

PERMANENT DEFORMATION OF ASPHALT CONCRETE MIXTURES USING WHEEL TRACKING AND RLA TEST METHODS

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ABSTRACT

Rutting is one of the well recognized road surface distresses that can affect the pavement service life and traffic safety. Several laboratory tests were developed in order to detect the resistance to permanent deformation of asphalt mixtures. Among them, the wheel tracking test and the repeated load axial (RLA) test are two of the most commonly used. The purpose of this study is to compare the results of wheel tracking test and the RLA test for an asphalt concrete mixture (AC) in extreme void limiting conditions (3%-5% void content). The mixture used was a dense 19mm asphalt concrete (AC-19) mixture with 50/70 penetration grade bitumen. For the wheel tracking test the small size device was used and two different procedures were followed, according to BS 598-110 and EN 12697-22. For the RLA test also two procedures were used. One as described in BS DD 226 and the other as described in EN 12697-25. Apart from evaluating the effect of volumetric parameters of the mixtures to the permanent deformation, interesting conclusions are drawn regarding the similarity of results obtained by all testing procedures used.

KEY WORDS: Wheel tracking test, Cycling Compression test, RLA