNO TO BLAENAU FFESTINIOG LINE

This report examines the problem of wheel squeal on curves.

When the class 150 Sprinter units were introduced on the Llandudno to Blaenau Ffestiniog line in North Wales, a number of complaints arose from the intense squealing noise generated during curving. The problem was particularly serious at one site at Llandudno Junction where houses are in close proximity to the line. Crewe Regional Laboratory carried out some noise measurements at this site, as well as in the vehicles, which confirmed the severity of the problem. It was suspected that the rail check contact was an important feature in the excitation, as application of grease to the check rail between the passage of trains alleviated the problem at this particular site.

In order to increase understanding of the mechanisms involved, and to assist in finding a solution, it was decided that the Acoustics Unit should carry out measurements of the noise close to each wheel of a bogie. This allows a detailed analysis of the frequency content of the noise, and hence identification of the modes which are excited. It also allows identification of the relative contributions of the various wheels.

The conclusion notes that the problem of curve squeal from class 150 Sprinters on this line is markedly different from conventional curve squeal problems, and suggests further work is necessary to establish the reason for this.